Community Awareness Pregnant Women and Child Health in Four North Carolina Counties

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Abstract

Background: Exercise and good nutrition improve overall health during pregnancy and childhood. North Carolina (NC) has a high rate of obesity, yet few programs intervene during and after pregnancy especially in rural communities. Prior to initiating programs for pregnant women and children in rural NC communities, we wanted to understand community awareness, resources, barriers, and solutions. The purpose of the study was to assess community awareness, barriers, solutions, and resources regarding healthy lifestyles in pregnancy and childhood in rural NC communities.

Methods: We conducted focus groups in four Eastern NC counties (Harnett, Hertford, Pasquotank, Pitt). Each session addressed awareness, barriers, solutions and availability of resources for a healthy lifestyle during pregnancy and childhood. Qualitative analysis was done using NVivo.

Results: All communities have common barriers such as lack of education, limited healthy food options, high rates of teenage pregnancy, and limited resources for physical activity. Common strengths include resources such as faith-based organizations, health departments, local businesses, and community members. Solutions varied depending on availability of community resources.

Limitations: The relatively small sample of counties may restrict generalizations to other counties; however, the results provide a basis for further development of healthy lifestyle programs targeting pregnancy and post-pregnancy health issues.

Conclusion: Communities had similar barriers and strengths, but found different solutions based on available resources. This suggests a tailored approach is necessary to improve the health of pregnant women and children in NC communities. Establishing collaborations to engage more community members will be critical to facilitate this process.

Keywords: Physical activity; Pregnancy; Child health; Nutrition; Qualitative

Introduction

Half of the US population of women is overweight/obese at conception [1]. Being overweight/obese increases the risk of adverse pregnancy outcomes [1]. Children born of overweight/obese mothers have an increased risk of obesity, contributing to cardiovascular disease, diabetes and other health issues [1]. This generational cycle is demonstrated in the steady increase of obese children in the US, and North Carolina (NC) [2].

Healthy habits, such as healthy foods and physical activity, are critical to lowering the risk of adult and childhood obesity. In rural areas, such as many NC counties, access to healthy food and physical activities is difficult. One review states that rural women who must travel to access maternity care have increased levels of stress, personal costs and negative outcomes [3]. Pregnant women and children living in rural areas, there may be more barriers to physical activity and healthy eating [4]. Of particular importance in rural North Carolina counties is the lack of availability of services targeting healthy behaviours during pregnancy. Evidence suggests pregnant women, of all ages, need access to maternity care, physical activity services and healthy food within their own communities, but availability vary within each US state. One of the Healthy Carolina 2020 objectives to improve Maternal and Infant Health is to expand the availability of community based programs for low-income families, and encourage healthy habits during pregnancy and for children [5]. Given the variability within geographical regions including counties within states, it is understandable that approaches to these issues may differ.

To begin to explore this area, we conducted focus groups in rural NC communities to better understand community awareness, resources,
barriers, and solutions as they pertain to opportunities to improve maternal and child health. The purpose of the study was to assess community awareness, barriers and strengths regarding healthy lifestyles in pregnancy and childhood in rural NC communities.

Methods

Design

This was a grounded theory qualitative study to understand and generalize the community awareness, resources, barriers, and solutions related to physical activity and nutrition of pregnant women and children. A total of four NC communities were selected for this study: Ayden (Pitt County), Ahoskie (Hertford County), Elizabeth City (Pasquotank County), Lillington (Harnett County). The communities were chosen based on two criteria: association with research institution and NC county tier classification, established form NC Department of Commerce economic well-being (unemployment rate, median household income, percentage growth in population, adjusted property tax base per capita) [6]. Two communities are in Tier 1 (most distressed) counties (Pitt and Hertford) and two are in Tier 2 (medium distressed) counties (Pasquotank and Harnett) [6]. In order to engage community members to assist with this process, community partners were established based on previous engagement with the university. Community partners were contacted on a weekly basis from January 2014 to June 2014. The community partners represent health departments, local government agencies, faith based organizations, and local schools. The community partners were at Straightway Holiness Church in Ayden, NC (author RD), at Harnett County Health Department in Lillington, NC (author JR), at Albemarle Regional Health Services in Elizabeth City, NC (author AS) and at Roanoke Chowan Community Health Center in Ahoskie, NC (author WW). East Carolina University Institutional Review Board approved the participation. All participants completed informed consent prior to participation.

Subjects

The community partners assisted with focus groups via identification of populations of interest within their respective community. We conducted nine focus groups between March 2014 and May 2014. Each NC site had focus groups with community members (i.e., single mothers, married mothers, senior citizens, pastors, students, school employees) separate from focus groups with health care professionals (i.e., counsellors, nurses). All participants were 18 years of age or older, lived in the community for at least 5 years, spoke English fluently, and were willing to talk in a group setting. Groups had a diverse population of ethnicities and were comprised of males and females.

Data collection

Focus group sessions lasted one hour and included participants per group. Focus group participants were informed of the general purpose of the project, details of participation, confidentiality, participant rights, and permission for written and audio recordings. Each focus group session started with a statement regarding the state of North Carolina health rates: “There is a high percentage of infant death and poor pregnancy outcomes across North Carolina. We also know that we have a rate of being overweight or obese higher than the national average. The objective of this discussion is to better understand why poor pregnancy outcomes, infant death, and childhood obesity are so high in North Carolina.” A focus group guide was used to explore the main topics of: poor pregnancy outcomes and childhood obesity in their community, solutions to improving health outcomes within community, barriers to “solving” health issues in community, as well as group exploration of the motivation, accessibility, sustainability, and education related to these health issues. A moderator and note taker were present for all focus group sessions. After each session, the audio recording was transcribed and written notes were transferred to word documents.

Data analysis

Data analysis was completed with open coding, axial coding, and selective coding to determine key themes. When new concepts emerged from the data, we sent outcomes to each community contact to review for accuracy of themes. This was done for each site as well as an aggregate of all sites combined. All work was conducted with NVivo 10 software (QSR International, Burlington, MA) for Mac. Aggregate data is presented.

Results

Forty-five people participated in 9 focus groups. In regards to the poor pregnancy outcomes, high rates of childhood obesity in North Carolina, 100% of respondents stated they were aware of these issues within their communities.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Lack of education</th>
<th>Lack of support</th>
<th>Immature/Not ready</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teen Pregnancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Physical activity</td>
<td>Healthy food</td>
<td>Healthy Pregnancy</td>
</tr>
<tr>
<td>Resources</td>
<td>Physical activity</td>
<td>Healthy food</td>
<td>Healthy Pregnancy</td>
</tr>
<tr>
<td>Strengths</td>
<td>Within all communities</td>
<td>Some programs already established</td>
<td>Want to help community</td>
</tr>
<tr>
<td>Faith Based Organizations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People Who Care</td>
<td>Community Members</td>
<td>Local Businesses</td>
<td>Health Department</td>
</tr>
</tbody>
</table>

Table 1: Common themes from Four North Carolina communities regarding pregnancy outcomes and childhood obesity.

These groups identified five common themes: barrier – teenage pregnancy, barrier – lack of education, barrier - lack of resources, strengths – faith organizations, and strengths – people who care. All
four communities had similar major themes, which are separated into barriers and strengths related to the issue of poor pregnancy outcomes and childhood obesity (Table 1).

High rate of teenage pregnancy was a common theme of all communities. The key element anchoring barriers to improving pregnancy outcomes and decreasing childhood obesity are lack of education within the community and lack of resources to address the lack of education and teenage pregnancy.

A participant stated “Sometimes, regardless of how good a person you are and parent you are, children are still going to do what they want to do. They will be sneaky.”

Another participant said we need “to build up her self-esteem and let her know that just because she's going to have to learn to love herself and give herself high qualities and not let some young gentleman do that.”

Another one stated, “I know there are a lot of young girls starting to get pregnant and times have changed so they are missing the basics for what it is to be a mom.”

Another participant noted “There are a lot of teenage pregnancies”.

The subthemes within lack of education and lack of resources is related to physical activity, healthy food, and healthy pregnancy as far as lack of options, affordability, lack of access to resources, and/or lack of knowledge of what to do related to these sub-themes.

Related to lack of education, a participant said “no education as far as abstinence (referring to teenage pregnancies); teenagers hide pregnancy so are not able to get appropriate interventions.”

Lack of education and childhood obesity comment, “A lot of the kids just do not know. They are a health risk; they just see food and want to eat it.”

On both topics, a participant noted, “If the school could provide healthy snacks and they could provide more sex education.”

For instance, community members mentioned even if they had these options (access to healthy food) they would not have the (monetary) resources to buy them they would not know how to prepare it, and/or lack the time to prepare healthy food. A quote stated “...at the end of the day its going to be most peoples finances that won't allow them to be able to do the things to keep them in good health.”

The common strengths of all communities are faith-based organization and people within the community who care.

Related to faith based organizations, numerous participants made statements such as this one “everyone in (city named) goes to church so we can have (initiatives) start there.”

When discussing resources, participants often mentioned doing things “at church” and that “churches provide transportation” to events.

Related to People who care theme, a person stated “We have four or five local businesses that would give something to help pregnant women or kids are healthier.” Others made statements that people within these organizations “health department, churches, grocery stores, YMCA” help outside of work as well. They also stated that “grandparents want to help kids” and “business owners” and “women's groups” and “teachers” want to help as well. Another stated, “I mean a lot of the churches wouldn't mind sponsoring a child and would give them some help.”

Despite the strong interest of people within the faith based organizations and caring community members, the overarching problem was that even if the resources were combined or increased from outside sources, the lack of education regarding key healthy lifestyle (healthy food, physical activity programs) issues needed to be overcome.

<table>
<thead>
<tr>
<th>Common Barriers</th>
<th>Idea</th>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hertford County</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education/Physical activity</td>
<td>Organize/Expand After School Physical Activity Programs</td>
<td>Increase volunteers from Faith-based organizations People who Care (i.e., Parks and Rec; schools, Health Department, community members)</td>
</tr>
<tr>
<td>Education Physical activity Healthy food</td>
<td>Activity and Nutrition Programs</td>
<td>Develop/combine programs: Faith based organizations - People who Care (i.e., schools, Health Department, community members)</td>
</tr>
<tr>
<td><strong>Pitt County</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Healthy Food</td>
<td>Nutrition Programs for Families and Pregnant Women</td>
<td>Develop/combine programs Faith based organizations, People who Care (i.e., Health Department, community members)</td>
</tr>
<tr>
<td>Teen Pregnancy Positive Role Models in Schools</td>
<td></td>
<td>increase volunteers from Faith-based organizations People who Care (i.e., Parks and Rec; schools, Health Department, community members)</td>
</tr>
<tr>
<td><strong>Pasquotank County</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Physical activity Healthy food</td>
<td>Information Sheet of Activity and Nutrition Programs</td>
<td>Develop combined resource reference: Faith based organizations People who Care (i.e., Health Department) Parks and Rec; schools, community members)</td>
</tr>
<tr>
<td>Education Physical activity Healthy food</td>
<td>Health Fair</td>
<td>Faith based organizations People who Care (i.e., Health Department, community members; Local schools)</td>
</tr>
<tr>
<td><strong>Pasquotank County</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Physical activity Healthy food</td>
<td>Health Fair</td>
<td>Faith based organizations People who Care (i.e., Health Department, community members; Local schools)</td>
</tr>
<tr>
<td>Teen Pregnancy Education</td>
<td>Programs in Middle and High Schools for Pregnant Teens</td>
<td>Develop/combine programs: Faith based organizations People who Care (i.e., Health Department, community members)</td>
</tr>
</tbody>
</table>

Table 2: Solutions from four North Carolina communities regarding pregnancy outcomes and childhood obesity.

Interestingly, to improve pregnancy outcomes and childhood health, all groups focused on the barrier of education, but with different ideas (Table 2) to implement within their community. All ideas within
Discussion

These data support our purpose of the study to assess community awareness, barriers, and strengths regarding healthy lifestyles in pregnancy and childhood in rural NC communities with low resources. The common barriers in NC communities are teenage pregnancy, lack of education, and lack of resources. The common strengths of all NC communities are the faith-based organizations and people who care in the community. Although community specific ideas to address these health issues were all different, they all focused on the barrier of lack of education and utilized the strength of faith-based organizations and people who care in the community.

The common barriers in NC communities were lack of education and resources, both of which relate to the last barrier of teenage pregnancy. Although initiatives to improve health and prevent disease should focus on education, knowledge and skills [7], the lack of education may be related to acculturation and lack of belief in healthy outcomes [8], which has been linked to obesogenic behaviours, especially in ethnic minorities in the US and the United Kingdom [9]. For instance, acceptable health “standards” in some ethnic minority groups are determined by themselves, their family, and their immediate social/cultural circle and not by others outside their circle, such as health care providers [10]. One method to build trust “outside the circle,” called Centering Parenting, focuses on group sessions with health assessment, education, and support for women during and after pregnancy [11]. Another method to build trust “outside the circle” and increase knowledge of pregnant women and new mothers uses a combination of maternal supplies, educational material (i.e., nutrition, exercise, smoking, alcohol use, care of a baby) and a home visit within rural communities [12]. These methods increase knowledge and responsibility of women for the health of themselves and their child while enabling communication between new mothers and health care workers. In regards to rural communities, similar to our study, some investigations demonstrate the influence of a zip code’s social determinants and resources, or lack thereof, on a generation cycle of expediency of health sub-theme (i.e., physical activity, nutrition, teen pregnancy). Interestingly, meta-analyses find that traditional research intervention studies (i.e., eating, exercise, behaviour modification or counselling) are not effective, but the most promising strategies to improve maternal and child health in areas of need require community based delivery approaches, which allows more people to be reached in a cost-effective manner [15,17].

More studies focused on improving healthy habits of pregnant women, children, and at risk adults (i.e., decreasing obesity, healthy eating, increasing physical activity, etc.) are supporting multidimensional approaches that combine resources of public, private, and philanthropic organizations to increase efficacy and sustainability [14,18-21]. As an example, a study of Wake County, NC found that collaboration among multiple stakeholders strengthened efforts by decreasing duplication of efforts, increasing efficient use of resources, increasing capacity, spread the financial and person hours burden across many groups, decreasing budget costs, and increasing expertise expediency of efforts [22]. Despite these successes, it is important for community partnerships to realize that challenges will arise and a memorandum of understanding is essential in order to ensure everyone agrees on common goal(s), expectations, clearly defined responsibilities of each team member [14] planning, framework for community engagement and piloting of the community engaged program [15].

Although these findings are of great interest, there are limitations to this study. Although this is a small sample size, the results are encouraging considering the similarities among health care professionals as well as community members in four different communities. Although we sampled from heterogeneous counties (two Tier 1 and two Tier 2), again the finding that these socioeconomically challenged areas have similar barriers and strengths should be of interest to many organizations within North Carolina. Two (out of 13) areas of focus for Healthy NC 2020 are physical activity and nutrition as well as Maternal and Infant Health. We did not actually assess the different resources available in the area, though, these were mentioned in the focus group session; this could be an area of follow-up.
Conclusion

Regarding poor pregnancy outcomes and childhood obesity, we found similar barriers and strengths, but different solutions among four rural NC communities of need. We found lack of education and resources, especially for teenage pregnancy as common barriers in rural NC communities. Furthermore, all NC counties of need had supportive people who care and faith based organizations as a strength within their communities. However, despite these similarities all community ideas to address these health issues were different, though they all involved pooling multiple resources together to address lack of education regarding a specific sub-theme (i.e., physical activity, nutrition, teen pregnancy). Our next steps to effectively improve pregnancy outcomes and child health in these poor NC communities is to establish collaborations among hospitals, health departments, community organizations, businesses, local government, schools, community members and faith-based organizations in order to create a common plan and framework for community engaged education programs. Increasing the community knowledge regarding healthy pregnancy lifestyle and child healthy must be the first step to improving the outcomes in poor, rural NC communities prior to other resources, expenses or equipment.

Acknowledgement

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