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Research

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Challenges of Healthy Eating Habits in Rural Communities

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ABSTRACT

The purpose of this study is to utilize multiple case study to investigate the challenges of healthy eating habits in rural communities in Arkansas, and to identify the differences between these communities (Community A and B) that could be associated with overweight and obese children. The findings suggested that healthy eating habits required a conscientious effort on the part of the parents and/or guardians in urging the children to eat healthy. Parents and/or guardians also needed to show good examples of healthy eating behaviors at home. In addition, community leaders should be thinking of some modalities to enhance the food choices or provide healthier choices in their community events and support underprivileged families to help secure healthy food choices. This study also highlighted the importance of food corps and health coalition group in the curtailment of overweight and obese children in rural communities.

KEYWORDS: Healthy eating; Overweight; Parenting; Obese; Eating habits.

ABBREVIATIONS: BMI: Body Mass Index; TPB: Theory of Planned Behavior; PBC: Perceived Behavior Control.

INTRODUCTION

Having balanced nutritional habits early in life has shown to be exponentially beneficial to health later in one's life.[1] Encouraging healthy eating habits at an early age has also shown to aid in preventing the onset of diet-related diseases and complications in the future.[2] Healthy eating has been defined as consumption patterns, practices, and behaviors that are consistent with improving, maintaining, and/or enhancing health.[1] New foods are often approached with a mixture of interests and fear.[3] Research has shown that children who start trying new foods and have plentiful options to choose from at an early age appear to have healthier diets throughout childhood.[4] Exposure to new foods at an early age as well as positive reinforcement from a parental figure or valued opinion has shown to aid in children and adolescents to be more involved in healthy eating behaviors.[4]

The implications of unhealthy eating habits cannot be overemphasized. It was noted that people with easy access to energy dense, inexpensive foods (unhealthy food choices) combined with less energy expenditure (physical activity) requirements in their daily life tended to show a higher rate of obesity.[5] The obesity epidemic has increased rapidly over the past three decades in both children and adults.[5-9] The rampant occurrence of weight related disorders in children, such as type 2 diabetes and hypertension, are believed to be a consequence of the ever growing obesity outbreak.[5,6] Childhood Body Mass Index (BMI) is related to an increased risk of various cardiovascular diseases in adulthood.[5] Previous generations used to believe that a chubby child was equivalent to a healthier child; but, within the past decade in developed na-

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tions, excessive fatness has debatably transitioned into primary childhood health problems.[6]

The effect of television viewing is thought to buttress, weight gain, not only by eliminating physical activity, but also by increasing energy intake, as previous research has shown children tended to consume excess amounts of energy dense foods during the television watching process and exposure to commercials.[6,10-12]

In 2003, the State of Arkansas passed one of the first legislative initiatives to combat childhood obesity, Arkansas Act 1220.[7,8,13,14] The Act set into motion annual BMI measurements for children in public schools in grades K-12, the elimination of student access to vending machines during the school day in elementary schools and public reporting of vending contracts, hiring of Community Health Promotion Specialists to work with schools and communities, development of a statewide Child Health Advisory Committee and a physical activity advisory committees pertaining to the use of scientific evidence in regard to physical activity and nutritional regulations for schools.[7,13] Several amendments were added to this Act following its release, such as confidentiality changes. Originally student's BMI scores would be on the student's report cards, but this was soon changed to allow for more privacy and reduce any animosity or embarrassment that might develop amongst the students. Parents were mailed separate copies of the reports without the student learning any of the results post testing. A statewide BMI database was also developed following this change.[7,13,14] The annual reports on BMI succeeded in raising awareness of overweight or obese children and even recommended changes that could be made within the household. They also suggested families follow up with their health care providers for more detailed assessments since BMI was simply a screening tool.[7] However, the incident of childhood obesity in the state is still very high.[7] Indicating that Act 1220 will not be effective without healthy eating habits and lifestyles. Hence, the purpose of this study is to investigate the challenges of healthy eating habits in rural communities in Arkansas.

Prevention of childhood obesity has many aspects ranging from individual, family, institutional, community and health care settings.[5] There exists little evidence in regards to the most effective way to prevent the development of childhood obesity.[5,6] Various periods exist during childhood where both challenges and windows for opportunity exist to help prevent obesity. These periods include the first year of life and the period of "adiposity rebound", ages 3-7 years old.[5 (p. 5)] For children a large portion of learning about food and eating occurs during the move from an exclusively milk diet as an infant to the omnivore diet consumed in their early childhood.[15] Caregivers and families would be great in identifying a child's energy intake and potential healthy eating habits and lifestyle. In addition, institutional facilities and community-level prevention methods could include prospective areas to increase knowledge of nutrition (healthy eating habit) and obesity, along with campaigns and advertisements to combat the obesity epidemic.[5]

Theory of Planned Behavior

The theoretical basis for this study is the theory of planned behavior which denotes that individuals are more likely to carry out a specific behavior when a significant figure in that individual's life thinks he or she should or should not implement the behavior.[16-18] The Theory of Planned Behavior (TPB) is a widely used psychological model that reveals the facets influencing behavior. The TPB suggests that the mightiest predictor of any person's behavior is his or her own intention to perform the behavior. Behavior or intention is the result of three primary qualifications: attitudes, subjective norms, and Perceived Behavior Control (PBC).[17] Attitude is often denoted by each individual's assessment of the behavior in question.[18] Subjective norms tend to portray each individual's opinion regarding the people who are significant figures in their life and what they think about the individual's implementing or not implementing the behavior.[16] PBC denotes each individual's capacity to execute a behavior. Barriers that potentially prevent an individual from carrying out a behavior are also suggested.[17]

TPB is a well-studied and respected theory for illuminating and forecasting behavior. Multiple studies have applied this theory to a widespread assortment of health perspectives, including food and beverage consumption behaviors.[18-23] Even though there exists various definitions and measures of food and beverage consumption, as mentioned in these studies, there also exists an unadulterated idea that TPB is an excellent predicator of a range of measures of food and beverage consumption behavior for various populaces. TPB dictates that individuals have a higher chance to perform a specific health behavior if three requirements are met: they trust that the new behavior will lead to particular outcomes that they value, if they think that individuals whose opinions they value think they should implement the behavior, and if they believe that they have the necessary means and chances to accomplish the behavior.[22] This theory has been applied multiple times in an attempt to understand various food and beverage consumption behavior intentions among young people.[24-28]

It has been shown that parental food preferences, intake patterns, and eating behaviors influence the foods available to young children. Also, parents tend to serve as role models for children's behavior, which in turn affects early learning in regard to food preferences and eating behaviors in children.[27,29] Similarly, researchers have taken note of the effects of observational learning on children and have shown that observational learning affects children's intake.[27,30] Observing others consuming healthier foods can aid in promoting children's acceptance of healthier food options. As such, parents need to ensure that they are not merely instructing their children that they need to eat healthy.[30] They also must be demonstrating healthy eating

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habits in order for their children to learn and reinforce this behavior. When it comes to risk taking behaviors children were more prone to mimic parents behaviors , more so than what their parents tell them.[30] Which goes against the well-known saying, "*Do as I say, not as I do*".[31] (p. 502) Researchers have concluded that behavioral changes related to health and interventions have regularly found greater effects for theory-based interventions compared to those without a comprehensive theoretical basis.[32-34] Children look to their parents and caregivers to help encourage, support, and enable them to practice healthier eating habits.[25] The notion of self-identity also has been advanced as a possible predictor of behavior.[35] Research indicated that people who considered themselves to be "green customers" had stronger intentions to consume organic vegetables than those who did not consider themselves green.[36] (p. 394)

TPB can be quite beneficial for phases of intervention development, application, and assessment. Given the demonstrated helpfulness of the TPB in understanding an extensive variety of health associated factors, including food and beverage consumption behaviors, this theory was selected as the foundational standard for understanding this case study.

RESEARCH METHODOLOGY

The objectives of this case study were as follows: (a) to examine how children develop interest in what they eat; (b) to examine how children develop interest in healthy eating; (c) to examine what healthy foods community members/parents would add to children's meals; (d) to examine what foods they would remove fro m children's meals; and (e) to examine the barriers to healthy eating.

Case study research was selected due to the need to accumulate thorough data on the obesity epidemic that was occurring in rural communities in Arkansas.[37,38] Case study approaches were particularly advantageous for this study due to the exploratory nature and depth of understanding that could be achieved.[39] A multiple-case study approach allowed for a more direct comparison and exploration o f differences of the challenges and intervention strategies in the various considered contexts.[38,40] It also served to provide more generic conclusions to be formulated.[41] Since comparisons were to be formulated, it was crucial that the cases were chosen methodically so that similar or contrasting results could be predicted across both cases , based on a theory.[38]

Case study research also allowed for the opportunity to check for validity of the interviewee's replies due to the nature of the personal communication and of experienced interviewers. Table 1 provides an overview of the measures, which were conducted during each stage of the current research to address the concerns regarding validity and reliability.

Reliability and Validity Criterion	Research Phase			
	Design	Case Selection	Data Gathering	Data Analysis
Reliability: denotes the operations of a study can be repeated with the same results	Develop and utilize case study interview questionnaire	Purposive sampling	Interview questionnaire prompted to all interviewees	Conducted coding checks for interrater reliability
Internal Validity: creates a causal relationship whereby certain conditions are shown to lead to other conditions, as denoted by false relationships	Theoretical framework established prior to data analysis	Sampling criteria recorded in a case study protocol	Various factors that potentially serve as alternative explanations were recorded	Pattern matching
Construct Validity: creates proper operational measures for the concepts being researched	Constructs from previous empirical works adapted to the field of childhood obesity	N/A	Expert interviews were used	Triangulation of multiple data sources The draft case study report was reviewed by key informants
External Validity: creates a domain in which the researches' findings can be generalized	Sampling within rural communities with high and low prevalence of childhood obesity	N/A	Multiple forms used	Multiple analysis between 4 four researchers

Table 1: Measures taken to ensure the validity and reliability of the research conducted (based on reference.[38,44])

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Case Selection

Two rural counties (communities) in Northwest Arkansas were selected. Each community was purposefully selected and had either a high or low prevalence of obesity in order to allow for exp loration of causes and interventions. State BM I and census data was analyzed to aid in selection of rural communities.

Data Collection: The fundamental data collection method used was structured interviews with an open ended interview protocol.[42] This allowed for those being interviewed to openly express their comments without being limited to select answer choices. Thus, detailed and in-depth data and perceptions were gathered from the community members. In addition, the community members who participated in the study were all presented with a consent form in regard to ethical clearance (Institutional Review Board document) about the study prior to data collection.

A purposive sampling approach was employed to garner participants. This approach ensured a practical structure for the discussion sequence and facilitated the comparison of the groups in the data analysis.[38] All structured interviews were recorded and transcribed by the researchers.

Structured interviews were held at three (3) separate times and locations between the two (2) rural communities during the first week of June 2015. A total of 16 participants were interviewed in order to exp lore healthy eating habits, activities, and their relationship between overweight or obese children in both communities. Structured interviews lasted anywhere from 60-90 minutes with an average of 73 minutes. Interviews were conducted with highly ranked individuals within the community, ranging from the mayor, nurses, principals, and childcare center directors. Many teachers, parents, and cafeteria cooks were also interviewed. The interviews were conducted by two experienced case study researchers.

Detailed notes were taken during the interviews and additional material, stemming fro m census data and BMI data, were used for triangulation. Overall, an in-depth case study protocol and a structured interview guide led the current research.

Data Analysis: Data analysis began with coding of the information gathered from the available sources, which provided a general structure. A frequentative process was implemented to identify key words, phrases, and categories. After the cases had been coded by the interviewers, three scholars examined the data following a systematic and supportable approach described by Krueger & Case.[43] Researchers reviewed the questions prompted by the interviewers along with the transcripts, concentrating on one question at a time while considering the overall purpose of the research.

The rural communities were coded as "Community A" and "Community B". While analyzing the responses, priority consideration was given to words used and the meaning of the words, the context and specificity of responses. Themes were identified by frequency of repeated phrases and key words. Common themes such as "parental example and time (lack of)" were rampant throughout the transcriptions. Tables were then developed for each objective in order to examine the difference between the common themes in the 2 two communities.

RESULTS AND DISCUSSION

This section presents the case study findings and discussions on how children develop an interest in what they eat, how they make healthy eating food choices, what are unhealthy food examples, what are the barriers to healthy eating, and the differences between these communities based on the responses from the participants in this study.

The participants in this study indicated numerous factors associated with how children developed an interest in what they ate (see Table 2). One of the participants stated: "*Our kids like finger foods, they like it more if it's something they can pick up.*" Another participant indicated stated that: "*…color is a big thing for him (referring to her child) if he can pick out colors and sometimes if its little things he can count he will sit there and start eating....*" Overall, however, the researchers noticed that the participants generally agreed that children were interested in consuming foods that were appealing and what children often saw advertised on television or what they saw in their environment (e.g., fast food and parental examples at homes). In addition, it was generally agreed that parents should encourage their children to eat healthy and provide better food choices.

1	Finger foods
2	Colorful food
3	Following parent's example
4	Little countable food
5	Food that looks fun and appealing
6	Encouraging/urging better food choices
7	Encouraging/urging better eating habits
8	Encouraging/urging better eating habits

Table 2: Children's interest in what they eat.

When the participants were asked about the healthy food choices they would like to add to their children's meals, they generally agreed on fruits, vegetables, submarine sandwiches, and organic foods (see Table 3). The participants in these rural communities clearly indicated that they were aware of healthy food choices. Consequentially, they were asked if there were any foods they would remove from meals? The answers were not too surprising. The participants generally agreed to remove starchy carbohydrate, sugary treats, junk foods, and processed foods (see Table 3). Even though their responses were

not surprising, it was interesting to know that these communities had a notion or understanding of healthy food choices. However, their communities were still plagued with the consumption of foods they believed to be unhealthy for their children.

	Healthy Food Choices	Unhealthy Food Choices
1	Fruits and vegetables	Federal level that needs to be changed
2	Sub Sandwiches (e.g., Subway)	Starchy carbohydrate
3	Potatoes and corn	Sugary treats (e.g., cookies or candies.
4	Fresh salad	Junk food (e.g., fast food and fried foods)
5	Organic foods	Bacon
6	Vegetables	Processed foods

Table 3: Healthy food choices for children.

When the participants were asked about how children developed an interest in healthy eating, they generally agreed on starting children eating healthy at a young age through access to healthy food, encouraging/urging children to eat healthy, exposure to healthy food, and parents setting good examples by eating healthy (see Table 4). Even though the participants believed that parents should urge their children to eat heathy, some of the participants indicated that it was not easy to accomplish this particular objective. One of the participants stated: "*My husband will bring home the candy bars, the cookies and the sodas and I'm like hide it from the four-year olds because they will want it*…." This was a challenging issue for many people in various communities. It was not easy for the parents, school, or daycare authorities to tell them to eat healthy while what the children saw advertised on television, practiced at home, or displayed in their environment was encouraging them to eat and drink in a way contrary to healthy eating habits.

1	Access to healthy food
2	Modeling after parents healthy choices
3	Exposure to healthy food
4	Encouraging/urging children to eat healthy
5	They have to see you eat it
6	Hide it (unhealthy food) from the four year olds
7	Starting them young
8	Parents setting a good example

Table 4: Children interest in healthy eating.

Bearing the above in mind, it was obvious that these communities had a good knowledge of what heathy and unhealthy foods were and how to help children develop an interest in healthy eating habits. However, based on the results of the interviews, it was clear that some members of these communities were still faced with the challenges of healthy food consumption. For example, one of the participants stated: *"I should remove fried foods, but they just taste too good, I don't know if I want to."* When the participants were asked about the barriers to healthy eating, they generally agreed that there were different barriers associated with different communities and community members due to a variation in the socioeconomic conditions of the families in these communities. Some of the generally accepted responses in regard to barriers to healthy eating included: 1) lack of income for healthy eating, 2) lack of educational inspiration for healthy eating, 3) unaware of the importance of healthy eating, 4) unhealthy stuff is cheaper, 5) healthy eating is expensive, 6) more exposure to unhealthy alternatives, (e.g., advertising and fast food places), 7) too busy (no time) to eat right, 8) not home to cook or too tired, 9) too many commitments. Hence, going for convenience (i.e., fast food) was a big motivator for unhealthy eating (see Table 5). It was interesting to learn that it was very challenging to inspire some of the community members to attend free healthy eating education seminars in their communities. One of the participants stated: "*It seems like everywhere, you have trouble getting people to come for education. You know we had trouble with people coming to schools, we've offered things in the community. I think...you can offer all the classes you want but it's hard to get them to read a pamphlet, come to a class, or a demonstration. I think we would all be rich and famous if we knew how to get them all to come, we could go on the road and market that.*"

1	Lack of income for heathy eating
2	Lack of educational inspiration toward healthy eating
3	Not aware of the importance of healthy eating
4	Unhealthy stuff was cheaper
5	Healthy eating was expensive
6	A lot of exposure to unhealthy alternatives (advertising, television, and fast food places)
7	Too busy (no time) to eat right
8	Not home to cook or too tired
9	A lot of commitments

Table 5: Barriers to healthy eating.

The frustration of this participant was very clear in the participant's comment. This particular factor showed that even though the communities were offering incentives for healthy eating education, the incentives were not enough to motivate some members of these communities to attend free healthy eating education seminars.

The results of this study also suggested that parents and/or guardians in these communities seemed too busy to create time for healthy eating habits. One of the participants stated: *"A lot of parents have 2-3 kids who have ball games so they pick them up after work and fast food is all they have. My brother has 3 kids and all 3 play ball they're never home till 10 p.m. and they'll stop wherever they're at or what town their playing in. It's just fast paced they're not home to cook or they're too tired when they get home."* Another participant indicated that: *"…convenience is big, we live in a fast paced society where we need convenience...they eat out 3/4th (75%) the time because*

they're coming home from a ball game or something." This particular issue seemed to be one of the most challenging obstacles to healthy eating habits in these communities. It was not farfetched to assume that families in rural communities should have more time to cook and eat together because they were not overwhelmed with the hassles and bustles of big cities. Unfortunately, the result of this study was contrary to these perceptions. The findings indicated that in an attempt for the community members to find fun activities or entertainments, the community members attended activities that exposed their children to unhealthy eating habits. One of the participants stated: *"Sometimes it's hard to serve dinner with a lot of commitments going on. Very busy in the evenings and people eating on the go."* Similarly, another participant affirmed this barrier by stating that: *"I think that as much as anything has done it, because everyone is going different directions. I admire the family that takes the time to sit down with their children and eat and talk. You'll see that development later in life with the children, because they will indeed grasp that too."*

Despite the impact of different commitments that led many community members to eat junk food (e.g., fast food and fried foods), the participants in this study also agreed that lack of adequate income was another major barrier to healthy eating habits. One of the participants stated: *"Cheap foods...bad foods are really cheap foods so if you're on a limited budget like a lot of families in this community are, then you are purchasing (bad foods)...because it's cheaper."* The participants generally agreed that even though they were aware of the importance of fruits and vegetables toward healthy eating habits, fruits and vegetables (especially the fruits) were very expensive.

Differences between Communities A and B

Some of the differences between Community A and B are shown in Table 6. A noteworthy difference was the percentage of overweight and obese children in both communities. The findings indicated that Community B children were more overweight and obese. The researchers were very interested in knowing why there were a large gap in the rate of overweight and obese children in these communities. The demographic profiles of both communities were very similar except in regard to the "per capital income" and "White alone" population, which were higher in Community A. In addition, Community A had active Food Corps and Health Coalition groups that focused on promoting healthy eating habits in the community. Another major difference between these communities was that Community B had a higher rate of "Hispanic" population. These differences seemed to be the major factors associated with Community B's overweight and obese children. Regardless of the causes of Community B's overweight and obese children, it was very obvious to the researchers that the impact of Community A's Food Corps and Health Coalition groups could not be undermined. The major focus of these groups were to curtail the prevalence of obesity in their community and enhance healthy eating habits.

Profiles	Community A	Community B
Population	2,381	2,785
Male	47.0%	40.5%
Female	53.0%	59.5%
Hispanic	8.8%	49.7%
White alone	85.4%	46.1%
Asian alone	2.3%	2.9%
Two or more races	1.8%	2.6%
Black alone	0.6%	0.3%
American Indian alone	0.8%	0.3%
Per capita income	$16,105	$14,599
Median resident age	31.3 years	29.1 years
Median gross rent	$570	$588
Rate of overweight + obese high school children	25.0%	52.5%
Rate of overweight + obese intermediate school children	27.0%	49.7%
Rate of overweight + obese elementary school children 1	18.6%	39.4%
Rate of overweight + obese elementary school children 2	21.7%	N/A
Food Corps	Very active	Inactive
Health Coalition	Very active	Unknown

Table 6: Differences between community A and B.

CONCLUSION AND IMPLICATIONS

This case study suggested that healthy eating habits in children was not as easy as simply telling children to eat healthy. It required a conscientious effort on the part of the parents and/or guardians in urging the children to eat healthy. In addition, if parents and/or guardians wanted their children to eat healthy, they needed to show good examples of healthy eating behaviors at home. Children have photographic memories and they are very good at doing what they see their parents/guardians do. It should be noted that if children are to develop healthy eating habits, parents/guardians should start the children at an early age eating healthy foods before they develop their taste buds for unhealthy food choices.

This study also had implications for the communities. Even if the parents and/or guardians were showing good examples of healthy eating behaviors at home, what about the children's experiences with junk food in their communities? One of the participants whose family members were regulars at ball games stated: "*...they could provide healthy food in the concession stands, I spent a large part of my life in concession stands with kids in ball games, and you know the cheese dip, the pretzels, hot dogs...your taste buds are adapted to that, it would be nice where there would be healthier choices..."* Bearing the above in mind, community leaders should be thinking of some modalities to enhance the food choices or provide healthier choices in their community events.

The findings also indicated that even though parents and/or guardians were aware of healthy food choices, many were faced with the challenges of providing healthy food choices to their children. Some of their major challenges included: too busy (no time) to eat healthy and the lack of adequate income to eat healthy. These challenges seemed to be a commonality in the two studied communities. One of the major implications of these challenges was that parents and/or guardians should be cognizant of the importance of creating time for healthy eating. Hence, if parents and/or guardians want their children to adapt to healthy eating habits, they must create time for healthy eating. In addition, the community leaders (especially in rural communities) should embark on some modalities to support underprivileged families to help secure healthy food choices. For example, they should work with local schools or colleges to provide government funded or discounted healthy meal options for the underprivileged members in their community.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This study, like many other studies, was not without limitations. The credibility and reliability of a qualitative research was highly dependent on triangulation for enhancing the validity of the study. This study was designed with various forms of validity and reliability in the research phase. However, the researchers wished they had been able to involve authors who did not participate in gathering the data for the data analysis phase of the research. The researchers felt this would be beneficial in curtailing the potential researcher's bias in regard to data analysis and would heighten the reliability of the generated data. In addition, the researchers wished they could have studied more communities to corroborate the findings from these two communities.

This study provided a logical report regarding the challenges of healthy eating habits in rural communities. Additional research is needed to include additional rural communities in order to know if the findings from these communities can be supported in other rural communities. In addition, future research should also focus on urban communities and examine the differences between the challenges in rural and urban communities. Furthermore, future studies should also explore the importance of a community health coalition in the promotion of healthy eating habits.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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