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A community health needs assessment using principles of community-based participatory research in a Mississippi Delta community: a novel methodological approach

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A community health needs assessment using principles of community-based participatory research in a Mississippi Delta community: a novel methodological approach

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This article describes the methodological approach used to conduct a community health needs assessment (CHNA) using community-based participatory research (CBPR) principles in a Mississippi Delta community. Eighty-five residents participated in the study that was conducted in Charleston, Mississippi. The mixed-methods research design included five components: key informant interviews, focus groups, assessments of the built and the nutrition environment, and assessment of selected health policies. Findings from the CHNA revealed priority health concerns, social and environmental issues, strengths, weaknesses, and assets of the community, as well as existing organizations that could be involved in efforts to improve health. Findings from the CHNA identify the priority health issues, needs, and service gaps. These findings will be used to inform future planning, development, implementation, and evaluation of programs to improve the health of the Charleston community. This study provides numerous methodological contributions to the existing literature regarding CBPR and CHNAs that may help development researchers and practitioners.

Keywords: community-based participatory research; community health needs assessment; Mississippi Delta; rural communities

Introduction

A vast array of the literature is devoted to critiquing traditional approaches to research, justifying community-based participatory research (CBPR) as an alternative, and providing a definition of participation by community members. However, less attention is directed toward the combination of research designs and data collection strategies most conducive to CBPR. Addressing this gap is particularly important as increased attention is directed toward community health needs assessments (CHNAs) as a way of identifying and prioritizing problems, resources, and interventions at a local level.

The CBPR approach is not, within itself, a research method; rather, it is an orientation to research that counters the traditional paradigm in which scientific researchers often implemented research with little or no input from community members (Minkler, 2010; Minkler & Wallerstein, 2008). The CBPR approach establishes community members and key stakeholders as valued and respected partners in all phases of the research process. Furthermore, the research topic of interest is based on community concerns and the goal is to empower the community to develop effective and sustainable programs
that improve health and quality of life (Israel, Schulz, Parker, & Becker, 2001; Main et al., 2012; Minkler, Blackwell, Thompson, & Tamir, 2003). CBPR involves partnerships and collaboration with community members throughout the research process and utilizes both academic and community expertise (Ahmed & Palermo, 2010). To engage communities in CBPR effectively, an initial community-based needs assessment is recommended to involve members of the population and existing community agencies and organizations (Billings & Cowley, 1995) as well as to develop community capacity, which is considered an essential element to sustainability and lasting community change (Downey et al., 2010). CBPR-based needs assessments can also assist in the growth of community cohesion and the development and implementation of effective programs (Craig, 2011; Wright, Williams, & Wilkinson, 1998). Furthermore, the Centers for Disease Control and Prevention (CDC) and many divisions of the National Institutes of Health (NIH) have increasingly called for CBPR proposals, such that CBPR programs funded by NIH and CDC have tripled in recent years (Walker, Bezyak, Gilbert, & Trice, 2011).

This article describes the principles of CBPR used to conduct a CHNA in a Mississippi Delta community. The study offers three specific methodological contributions: (1) the comprehensive approach of the overall needs assessment methodology and utilization of the various assessments, (2) the participant recruitment techniques, and (3) the utilization of multiple measures to assess different aspects of the community and environment.

**Community context**

Known as the “Gateway to the Delta,” Charleston, Mississippi (MS), is home to approximately 2000 residents (U.S. Census Bureau, 2012). The city’s residents are primarily black (60%) with the remainder identifying as white (39%) or another race (1%). Charleston is located in Tallahatchie County which is 80% rural and has a population of 15,378. The Delta region is an impoverished area facing many multifaceted and interconnected challenges related to psychosocial, physical, and economic development, including issues pertaining to health, education, and economic conditions (Mirvis, Steinberg, & Brown, 2010). One of the most pressing challenges facing the Delta region is the rapidly declining health status and increasing prevalence of chronic disease. In MS in general and the Delta region in particular, diseases such as obesity, type II diabetes, cancer, and cardiovascular disease are pervasive. Specifically, Tallahatchie County was ranked 81st of 82 counties in MS in terms of overall health status (Robert Wood Johnson Foundation County Health Rankings, 2012). Across the county, approximately 33% of residents report poor or fair health, 14% have diabetes, 23% smoke, 37% are obese, 34% are physically inactive, and 11% drink alcohol excessively (Robert Wood Johnson Foundation County Health Rankings, 2012). To address these priority issues, a comprehensive, collaborative community-based approach is necessary.

Historically, instances of collaboration between researchers and community members have been formalized to address and improve the health and social issues facing communities in need. With limited data and minimal knowledge of the community, developing services and programs to provide quality education and access to resources conducive to health are challenging. Furthermore, rural communities often present unique challenges for the sustainability of public health programs and outcomes due, in part, to resource limitations common in small communities (Downey et al., 2010). Thus, the use of CBPR provides a means to develop community capacity and engagement,
thereby enhancing the potential for sustainability and effectiveness of health programs and outcomes. It is important for researchers to place an emphasis on establishing relationships within the community prior to potential research proposals in order to engage the community and to identify and better understand the community’s needs (Ahmed & Palermo, 2010; Main et al., 2012).

Specifically, formative assessment is research conducted prior to program development to better understand the context and environment in which potential programs will be developed and implemented (Green & Kreuter, 2005). It is vital to improving the relevance, sustainability, and effectiveness of community-based health programs. The formative assessment identifies specific high-risk health behaviors and determinants of those behaviors, community attitudes and beliefs that could hinder or enhance program goals and objectives, environmental influences (real and perceived), and existing and available resources, programs, and services. In order for effective programs and services to be created, implemented, and evaluated, meaningful community involvement is necessary as the specific needs within a community must be clearly defined and understood (Corona, Gonzalez, Cohen, Edwards, & Edmonds, 2009). Using a CBPR approach, the purpose of this formative study was to conduct a CHNA in Charleston, MS, to determine the needs of the community, identify priority health issues and available resources, assess current health-related community policies, and build community–university partnership. A secondary purpose was to provide methodological contributions to the existing literature regarding the use of CBPR and CHNAs. Due to the exploratory nature of this study, specific hypotheses were not developed. However, findings from this formative assessment will be used to inform program planning, research efforts, and resource allocation in the community to improve the health and quality of life for residents.

Community partnerships and the use of CBPR principles

The Healthy People 2020 report identifies community partnership as one of the most effective strategies in eliminating health disparities and considers it a necessary and vital element for improving health and quality of life (USDHHS, 2014). A critical component in creating strong community partnerships is the use of CBPR as it allows community members, community leaders, and university researchers an opportunity to collaborate and participate actively in the research process. Using CBPR to create community partnerships has several advantages including joining partners with diverse skills, improving the quality and validity of research efforts, and providing resources to communities (Israel et al., 2001). Further, the use of CBPR leads to improvements in assessment and evaluation and an increased commitment to scientific rigor in the area of health behavior and promotion (Walker et al., 2011; Williams, Bray, Shapiro-Mendoza, Reisz, & Peranteau, 2009). As a result of its effectiveness and innovative approach to investigating the challenges of vulnerable populations, CBPR has become increasingly utilized both domestically and globally (Craig, 2011) as a collaborative approach to research that equitably involves community members, organizational representatives, and researchers in all aspects of the research process where each partner contributes unique strengths and shared responsibilities to enhance understanding of the social and cultural dynamics of a community, and integrate knowledge gained with action to improve health (Minkler et al., 2003).

Planning health programs ultimately requires active participation and insight from partners outside the traditional health sector (Green & Kreuter, 2005). Because the behaviors that affect health and development occur among a variety of people in an
array of contexts, community health improvement requires engagement and participation of diverse groups and individuals from different parts of the community. Through involving and building on the strengths of multiple stakeholders in the research process, CBPR offers the opportunity for partnership synergy, which is the idea that through collaboration, multiple partners can address difficult and complex health issues more effectively than one could alone. Furthermore, through community participation, the relevance of research outcomes is enhanced (Israel, Schulz, Parker, & Becker, 1998; Minkler, 2010; Minkler & Wallerstein, 2008). Community participants can share their knowledge, expertise, and experience in helping to identify key problems, formulate research questions in culturally sensitive ways, and use study findings to help support relevant program and policy development or social change (Minkler et al., 2003). In the case where community members are not scientific researchers, experienced researchers can be involved in the partnership by contributing their skills and expertise, thereby further highlighting the importance of community–university partnerships (Carney, Maltby, Mackin, & Maksym, 2011).

**Community health needs assessments**

A first step for improving health and quality of life in a community is to gain an understanding of the community’s health needs. Conducting a CHNA is an effective method of community empowerment and decision-making in the development of a plan to improve the health, wellbeing, and quality of life within a community (Corona et al., 2009). Specifically, a CHNA is a systematic method for determining the health issues facing a population within a specific historical and geographical context and leads to agreed priorities and resource allocation that will improve health and reduce health disparities (Berberet, 2006). It involves epidemiological, qualitative, and comparative methods to describe health problems of a population, identifies inequalities in health and access to services, and determines priorities for the most effective use of resources (Wright et al., 1998).

**Methods**

**Study design and sample**

A nearby public university, along with community residents (including city officials, church leaders, school personnel, business owners, and other stakeholders), partnered using a CBPR approach to address the health issues facing the community. This partnership began when university researchers were invited to Charleston in 2012 to assist a local organization to enhance the health, economic growth, and redevelopment of the community. Community leaders and university researchers concurred that a formative assessment was the initial step to develop the anticipated long-term relationship. This study utilized a mixed-methods design consisting of both qualitative and quantitative research methods. Regarding the qualitative approach to inquiry used herein, the project was informed by ethnography and fieldwork and is consistent with case study research with the case being the community (Creswell, Klassen, Clark, & Smith, 2010).

The Precede–Procede Model, a model for community health interventions developed by Green and Kreuter (2005), was used to guide study development and implementation. Briefly, the model provides a continuous series of phases for program planning, implementation, and evaluation taking into account the variety of factors that influence health. Importantly, a central assumption of the Precede–Procede Model is the active
participation of the intended audience (typically community members) in problem identification, goal formation, and solution development. A five-part study design was used that included the following elements: (1) key informant interviews, (2) focus groups, (3) assessment of the built environment, (4) assessment of the nutrition environment, and (5) assessment of policy. The University’s Institutional Review Board approved this study.

**Instrumentation: the five research components**

**Key informant interviews and focus groups**

Key informant interviews and focus groups are qualitative methods often utilized in prevention and health research (Patton, 2002) as they allow for the collection of important contextual and historically relevant information for program planning and interventions in communities (Craig, 2011). The qualitative nature of these two data collection methods is useful for exploratory studies designed to better understand culturally based, community specific beliefs, identify perceived needs and health priorities, and generate hypotheses for future research (Denzin & Lincoln, 2008). The purpose of the key informant interviews and focus groups were to: (1) assess the perception of needs, priority health issues, and services available within the community; (2) build relationships with community members and stakeholders who can provide support and access to the community; and (3) develop the collaborative structure necessary for the development of programs and resources to improve community health.

Researchers reviewed and used items from existing guides, questionnaires, and needs assessments to develop the interview guide (Craig, 2011; Doyle, Rager, Bates, & Cooper, 2006; Johnson, Bartgis, Worley, Hellman, & Burkhart, 2009). The semi-structured interview guide included a series of open-ended questions. Community leaders offered suggestions for the development of questions included in the interview and focus group guides, an approach recommended when using a CBPR approach and principles (Johnson et al., 2009). The key informant interviews were conducted first, followed by the focus groups. The rationale behind this ordering was to deepen relationships with community residents, to build upon the perspectives of key informants, and to use key informant data to inform the focus group interview guides. To reinforce the credibility of the data collection process, the moderator explained the intent of the focus groups and interviews, informed participants that a summary of the findings would be shared with the local community and the larger public health and scientific communities, assured participants their identity would not be revealed, and gained permission from participants to be audio-recorded (Teufel-Stone & Williams, 2010).

Key informants and focus group participants were selected using purposive sampling, an informant selection tool. The purposive sampling technique is the deliberate choice of an informant due to the qualities the informant possesses (Dolores & Tongco, 2007). It is a nonrandom technique that does not utilize underlying theories or a set number of informants. Purposive sampling is beneficial because it enables researchers to select people who are willing and able to provide the needed information by virtue of knowledge or experience and those selected individuals thus act as guides to a community.

**Key informant interviews**

Overall, 11 people were invited to participate in key informant interviews, which is in the range of 8–12 suggested by Sherry and Marlow (1999) to reach a sufficient number
of individuals with particular knowledge or expertise regarding the community. Key informants were recruited using a purposive sampling technique in which leaders in the community named individuals who they believed would provide valuable information, insight, and knowledge regarding the community. Key informants were from different backgrounds (e.g., educational attainment, religious affiliation, and income) and various business sectors (e.g., city and county employees, self-employed, private business sectors, and medical professionals) (Seifer, 2006) to include key informants who represent various community interests, businesses, and groups. Key informants included: local government leaders, health care administrator, physician, business owners, director of a nonprofit organization, school district leader, dietician, social worker, farm owner/farmer, and a librarian. Interviews were conducted in June 2012, lasted 60–90 min, and the informants were not compensated for their participation.

Focus groups
A purposive sampling procedure was also used to recruit focus group participants. Researchers also conferred with community members to identify the most appropriate day and time to conduct the focus groups (Teufel-Stone & Williams, 2010). First, 26 participants were recruited at two community meetings: a Rotary Club meeting (n = 6) and an open community meeting (n = 20). Second, 22 participants were recruited within two community worksites (10 from the local hospital and 12 from a local business) via email announcements from administrators. These sites were selected because they are two of the largest employers in the community and both were interested in developing worksite wellness programs. At the hospital, an administrator recruited supervisors and department heads to talk about their employees’ needs. Third, 15 other individuals were purposefully recruited. One researcher met with community leaders to garner recommendations for individuals to contact about study participation. The leaders recommended 40 residents of whom 25 were contacted and 15 later agreed to participate. Eight individuals who were recommended had already agreed to participate. The remaining seven residents who were suggested were not contacted either because contact information was not available or they did not return the project director’s phone call. Additionally, a local farm owner helped recruit black men who worked on local farms and their male family members to participate. Six black males were invited and four agreed to participate.

Focus group eligibility included: being at least 18 years old, currently residing in the community for a minimum of six months, able to speak and understand English, and able to provide consent for participation. To increase the likelihood of attendance, email reminders were sent to those individuals who provided an email address (n = 60) one day before the focus group asking individuals to reply to confirm their attendance. For individuals without an email address and for individuals who did not respond to the email, reminder telephone calls were placed the day before and/or the morning of the focus group. This step proved important because many people who signed up had forgotten about the focus group and appreciated the reminder. Participants received a $20 gift card and light refreshments.

Eight focus groups were conducted with 67 community residents (range of 4–12 participants per group) in three locations (six in a centrally located building on the Charleston Square, one at the local hospital, and one at a local business) between June and August 2012. The focus groups lasted between 75 and 120 min. Following the first four focus groups, a participant demographic assessment was conducted. The project
director analyzed the demographic data and found there was underrepresentation from black and white males, females under 40 years old, and black men over 40 years old. Based on these identified gaps, additional people who fit these characteristics were recruited for the remaining four focus groups. (see Table 1 for demographic characteristics of focus group participants and Charleston residents and Table 2 for sociodemographic characteristics of participants).

Table 1. Focus group and Charleston, MS demographic characteristics (race and sex).

<table>
<thead>
<tr>
<th>Race</th>
<th>Needs assessment</th>
<th>Without worksites</th>
<th>Charleston, MS a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Black</td>
<td>29</td>
<td>43.3</td>
<td>26</td>
</tr>
<tr>
<td>White</td>
<td>37</td>
<td>55.2</td>
<td>18</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>44.8</td>
<td>21</td>
</tr>
<tr>
<td>Female</td>
<td>37</td>
<td>55.2</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100.0</td>
<td>45</td>
</tr>
</tbody>
</table>

a2012 estimates from the US Census Bureau.

Table 2. Focus group sociodemographic characteristics (age, employment status, income, and education).

<table>
<thead>
<tr>
<th>Age</th>
<th>20–29</th>
<th>30–39</th>
<th>40–49</th>
<th>50–59</th>
<th>60–69</th>
<th>70–79</th>
<th>80+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>3</td>
<td>8</td>
<td>7</td>
<td>4</td>
<td>7</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>9</td>
<td>7</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>13</td>
<td>17</td>
<td>13</td>
<td>14</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time</td>
<td>48</td>
<td>71.6</td>
</tr>
<tr>
<td>Part time</td>
<td>8</td>
<td>11.9</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>16.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$20,000</td>
<td>8</td>
<td>11.9</td>
</tr>
<tr>
<td>$20,001–$40,000</td>
<td>24</td>
<td>35.8</td>
</tr>
<tr>
<td>$40,001–$60,000</td>
<td>10</td>
<td>14.9</td>
</tr>
<tr>
<td>&gt;$60,000</td>
<td>22</td>
<td>32.8</td>
</tr>
<tr>
<td>No response</td>
<td>3</td>
<td>4.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial high school</td>
<td>4</td>
<td>6.0</td>
</tr>
<tr>
<td>High school graduate</td>
<td>12</td>
<td>17.9</td>
</tr>
<tr>
<td>1–3 years of college or</td>
<td>18</td>
<td>26.9</td>
</tr>
<tr>
<td>2 year college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College/university graduate</td>
<td>21</td>
<td>31.3</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>9</td>
<td>13.4</td>
</tr>
<tr>
<td>PhD, MD, JD or equivalent</td>
<td>3</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Note: Regarding “High school graduate”, the numbers do not include those residents who obtained a GED.
Audits and policy assessment

The audit of the built environment provided information regarding the quality and status of the built environment and the available resources for physical activity and active transportation. The audit of the nutrition environment provided information regarding the nutritional quality of the food served in restaurants and convenience stores and measured the quality of food, as well as the availability of fresh foods. Information was also gathered about existing policies that may influence the health of the community.

Rural active living assessment

The rural active living assessment (RALA) is a valid and reliable instrument intended for use in rural communities of less than 10,000 residents that was developed, tested, and refined to collect data on physical environment features and amenities, town characteristics, community programs, and policies that potentially influence levels of physical activity among residents (Yousefian et al., 2010). The RALA provides users a resource to assess rural environments for activity friendliness and may be used to inform the design of interventions and programs to help rural communities become more active and healthy. The instrument provides a structure for examining the community as a whole, including information on residences, employment and school locations, and transportation options. It also includes a tool to examine segments of the community and assesses key characteristics of those segments. The instrument provides a structure for assessing the existence of programs and policies that might help to overcome an “unfriendly” environment or that might make the environment less activity friendly. The RALA modules capture specific physical activity amenities, programs and policies, and built environment features including three separate components: (1) town-wide (18 town characteristic questions and inventory of 15 recreational amenities); (2) program and policy (20 questions); and (3) street segment (28 questions). These three modules are designed to be used together and provide a tool to conduct a comprehensive active living audit of the rural community. The observed reliability agreement and k statistic across all items for the street segment were 91.9% and 0.78, respectively. Two researchers pre-selected segments of the community using maps printed from a free online mapping website. In the field, necessary adjustments to segment boundaries were made and each researcher completed the street segment assessment. Two researchers conducted the environmental audit using the RALA independently, discussed ratings, and resolved differences in accordance with RALA instructions.

Nutrition environment measurement survey

The Nutrition Environment Measures Survey (NEMS) assessed factors believed to contribute to food choices in restaurants and stores (Honeycutt, Davis, Clawson, & Glanz, 2010). NEMS measures community and consumer nutrition environments, including the type and location of food outlets, availability of healthful food choices and information, pricing, signage/promotion, and placement of healthier food products. The NEMS is comprised of two parts: (1) NEMS-Restaurant (NEMS-R) which characterizes restaurant environments (Saelens, Glanz, Sallis, & Frank, 2007) and (2) NEMS-Store (NEMS-S) which characterizes store environments (Glanz, Sallis, Saelens, & Frank, 2007). Both tools have a high degree of inter-rater reliability and test–retest reliability ranged from 0.73 to 1.00, except for measures of fruit quality (Glanz et al., 2007; Honeycutt et al.,
Two researchers conducted the NEMS-S and NEMS-R independently and then discussed ratings and resolved any differences in order to ensure inter-rater reliability. The data generated by the NEMS can be used to describe the nutrition environment both qualitatively and quantitatively. Qualitatively, the information collected describes the food availability, signage, and pricing in a narrative format. Additionally, the NEMS results for each entity provide an overall score for each food establishment. The scoring for the NEMS-R varies from 27 to 63 and the scoring for the NEMS-S varies from 9 to 54. Higher scores indicate more healthy food availability at establishments.

**School physical activity policy assessment**

The School Physical Activity Policy Assessment (S-PAPA) measures physical activity policy related to physical education, recess, and other physical activity opportunities in elementary schools (Lounsbery, McKenzie, Morrow, & Holt, 2011). The S-PAPA is comprised of open-ended, dichotomous, multichotomous, and checklist formatting and includes seven background items and three modules: (1) physical education (40 items); (2) recess (27 items); and (3) other before, during, and after school programs (15 items). Test–retest results show that S-PAPA is reliable in assessing physical activity policies in elementary schools. The school principal completed the S-PAPA for the elementary school in Charleston in June 2012. The S-PAPA can be accessed online (http://activelivingresearch.org/school-physical-activity-policy-assessment-s-papa).

**Timeline for implementation**

Policy assessment and key informant interviews were conducted in June 2012. Focus groups were conducted between June and August 2012. The environment and nutrition audits took place between June and August 2012. Between September 2012 and April 2013, data analyses were conducted. Following data analyses, a document was developed to inform future program planning and resource allocation in the community. Findings were presented to university administrators and faculty and at a community forum in October 2012.

**Data management, analyses, and evaluation**

Formative and process evaluation techniques were used to measure the implementation of the proposed strategies. The interviews and focus groups were audio-recorded, transcribed, and verified for accuracy. Notes were also taken to identify initial items of importance and to document findings in the unexpected event that audio recordings failed. Transcripts were coded and content analyzed to identify themes, which are outcomes of coding, categorization, and analytic reflection (Saldana, 2009). Attribute coding, in vivo coding, initial coding, and descriptive coding techniques were all used in a hybridized strategy to appropriately code the qualitative data generated by the interviews and focus groups to identify salient and pervasive themes. In order to ensure inter-rater reliability, two individuals coded each transcript independently to identify key words, phrases, and dominant themes. One coder was the principal investigator, and other coders were community residents, one who coded the key informant interview transcripts and the other who coded the focus group transcripts. Coders discussed and compared each transcript, reviewed discrepancies, and reached consensus on the identified codes.
Following accuracy verification, initial code generation, and final agreement of codes of all transcripts, the principal investigator reread each transcript and created a document to summarize findings from each transcript. Any new findings were added to the summary document. As such, the summary documents expanded as each focus group and interview transcript was reread, tallied, and summarized. The summary documents provided the researchers with a manageable document outlining summative responses to interview questions and identifying codes, salient themes, and memos. Summary documents were created separately for the interviews and focus groups via word counts of certain key terms and phrases and via hand calculation and tallying of word/phrase occurrences within transcripts, the frequency of certain words and phrases shedding light onto the most common topics of discussion and the identification of important codes and occurring themes were identified. Findings were synthesized and compiled into a comprehensive document that is being used to inform and direct future planning, development, implementation, and evaluation of programs to improve the health and quality of life of residents in the community.

Discussion

The CHNA in this study contributes to the growing body of the literature regarding CBPR and health research specific to the Mississippi Delta. In particular, this study provides important methodological contributions through the use of and comparison between data obtained by objective measures (e.g. RALA, NEMS) and subjective data obtained from key informant interviews and focus groups. The use of CBPR principles for this study design, as well as a description of the processes and outlets utilized for the dissemination of study findings, is discussed. As recommended by Green and Kreuter (2005), our formative assessment provided the identification of community needs, existing assets, organizations, priority health issues, environmental concerns, and identification of community attitudes and beliefs that could potentially hinder or help program development and efforts to improve health. Conducting a CHNA using CBPR principles allowed for the identification of partners with diverse skills, engaged community residents, improved the quality and validity of the research efforts, and provided resources to the researchers during the data collection and analysis process (Israel et al., 2001). In addition, we found that the incorporation of CBPR principles helped identify high priority intervention areas and led to improvements in the assessment, which are consistent with previous research (Srinivasan & Collman, 2005; Williams et al., 2009). Involving community members in various aspects of the assessment allowed for a thorough formative evaluation as residents’ engagement led to the identification of observable resources, behaviors, and attitudes as well as intangible resources, such as social cohesion, race relations, educational opportunities, and social capital. The outcomes and benefits of using CBPR found in our study were consistent with that of previous studies (Israel et al., 1998; Minkler et al., 2003). Thus, this study further supports the use of CBPR principles when conducting community research and supports the suggestion that work in communities should begin with a CHNA.

Methodological contributions

This study offers three specific methodological contributions: (1) the comprehensive approach of the overall needs assessment methodology and the utilization of the various assessments, (2) focus group recruitment techniques, and (3) the utilization of multiple
measures to assess different aspects of the community and environment. To our knowledge, this is the first study in which each of these particular assessments, methods, and/or instruments were used in conjunction as part of a single comprehensive CHNA. It is our belief that the use of the chosen measures in combination provides great strength to the study design and resulted in the collection of rich data in a fairly holistic manner. Each individual assessment and/or method afforded a different type and depth of information and provided for a thorough assessment of the community and the environment as a whole. We do not recommend the elimination of any one tool or measure due to the unique contribution provided by each of the chosen assessments, methods, and/or instruments in this study. However, adapting the approach to include other methods and instruments should be considered based on community interests and concerns.

Discussion is warranted regarding the sampling techniques utilized for recruiting focus group participants. To supplement population and probability sample data available through secondary sources, three different sampling techniques were used for recruitment and primary data collection: (1) a purposive sampling recruitment method, as suggested for use by Dolores and Tongco (2007); (2) recruitment at community meetings; and (3) recruitment through worksites. In this study, the purposive sampling technique was used for both focus group participant recruitment and key informant selection to identify individuals to act as guides into the community. These participants were deliberately selected due to the qualities, characteristics, expertise, job position, and/or the demographic representation the informant possessed and/or provided. Our recruitment techniques allowed for the identification of community residents and leaders who provided valuable sources of information and data as their knowledge, skills, and expertise helped guide the scope of investigation and, in some cases, helped to determine data collection protocols. This guidance was considered vital to developing and implementing an assessment protocol that portrayed the resources, attitude, beliefs, and behaviors of the community at hand. Additionally, the recruitment technique was useful when the need came to select specific participants based on demographic gaps and needed demographic representation, comparing participant data with census data.

Not only did purposive sampling techniques result in diverse participants representing various demographic groups in the community, they also allowed for building trust between the researcher and the community and for involving community leaders. Further, the techniques provided a way to inform community members about the health needs assessment and to encourage them to think about health and wellness. First, the open community meeting was advertised to residents as a way to learn about the study’s purpose and importance and to offer the opportunity to participate and to be involved in improving community and individual health. The meeting likely drew residents who were concerned about the health of the community and who wanted to be involved in efforts to improve health. Second, attending the Rotary Club meeting allowed the researchers the opportunity to meet many of the local business leaders and business owners. This created a sense of trust and built a working relationship between the members and researchers. During the meeting, researchers were also able to meet several key informants. The principal investigator spoke to members about the study and discussed the importance and value of the assessment and member involvement. Rotary Club member representation in the focus groups was a strength as these individuals offered meaningful insights into the community. Third, participant recruitment via places of employment allowed employees of worksites to provide specific insight into health-related needs of employees. As both worksites were interested in implementing a worksite wellness program, the focus groups were timely and allowed for the discussion of
preferred health topics and the worksite wellness program components from the employee perspective. Data collected in those focus groups are currently being used to design and implement worksite wellness programs at the local hospital. Future plans include the implementation of additional worksite wellness programs for other local worksites and for the community as a whole. We recommend each of these sampling and recruitment techniques in community-based research, especially among small rural communities where there is a large degree of familiarity among residents.

Importantly, the data collected through the objective measures were consistent with information obtained from focus group participants and key informants. For example, the results obtained from the NEMS regarding the nutrition environment complimented the information obtained from key informants and focus group participants regarding the nutrition environment and quality of food available to residents. Additionally, RALA results regarding the built environment, resources available for physical activity, and policy supporting activity in the community were consistent with information obtained from key informants and focus group participants. The use of objective and subjective measures allowed researchers to compare findings across different measures and to identify consistency between measures that provided a means for triangulation of the results. Finally, available secondary data also support needs assessment findings in terms of information obtained regarding residents’ health status, priority health issues, social concerns, and resources available in the community. Findings corroborate the degree of poor health portrayed in secondary data available for this community.

Dissemination of findings

In line with CBPR principles and as suggested by Teufel-Stone and Williams (2010), findings were presented to the community via a public reception and presentation. To promote community member turnout, an article was published in the local newspaper inviting residents to attend the presentation. Word of mouth was also utilized to inform residents of the results presentation. The presentation was catered by a local restaurant and occurred in the evening in a building on the town square in October 2012, approximately five months after data collection was initiated. More than 75 community residents attended with representation from the schools, the hospital, city council, and county supervisors. On the same day, the presentation was held in the community, a presentation occurred on the university’s campus for faculty and administrators who were interested in being part of the community–university partnership. Material describing the findings and recommendations was distributed. Additionally, several conference and invited presentations of the methodology and findings have been given on both the state and national levels.

Utilization of CBPR principles

Throughout this CHNA the researchers incorporated principles of CBPR. From the study’s inception, community members were involved in all phases of the research process. A health outreach committee was developed through a local organization following the conclusion of the study. Members of the committee will utilize needs assessment findings in the planning and development of future efforts to improve community health. A partnership between the university and the community continues to grow, as are partnerships among existing community organizations. An example of the community–university partnership is the collaboration between the hospital administrator and
the principal investigator to write a grant proposal to a foundation to solicit funding for a Health and Wellness Education Center for the community. The grant proposal was funded, and over three million dollars were awarded to the local hospital foundation to build the facility. Through this facility and the concept of “Tallahatchie Wellness,” residents will have access to a traditional gym and exercise facility and to health education, group fitness, disease management/disease prevention seminars, personal health counseling, personal training, and health and fitness assessments. Tallahatchie Wellness will also house a comprehensive youth program as part of the overall efforts to improve health, wellness, and quality of life in the community. Additionally, university students are serving as interns for the facility by completing their practicum/internship requirements via Tallahatchie Wellness.

Study limitations
A methodological limitation of this study is that youth were not initially included in the focus group recruitment and therefore no information was obtained from children and adolescents regarding their perceptions, beliefs, needs, and opinions of the community and community health during the initial data collection process. However, although not a part of the original needs assessment, but as a continuation of the needs assessment, researchers conducted focus groups with students in the schools in 6th through 12th grades in the spring of 2013. A practical limitation of this study is the minimal number of people who collected and analyzed data and presented the findings. Although one researcher helped the project director with data collection for certain parts of the RALA and the NEMS, one researcher assisted the project director with focus groups, and two community residents coded and helped evaluate the transcripts, the majority of data collection and analyses were completed by the project director. A more inclusive process would have been to train and include community members in the RALA and NEMS data collection process. Training community members would provide the necessary local resources for use of the results and future audits of the community. However, we believe the RALA and NEMS procedures are objective; therefore, the results should not be widely affected by not having community members participate in this portion of the CHNA. An additional limitation is that the demographic composition of the focus group participants, specifically with regards to race, did not fully reflect the population of Charleston. Although we had representation from each race, gender, and age group known in the community, focus group participants were not fully representative of the population as a whole. Further, due to funding constraints, we were limited to eight focus groups. Therefore, we attempted to maximize participation within those focus groups to include as many community residents as possible.

Recommendations for future studies
For future studies and needs assessments conducted in small rural communities, we recommend the use of CBPR principles and our methodology. Further, in terms of sociodemographics, a diverse participant pool is recommended, as community health improvement requires engagement and participation of diverse groups and individuals from different parts of the community (Israel et al., 1998, 2001; Minkler et al., 2003). To reduce the impatience often experienced and expressed by community members when waiting on study findings, we recommend holding additional community events such as walks or health seminars during the data analyses period. Data collection and
analyses are time and labor intensive processes that may not be known to community members. Therefore, it is important for the researchers to maintain presence in the community during this time perhaps by participating in community events, planning community walks, and/or conducting health seminars to sustain residents’ interest in health and community improvements. Furthermore, we recommend that community members be trained and participate in the audits conducted in the community. In order to address the underrepresentation of minority residents, specifically black residents participating in the focus groups, we suggest utilizing local black churches as a means to recruit additional participants. The church serves as an excellent resource as many residents are church members. Another possible recruitment technique is to ask current participants about their friends and family members who may be interested in participating in a focus group.

Following the needs assessment and the identified need for increased community involvement and leadership, a health and wellness committee was created whose members will serve to work with existing community organizations and interested individuals on an action plan to improve health in the community. The committee will utilize the findings of the needs assessment in order to guide their planning and decision-making. We recommend the development of such a committee, if one does not already exist in the community, following the needs assessment to ensure that plans to move forward and address the identified needs are made and efforts to improve health come to fruition. We also recommend the use of photographic documentation throughout the needs assessment. Photographs were taken during the NEMS and RALA assessments to provide context and reference for discussion of the results. Photographs of various buildings, businesses, and other important places were taken providing individuals an idea of the esthetics, resources, organizations, and design of the community. The use of photographs should be explicitly incorporated into the research design. Finally, we recommend the use of local newspapers as a way to reach and communicate with residents regarding study advertisement, dissemination of results, and program and community event information. In Charleston, the local newspaper editor was very involved with the community, supported the CHNA efforts, and allowed the research team free space in the paper to promote CHNA-related events. Several participants encouraged the researchers to advertise in the newspaper as it is viewed as a valuable source of information for community residents in this small rural town.

Conclusion

Conducting a CHNA is a necessary initial step for program planning, implementation, and evaluation. We used CBPR as the framework for the CHNA combined with a mixed-methods design. This study produced findings in support of the existing literature regarding the achievement of specific outcomes that are generated when using a CBPR approach to community health improvement. Throughout this study, community participants shared their knowledge, expertise, and experiences with researchers while working together to identify community needs. Study findings will be used to inform and direct future development, implementation, and evaluation of programs to improve community health and quality of life as well as develop grant proposals in order to obtain funding for future work in the community.
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