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Walden University

College of Health Sciences

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Marcia Hagen

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Walden University
2015

Abstract

Weight Management of Women of Childbearing Age

by

Marcia K. Hagen

MSN, Viterbo University, 2008

BSN, Viterbo University 2003

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

June 2015

Abstract

Black River Memorial Hospital identified obesity as a priority health concern in its rural service area; this concern was in line with the county's needs assessment. It was identified that women of childbearing age affect the lifestyle and health choices of their families and that they are at higher risk for the additional health risks associated with obesity affecting pregnancy and birth. Despite the identification of these risk factors, the factors that affect healthy weight management have not been well understood. Using the life course theory, a qualitative inquiry in the form of a structured interview was developed with local community experts and stakeholders. Sixteen women, aged 18-44, were recruited from the area Women Infant Children (WIC) program, the local food pantry, and area businesses. Audio-taped interviews were conducted. Data were analyzed using open and axial coding. The findings suggest that the health literacy among this sample of women was low with regards to healthy weight (BMI) and the risks posed by obesity. The most cited barriers to healthy nutrition were the cost of healthy food, food preferences, and the time to prepare healthy food. The most cited barriers to healthy activity were lack of motivation, lack of child care and lack of fun, affordable activities, and severe weather. The most common motivators for pursuing a healthy lifestyle were identified as the respondents' children, the encouragement of significant others and friends, and the participation of the family in healthy lifestyle choices. Based on the literature review, knowledge of community resources, and these findings, broad recommendations to enhance the culture of healthy weight management were provided to local community stakeholders to facilitate community planning for a healthier population.

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In acknowledgement of the support I have received throughout my academic, and professional career I would like to recognize that my parents Sam and Joy Davis provided unending encouragement and belief in my potential. In addition, special thanks go to my husband Robert Hagen who upheld me with the unwavering belief that I could accomplish an advanced degree, and that it was worth the effort. Thank you to all of my family members all for the inspiration you provide every day.

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Table of Contents

List of Figures ... iii

Section 1: Introduction ... 1

Introduction ... 1

Problem ... 1

Purpose ... 2

Background and Context ... 2

Goals and Outcomes ... 3

Significance of Need for Policy Practice and Social Change ... 5

Definition of Terms ... 6

Limitations ... 8

Summary ... 9

Section 2: Review of the Literature ... 10

Introduction ... 10

Search Strategy ... 10

Weight Management ... 10

Theoretical Model: Life Course Theory ... 15

Summary ... 17

Section 3: Methodology ... 23

Purpose ... 23

Method ... 23

Project Team ... 24

Summary......35
Section 4: Findings, Discussion, and Implications......37
Purpose......37
Findings......38
Strengths and Limits......49
Implications......50
Conclusions......52
Section 5: Scholarly Product......53
Weight Management of Women of Childbearing Age......53
Purpose......54
Evidence-Based Significance......55
Pertinent Literature......56
Research Design and Methods......57
Administration of Interviews......58
Data Collection......59
Analysis of Data......60
Findings......61
Strengths and Limits......71
Implications......72
Conclusion......74

List of Figures

Figure 1. Health Literacy of Women of Childbearing Age in BRMH Service Area…40

Figure 2. Barriers to a Healthy Diet……………………………………………………..44

Figure 3: Barriers to a Healthy Activity Level………………………………………. 46

Figure 4: Motivators to Adopt Healthy Lifestyle Measures…………………………..49

Section 1: Introduction

Introduction

Obesity in the United States directly affects more than one third of the population and thus threatens the health of the nation causing health problems including diabetes, heart disease.(CDC, 2012). Women of childbearing age are at especially high risk (Lombard, Deeks, Jolley, & Teede, 2009) because of the increased health risks of pregnancy complications and even birth defects. Further, women strongly influence the health and dietary choices of families (Robinson, 2011) so they further influence overall obesity of children and the overall obesity epidemic The lifestyle choices that lead to obesity in women likely influence the lifestyle choices of families (Robinson & Yardy, 2012). Life circumstances such as economics, culture, genetics—as well as imposed factors such as pregnancies, education, and stress—serve to alter life trajectories of health and wellbeing (Kuh et al., 2003). Understanding the factors that affect healthy weight management in this key [It is not clear why they are "key"] group of women may affect their life course trajectories as well as the trajectories of their family members.

Problem

Lifestyle factors that influence weight management, such as food choices and activity participation, are varied and complex. In the Black River Memorial Hospital (BRMH) service area, obesity was identified as a significant health risk by a community health needs assessment (BRMH, 2012). The service area assessed was the rural area within a 35mile radius of the hospital which includes only one county in its entirety in the service area. In this county, obesity has been a persistent problem; effective weight

management strategies have not been used. This project addressed the limited information about the factors that affect healthy weight management in women of childbearing age d in the designated service area.

Purpose

Factors that influence lifestyle choices are diverse. The area is diverse in resources, cultures, and lifestyles (Davis, Stange, and Horowitz, 2012)
The purpose of this project was to examine these phenomena in this community from multiple perspectives in the form of a needs assessment. The needs assessment is provided for use as a tool to illuminate factors that influence women to achieve a healthy weight as well as barriers that limit motivation or participation in weight management strategies in this rural community.

Background and Context

The agency sponsoring this project was Black River Memorial Hospital. This rural Wisconsin critical access hospital 35-mile radius service area includes all of Jackson County as well as portions of Clark, Trempealeau, and Monroe counties. Clark, Trempealeau, and Monroe counties also have health care facilities.

This area is home to the tribal offices of the Ho-Chunk Nation as well as a gaming facility and tribal housing, tribal lands, and pow-wow grounds. German, Norwegian, Polish cultures are also strongly represented, as are smaller groups of Mexican and Amish. This area is strongly involved in agriculture, mining, and manufacturing. There is a minimum and maximum security prison in the designated service area. Hunting, fishing, hiking, watersports and motorsports are popular recreational activities. Black

River Memorial Hospital mission "is to provide high-quality, accessible, progressive healthcare, connect patients with valued healthcare providers and services, enhance the health and well-being of all people we serve and remain fiscally viable to reinvest in the community's future healthcare needs" (BRMH, 2013).

The core values of this independent agency include core elements that align closely and inspire this work such as to "seek collaborative opportunities to enhance, maintain and differentiate our services and provide proactive, progressive and comprehensive healthcare (BRMH, 2013). This projects goal to investigate the needs of women of childbearing age in achieving and maintaining healthy weight was well aligned with these core values and mission by understanding the needs to inspire or direct proactive meaningful interventions.

Goals and Outcomes

The goals of the project included the following: (a) identification of community strengths that support healthy weight, (b) identification of lifestyle characteristics that predispose a woman to unhealthy weight in order to identify high-risk groups for priority interventions, c) assessment of current health literacy of the target population with respect to BMI and weight management, d) elucidation of barriers to healthy weight for the target population, e) identification of cultural and community supports and barriers to healthy weight for the target population in the community, f) identification of community and social systems that may be effective in helping women of childbearing age to seek, reach, and maintain a healthy weight.

This needs assessment sought to identify the community strengths and perceived barriers that were affecting weight management for women of childbearing age in the designated service area. Furthermore, it identified programs and services in the community that support the healthy weight management of the target group (whether effective or ineffective).

Need

The need for effective weight management strategies is described in the mass media as well as in the healthcare literature CDC, 2012). In spite of public awareness of nutrition and fitness, of educational initiatives, and of the regulation of food marketing and other strategies, obesity continues to be a significant health risk for Americans.

The impact of this health problem is described in terms of significant morbidity and mortality to childbearing-age women (CDC, 2006). Childbearing-age women are a priority population for weight management initiatives because not only does maternal obesity affects the mother's health, it is associated with delivery complications and complications with the child's health, including a higher rate of birth defects (MMWR, 2006). Further, women strongly influence the lifestyle choices of their entire family affecting the alarming childhood obesity rates (Robinson & Yardy, 2012; Vanhala et al., 2009).

To improve the health of mothers and their children it is important to have women be as healthy as possible before pregnancy (preconception). Since 50% of pregnancies are unplanned (WAPC, 2012), health issues that affect pregnancy and infant health should be a priority for health care interventions for childbearing-age women (Lu et al.,

2006). The factors that have negative effects on pregnancy and infant health have been identified as obesity, substance abuse, unsafe living environment, and low intake of folic acid (CDC, 2006, WAPC, 2012). Further, Burke, Heidler, and Nadler (2010) stated that public health initiatives may be less effective as those who are obese and overweight increasingly perceive their weight as normal and the misinterpret the risks associated with obesity. According to Atrash et al. (2006), implementing effective preconception care strategies is urgently needed. Atrash et al. (2006) and Burke and Wang (2009) noted that, in order to have an impact on the problem, long-term and multifactorial treatment approaches were needed.

Significance of Need for Policy Practice and Social Change

Jackson County has an obesity rate of 30% and a low infant birth weight rate of 7.4%—both of which are above the overall rate for the state of Wisconsin and well above national benchmarks. Obesity is more prevalent in those with low socioeconomic and education status (Stetter, 2011; Ostbye, et al, 2012). In Jackson County the children living in poverty is at 18%, compared to the state rate of 14% and the national benchmark of 11% (BRMH, 2012). Low socioeconomic status has been associated with obesity (MacFarlane, Abbott, Crawford, & Ball, 2009). Policy to create the culture of health, including preferences for healthy food and healthy activity levels, in the BRMH service area is needed, but effective and affordable solutions are elusive. An effective social structure will improve the opportunities for the at-risk group to be supported and engage in healthy lifestyle measures that improve their weight management. Current resources and community priorities are suboptimal in Jackson County. Social and cultural

influences affect nutrition (Delormier, Frohlich, & Potvin, 2009) and social structure and cognition, especially education, play a role in physical activity choices (Godin et al., 2010).

Black River Memorial Hospital sponsored a community health needs assessment BRMH, 2012) which identified obesity as a priority issue in the service area. In accordance with BRMH's mission to "Enhance the health and well-being of all people we serve" (BRMH, 2013, p. 1), the BRMH administration agreed to support this study's in-depth needs assessment to further investigate this the needs of this high-risk group and to recommend future programming to improve the well-being of citizens in the service area.

Definition of Terms

Currently there are many studies and articles about weight management that use similar terms. To clarify these for the purpose of this project these terms will be defined as follows:

Life Course Theory: This model acknowledges that a person's life course from birth to death is affected by life circumstances and alteration of many circumstances affect the health and well-being trajectory of the individual (Kuh, et al, 2003).

Obesity treatment: Bariatric procedures, meal replacement programs, and pharmacotherapy (Burke & Wang, 2011) as well as lifestyle education and support programs (Kiernan et al., 2013).

Women of childbearing age: Women of the 18 to 44 years of age (BRMH, 2013).

Weight management strategies: Measures to include healthy lifestyle measures known to be correlated with healthy weight including a diet high in vegetables and fruits and fewer processed foods and regular exercise (Wane, van Uffelen, & Brown, 2010).

Assumptions

To more fully appreciate the needs of the women of childbearing age in this rural area one must consider the following assumptions: Jackson County is the only fully encompassed county within the defined service area and is the basis for much of the demographic statistics and it is assumed that these demographics are quite representative of the service population. It may be assumed that since this area has invested time and financial resources into developing and maintaining a number of developed walking and hiking trails and parks, and exercise facilities that services are accessible and used by the public. In a rural area, such as this service area, it may be assumed that gardening and fresh food is affordable and available and in abundance and that food preservation is a way of life in this northern climate. It is commonly thought that young women understand that obesity is associated with health risks such as diabetes, heart disease, and pregnancy complications and birth defects (Gokee, Gorin, Clarke, & Wing, 2011).

Scope and Delimitations

The scope of this needs assessment was targeted to address the specific weight management needs of women of childbearing age in this rural service area. Based on the Life Course theory and the goals of the project, the development /project team identified weight management health literacy, healthy diet measures, healthy activity measures, Social support needs, and motivation factors as aspects to explore. A qualitative inquiry

was especially suited to this project because the purpose was to illuminated variables and interventions (Corbin & Strauss, 2008) and not to test them. Objectivity is a key concern in conducting a valid needs assessment (Soriano, 2013). This author, as a concerned member of the community and health care professional that is not a paid employee of BRMH, provided leadership of an interdisciplinary team to objectively identify needs of the women of childbearing age to achieve and maintain healthy weight in the BRMH service area. As an APRN that has lived in this community for more than 50 years many of them as an obese woman, this author lent both insight and sensitivity gained through the journey of healthy weight attainment.

Limitations

In a qualitative investigation it is possible that the researcher may influence the data (Merriam, 2009). In this study, the researcher was on the team constructing the interview questions and interview protocol and then singularly performed the individual interviews, and the transcribed and coded the data. To limit bias a structured interview was developed and reviewed for interpretation issues by the local stakeholder group to limit bias. The structure of the interviews also then guided the coding process. Bias was further limited by the audio recording and verbatim transcription. Objectivity is a key concern in conducting a valid needs assessment (Soriano, 2013). This author, as a concerned member of the community and health care professional that is not a paid employee of BRMH, provided leadership of an interdisciplinary team to objectively identify needs of the women of childbearing age to achieve and maintain healthy weight

in the BRMH service area. As an APRN that has lived in this community for more than 50 years many of them as an obese woman, this author lent both insight and sensitivity gained through the journey of healthy weight attainment. Focus group interview format was originally planned and attempted but it was eventually abandoned as the individual interview format better limited peer pressure and improved confidentiality. While limitations of bias and objectivity are a real concern in this qualitative investigation the methods and design sought to limit the impact on the final product.

Summary

Women of childbearing age are of particular interest [say to whom] because they influence the lifestyle choices of their families Further, this target group has increased health risks associated with unhealthy weight (CDC, 2006). In planning for improved weight management initiatives or interventions it will be important to understand the needs of this target group. An informed, interdisciplinary group planned for a series of individual interviews in this rural service area that has a comparatively high obesity rate (BRMH, 2012). Based on the current literature, understanding of the local resources, and the findings of the interviews, the project included a report which was presented to local stakeholders and health agencies and to suggest the development of local interventions.

Section 2: Review of the Literature

Introduction

The purpose of this project was to examine the diverse factors that influence lifestyle choices in a rural county in west-central Wisconsin. Review of the local needs assessment and a variety of literature sources helped to illuminate the factors that encourage women to achieve a healthy weight as well as the barriers that limit their interest in or participation in, strategies that promote weight management.

Search Strategy

To identify peer-reviewed, full-text articles, the following databases—CINAHL and MEDLINE—were searched for the years 2009–2014 using the following keywords: *women, obesity, weight management, exercise, emotional support, socioeconomic status, childbearing age,* and *attitudes*. After data collection, additional key words identified in the themes such as *motivation, tools, moral norm, food preferences* were added to the search Boolean operators, including "AND" and "OR," were used to maximize the results. The selected articles' reference lists also identified relevant articles.

Weight Management

Predictors and Correlations

The socio-demographic backgrounds such has poverty and low education levels are associated with obesity in women of childbearing age. . However, MacFarlane, Abbott, Crawford, and Ball, (2009) found that the women of this group that maintained a healthy weight were more likely to be younger, more educated, on the higher spectrum of

income having a more educated partner, spent more leisure time actively with less sitting time and consumed less soft drinks. In their review of the literature, Wane, van Uffelen, and Brown (2010) found that correlations of diets high in fat, processed, fast food choices that included fewer and fruits and higher less healthy weight management. They also found correlation of regular physical activity and the maintenance of a healthy weight. They found weak correlations to the assumptions of contraception and smoking cessation as contributors to unhealthy weight. Davis, Stange, and Horowitz, (2010) concurred that social disadvantages such as single parenting and low income are correlated with unhealthy weight and offer a concept that maternal stress affects biological responses contributing to health disparities especially in the perinatal period. In the Active Mothers Postpartum Study, Ostbye, et al., (2012) found that post-partum period comprises a critical time for weight management. Post-partum weight retention was identified as a risk factor for a life trajectory of increasing BMI and higher health risks. This study also reported strong correlations of healthy weight to a higher socioeconomic status, higher education, supported partner present more physical activity and food choices eschewing fast food and junk food. Interestingly they also associated a healthier weight with breastfeeding and hormonal birth control use (Ostbye et al., 2012). Further, Hatsu, McDougald, and Anderson, (2008) concluded that exclusive breastfeeding promotes healthy weight attainment post-partum and recommend this strategy for obesity prevention.

Barriers, Attitudes and Motivators

The barriers, attitudes and motivators that affect weight management of childbearing age women are important to understand when considering measures to improve weight management of this high risk group.

Barriers identified by postpartum women in a qualitative investigation by Montgomery et al.(2010) included time issues, motivation issues, the need for support, lack of support from significant others, health care professionals, self-support, support of family, and other struggles such as excuses and rationalizations, feeling overwhelmed by caring for a newborn, and professional responsibilities, postpartum depression. Napalitano et al. (2011) found that obese women reported more barriers to physical activity than overweight and normal weight women. They identified feeling too big to exercise, poor health, and fear of injuries as barriers to increasing their physical activity. Chang, Chang, and Cheah (2009) identified that contributing factors to obesity included attitudes and perceptions of those that were obese. These contributing factors were people being unconcerned about their obesity and the incorrect assumption that their weight was normal. Burke, Heiland, and Nadler (2010) also found evidence that women underestimated their BMI and the risks associated with obesity. Taychenne, Ball and Salmon (2009) examined promotion of physical activity in women in disadvantaged neighborhoods and found that increasing education about the detriments of sedentary lifestyle may be helpful and found that women desired written information and tools such as activity diary and online activity tracker to improve their activity level. Lombard,

Deeks, Jolley, and Teede (2009) identified children as a barrier to a healthy lifestyle citing especially the imposed time constraints, lack of childcare, and being influenced to prepare meals that children prefer.

Strategies

The Life Course Theory provides framework for this investigation with consideration for biological and external factors that influence the life course trajectories influencing health. Life course epidemiology as Kuh et al., (2003) describe has been developed in the interdisciplinary research area of developmental science and includes cognitive, biological and psychological research to describe and predict processes from birth to death. Environmental factors such as dietary intake, exercise, smoking, alcohol consumption, and chemical exposures are understood to affect the course of health. Lu and Halfon (2003) identify that other life circumstances such as race and ethnicity, socio-economic status, psychosocial stressors, also affect life course trajectories to health. Life course epidemiology (Kuh et al., 2003) seeks to identify health risks and protective processes. The cumulative risk or the accumulation of insults negatively affects health outcomes. The presence of risks or protective factors has the influence to modify the trajectory. In this theory, critical periods identify when exposure is particularly critical and sensitive periods are when intervention has particularly strong impact. Resilience and vulnerability describe the individual's adaptation (Kuh et al., 2003) to life circumstance and interventions. The elimination of disparities that directly affect these elements, requires policy and interventions that currently remain elusive (Lu & Halfon, 2003).

WAPC has used Life Course Theory to develop tools and strategies to address the reproductive life plan and improve birth outcomes (Malnory & Johnson, 2010). This in depth needs assessment sought to understand what health risks and critical periods are problems leading to obesity in the BRMH service area and what are the needs of the target groups to achieve healthy weight. The committee recommended programs and program component as well as protective factors that could promote a healthier trajectory. Programming was recommended to target critical periods and sensitive periods to best influence healthy behavior and affect healthy weight management.

Qualitative Investigation and Individual Interviews

To plan or suggest meaningful interventions one must identify underlying needs to be fulfilled (Soriano, 2013). Qualitative inquiry is an appropriate way to gain insight into issues. Subjectivity of the researcher is assumed (Merriam, 2009) but structure of the interview and careful handling of the data may limit undue influence of the researcher in the findings. To gain insight of the needs to achieve or maintain a healthy weight in women of child bearing age, an interview protocol including interview questions that were developed to elucidate factors that affect healthy weight management for this group. Interviews questions were developed based on the goals of the project and Life Course theory and were reviewed for possible misunderstandings or potential for confounding responses and revised to improve validity of these questions. Originally, this qualitative investigation was developed as a focus group study but due difficulty recruiting respondents a change in protocol was approved by the IRB to change to individual

interview format. It was felt that his provided better confidentiality and improved open and honest responses therefore more reliable data.

Theoretical Model: Life Course Theory

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maintain and differentiate our services and provide proactive, progressive and comprehensive healthcare (BRMH, 2013). This projects goal to investigate the needs of women of childbearing age in achieving and maintaining healthy weight was well aligned with these core values and mission by understanding the needs to inspire or direct proactive meaningful interventions.

Summary

The literature review was done to consider possible barriers to a healthy weight for the purpose of planning the investigation. This literature review identifies correlations of socioeconomic disadvantages that are evident such as low income, and low education, in this service area as high risk factors for obesity. Barriers to healthy weight include lack of concern for weight management, low health literacy, poor social support, stress of child care burdens and lack of time to address weight management strategies, pressure to prepare meals children prefer, are commonly identified in the literature. Strategies to achieve and maintain a healthy weight include exercise and the support of life skills to prepare healthy meals. Support in loosing post-partum weight seems to be a critical time period and breastfeeding is associated with healthy weight management. Obese individuals face more health risks and also more barriers to physical activity. It is unknown what women understand are the risks and what they see as barriers to decreasing health risks and what would be helpful and motivating to achieve a healthy weight. This investigation provides some insight into the needs of this group of rural women of childbearing age in this service area.

Age Target: Preconception, Inter-conception, and Postpartum Care

Guided by the Life-Course theory this study identified that women of childbearing age as being at higher risk for health risks posed by overweight and obesity and also influential in affecting the lifestyle choices and behaviors of children and young families. It was recognized that the post-partum time is an especially sensitive time to affect healthy weight. According to Ostbye et al. (2009), those that do not lose postpartum weight in the 2 years following birth tend to retain this weight long-term.

Atrash et al. (2006) urged action steps such as health promotion campaigns, and in clinical settings to address the preconception and inter-conception (between pregnancies) care to improve perinatal outcomes as recommended by the Institute of Medicine, American College of Obstetrics and Gynecology, and American Academy of Family Physicians. Furthermore, Lu et al. (2006) states that in addition to addressing many health risks including maternal obesity, exercise for pre- and postpartum mothers, priorities regarding weight management in the inter-conception time should also include the promotion of breastfeeding, exercise and healthy dieting. Malnory and Johnson (2011) endorsed this strategy in promoting a more universal reproductive life plan including preconception and inter-conception care as a means to improve birth outcomes. Brown et al. (2011) also recommended interventions and support for women in the adolescent and preconception time.

In addition, Hatsu, McDougald, and Anderson (2008) provided further evidence to support that breast feeding promoted greater weight loss in postpartum and concluded that that measures to promote breastfeeding could be a means to prevent overweight and obesity.

Health Literacy and Motivation

In this needs assessment, women understood that diet and exercise affected weight management and that underweight, overweight and obesity negatively affected a pregnancy. Many understood what a BMI was but many were unaware of their own BMI and they may underestimate their own risks associated with a high BMI. These findings would be consistent with the findings of Keely, Gunning, and Denison (2011) as well as Burke, Heiland, and Nadler (2010). In understanding the urgency to address inter-partum (between pregnancies) weight Keely Gunning, and Denison (2011) found in that many women do not come to understand the risks to a pregnancy that an unhealthy BMI poses. In that qualitative study they conclude, as did Allen, Duggan, and Munhoz (2011), that health promotion about obesity risks is important and recommended the support and training for perinatal health care providers in addressing this sensitive topic with women, especially noting that this group is highly motivated to have healthy infants.

The BRMH service area has a high obesity rate. The women in this area have a lower than state average education and income level (BRMH, 2011). The women interviewed in this needs assessment identified stress and many identified financial and social stressors as barriers to healthy lifestyle. To address the health disparities presented by life stressors, Davis, Stange, and Borwitz (2010) propose a public health framework to support finding novel approaches to identify at risk women, modifiable factors and focusing obesity prevention efforts in the postpartum time.

In this needs assessment, all of the women cited that their children were in some way motivated them to seek a healthy weight and/or lifestyle. The literature supports this

finding as Lombard et al (2009) concluded that women with children are more likely to be motivated to attend prevention programs to address weight and intervention programs. They further recommended that these types of programs are needed to support women's attempts to achieve healthy lifestyle changes. Recruiting and delivery of a prevention program through primary schools was very successful and success was correlated with a fairly structured program as opposed to the more loosely scheduled opportunities.

Family involvement and support was identified as a need for successful weight management and lifestyle changes in this needs assessment. In support of this influence Turer et al. (2013) found that the American Academy of Pediatrics recommendations of eating 5 fruits and vegetables a day, limiting screen time to less than 2 hours a day, eliminating consumption of sugar sweetened beverages, limiting fast food consumption, regularly eating family meals together and including one hour of physical activity a day were more apt to be met by preschoolers if their mothers also met these behavior goals.

The local needs assessment findings confirmed that food preferences within families presented challenges to healthy eating. Understanding that food and eating are part of the culture and measures to influence population nutrition and eating patterns as described by Delormier, Frohlich and Potvin (2009) can positively impact life course trajectory. In short, some of these concepts include the daily practices of choosing food, obtaining food, preparing food, and consuming food in context of ways that these practices symbolize and reinforce social relations. So it is no surprise that preferences of adolescents are a combination of influences from family and school influences.

Self-motivation was another common need identified in this target group. Women felt very responsible for their own lifestyle choices. In some cases they identified feeling "guilty" over unhealthy choices and "good" over healthy choices. Godin, Conner, and Sheeran, (2005) identified that when people perceive a correctness of behavior they are more likely to enact a behavior change. In addition Godin, et al (2010) examined models of social structure, social cognition, as they related to physical activity and found that after adjusting for life circumstances and socio-economic stressors that except for age, the only variant that moderated the intention to change behavior was education.

Healthy Activity Promotions

Healthy activity levels and regular exercise are measures that have been associated with long term healthy weight maintenance (Mekary et al., 2010). The AAP has recommended an hour a day of moderate activity and it was found that children whose mothers met the health behavior goals were more apt to meet the goals as well (Turer et al. 2013). Social structure factors however, show marginal effects on behavior change in physical activity and only education improved the intention to actual behavior change (Godin, et al., 2010).

Tools and Strategies

Ostbye et al. (2008) conclude that in a post-partum group needed motivational cues to action, feelings of confidence in ability to change that come from having the tools and knowledge to accomplish the change as well as ongoing support to sustain the changes. As part of a behavior modification plan to combat obesity Burke and Wang (2011) recommend a step to limit stimulus such as limiting the temptation of unhealthy

foods. They also concluded that pharmacotherapy and bariatric surgery are viable treatment options for obesity.

Motivating and influencing improved lifestyle choices for this target age may be increasingly challenging as traditional programs are less appealing to this age group (Gokee-Larose, Gorin, Clarke, & Wing, 2011). Emerging data confirms that many mobile, electronic, or web based tools, programs and reminders are effective tools in this age group (Soureti et al., 2011).

Section 3: Methodology

Purpose

The purpose was to examine the diverse factors that influence lifestyle choices in a rural county in west-central Wisconsin. Multiple perspectives helped to illuminate the factors that encourage women of child-bearing age to achieve a healthy weight as well as the barriers that limit their interest in or participation in, strategies that promote weight management.

The findings from the literature, a review of community resources and barriers, and data from the interviews were reported to inform stakeholders and the sponsoring agency. These findings were presented and suggestions were made about key components of the findings to be used in choosing meaningful interventions and strategies to improve weight management in childbearing age women in this service area.

Method

The prior needs assessment (BRMH, 2012) and the Jackson County Impact Report (Stetter, 2012) — as well as national (CDC, 2012) and state (CDC, 2009) evidence—served to inform a local project team about the normative, perceived, expressed, and relative needs. After IRB approval #03-10-14-0354165, an interdisciplinary team began to plan the weight management needs assessment. Members of local agencies represented a number of the community subgroups and stakeholders. The following steps were taken:

1. Reviewed the relevant evidence and available community resources
2. Developed a focus group protocol

3. Recruited focus group participants
4. Conducted focus group discussions
5. Analyzed data from the focus groups
6. Reported the findings/recommendations to BRMH, community agencies, and stakeholders

As the focus groups were planned, the strategies described by Wyatt, Krauskopf, and Davidson (2008) were used to construct the focus group questions and protocol to maximize participation, and address ethical concerns.

Project Team

A local work team comprised of local community experts and stakeholders met to consider the project and suggest further team requirements and work processes. In planning the data collection process for the focus group interview, the planning group included measures to strengthen social connections, ground rules for group interactions and anticipating resources and needs during the focus group interviews as described by Hodges and Videto (2008). The members of the local work team convened, and with understanding of the goals of the project and the sponsoring agency's resources, considered programming to address the needs of the women of childbearing age in achieving healthy weight management in the rural Black River Falls area. Team members included representatives from the Jackson County health department, Jackson County health and human services board, local clergy and mental health, food pantry board of directors, BRMH physical therapy, nutrition services, administration, business development, Footprints-in-Time midwifery services, and Ho-Chunk Nation diabetes

coordinator. The planning was based on the Life Course theory premise that life experiences and circumstances affect health outcomes (Kuh et al., 2003). Team strategies used by the project team included the recruitment of the right people, setting preliminary objectives, meeting, and considering local resources. After IRB approval of the project the team reviewed the project and organized action steps. The project team met periodically to review progress and to formulate recommendations to the community stakeholders and agencies.

Relevant Evidence and Resources

The local work group examined the problem in detail, beginning with a summary of the local community health needs assessments (BRMH, 2012), and the impact of health factors in Jackson County (Stetter, 2012). A literature review related to relevant topics such as weight management predictors, weight management barriers, attitudes, motivators and effective weight management strategies of women of childbearing age was also undertaken. This collection of knowledge allowed the local work group committee to organize and develop questions for a qualitative investigation.

Discussion of the literature including a review of Life Course Theory with the team identified underlying assumptions of the stakeholders and agencies validated and align the focus of the assessments as suggested by Soriano (2013). It was important for the needs assessment project team to understand the underlying theory for it to effectively guide the investigation (Soriano, 2013). In this case the Life Course Theory guided the assessment project and informed the applicable social justice considerations (Kuh et al., 2003).

The interdisciplinary team also reviewed available community resources and areas of potential community improvement. Soriano (2013) underscored the necessity in knowing the community to perform a needs assessment. This step formalized the understanding of the stakeholder's knowledge of the community as underpinnings to the investigation. The recent community health needs assessment, the income, socioeconomic, and health care statistics for the predominant county were reviewed to validate the identified problems (BRMH, 2012, Stetter, 2012). Each project team participant was invited to consider the community and its apparent resources and limitations and provide expert guidance as it pertains to attainment of measures identified to affect healthy weight such as diet high in vegetables, fruit, and fiber and low in fat and processed ingredients as well as access, availability, and usability of exercise venues and social support resources.

Development of a Focus Group Interview Protocol

Following the examples in Soriano (2013) the planning team developed a focus group discussion guide for use by the group discussion facilitator to develop rapport and guide the discussion. It was planned that two consistent facilitators hold the discussion groups and collect data to provide uniformity of format and less likelihood of inaccuracies. Interview questions included questions to assess common issues identified in the literature as barriers as they apply to the BRMH service area. As Chang, Chang, and Cheah (2009) and Keely, Gunning, and Denison (2011) identified, the perceptions of obesity and the health risks it signifies are often underestimated so some questions addressed health literacy and understanding of risks of obesity to identify education needs

of the community and perhaps suggest the appropriateness of public service and clinical education interventions.

Since it has been shown that a diet rich in vegetables and fruits is associated with attaining and maintaining healthy weight (Wane, van Uffelen and Brown, 2010) questions were included to assess barriers to consuming such a diet. Barriers such as accessibility and affordability of fresh fruits and vegetables, healthy food growing (gardening), as well barriers to obtaining and preparing these foods will assessed during the interview. This information served to inform programming considerations for current public health initiatives.

Mekary et al. (2009) identify that physical activity is correlated with attaining and maintaining a healthy weight so questions to assess barriers to the access, affordability, and opportunities for physical activity in the BRMH service area were included in the interviews. This information was sought to inform and suggest facilities development and local programming to improve the culture of health in the BRMH service area.

Barriers identified by postpartum women in a qualitative investigation by Montgomery et al.(2010) included time issues, motivation issues, the need for support, lack of support from significant others, health care professionals, self-support, and support of family among other issues of parenting so this investigation included questions assessing the perceived needs and barriers to social support and services that would improve the diet and exercise motivation and potential for women in the target group.

Ostbye et al., (2012) also identifies postpartum as a very sensitive time for weight management strategies including breastfeeding to affect long-term health trajectory for

women, therefore, questions about needs and services that would improve the weight management of post-partum women would be included. Based on the literature and Life course theory, areas to be investigated included health literacy about factors that contribute to healthy weight, and community strengths and limitations to healthy lifestyle. Interview questions can be found in Appendix A, and were be distilled into a protocol intended to facilitate structured focus group interviews. The interdisciplinary team considered and approved focus group protocol questions and developed a script for the focus group discussions leader. Included were questions regarding needs, barriers, success, health literacy, and attitudes.

Recruitment of Focus Group Participants

Each group was planned to be recruited and classified by homogeneity factors to form such groups as women of low socioeconomic status, professional career women, parents of students, industrial workers, and postpartum mothers. The interviews were planned to be held at the BRMH Dorothy Halvorson conference room during non-business hours when other educational and social groups meet there. The conference room was reserved only for the author. The name, Marcia Hagen, would have been used in order to avoid identification of the content or the expected participants to the general public. These rooms were chosen for comfort, good lighting, and because they have little extraneous noise.

The target population is women of childbearing age that live within 35 miles of Black River Falls, Wisconsin. Small focus groups of four to seven participants were planned to be recruited for the interviews to optimize the participant sharing (Soriano,

2013). Forming natural homogenous groups instead of random groups is planned to optimize sharing among peers (Wyatt, 2008).

The planning group identified natural groups within the community that spanned social, economic, cultural, to facilitate group participation around common areas of interest. Two to six homogenous groups of four to seven participants were planned; each representative of a defined characteristic group. Characteristic groups to be interviewed were planned to include parents of daycare or school children, professional working women, Head Start or WIC parent, industrial employees and post-partum mothers. Employers, food pantry organizers, WIC, and Head Start officials, school officials, obstetrics department manager, community health leaders, and daycare administrators were asked to facilitate recruitment of participants by allowing recruitment of participants by posting or distributing flyers to all of their clients/employees.

Agreements were made with local agencies to solicit interview participants through their facilities. Public announcements to recruit participants were made through the local radio station, WWIS. Participants were invited to call coordinators to be signed up for a focus interview group and based on pre-screening questions, would have been assigned to a group of similar participants such as "women of preschoolers" "students" professionally employed women". The interviews were planned to be held at BRMH as a neutral widely accessed community facility. Participants would have been told the time and date of the scheduled focus groups and asked to report to the Dorothy Halverson Conference Room at BRMH. In addition to additional signage to direct the way to the Dorothy Halvorson conference room one of the researchers planned to be at the lobby to

direct visitors. Plans were laid to recruit participants that were representative of the community through open advertising, advertising at local work sites, daycare, schools, WIC programs and food pantries to participate in four to six focus groups consisting of like social groups. However, recruitment was difficult and it was found that prospective participants felt uncomfortable talking about weight issues in a group setting and others had issues with child care and transportation (BRMH).

Change of Procedure

After deliberation by the project team a change of procedure was initiated and the protocol was changed from focus group interviews on site at the hospital to individual interviews on site at WIC, the food pantry, and at the hospital (BRMH). All interview questions and structure were converted to individual interviews. Recruitment went quickly and 16 individual interviews were conducted. The on-site recruitment and interviews provided some assurance that the highest risk population were reached at the WIC and food pantry sites. Individual private interviews were conducted with residents from the community and these participants were found to represent particularly sensitive demographics representing women of childbearing age who had delivered babies within the last 2 years, whether employed (in professional and nonprofessional roles) or unemployed.

Administration of Interviews

As the interviews were planned, the risks to the participants were considered. It was recognized that during an interview, participants may risk experiencing embarrassment and stress when talking to others about weight management. However,

this risk was deemed commensurate with stress that would be encountered in daily life. However, during recruitment, women were reluctant to take this risk. To overcome this barrier it was decided to change the plan to do individual interviews instead of focus group interviews. Another barrier identified was transportation to the hospital for the interviews.

After approval from the IRB was granted to change the project from focus groups to individual interviews that could be done on site at the participating agencies, participants were quickly recruited. I interviewed them at a local WIC clinic, a food pantry, and at BRMH. All interviews were audiotaped. There were 16 interviews conducted, however, one interview with a professionally employed woman was not included in the data as the audio recording quality prevented accurate transcription. Each participant filled out a paper that pre-screened with some broad demographic information such as inclusion criteria, employment status and during the interview some questions focused on community services so it was learned which communities the participants represented. Each participant consented with a written consent agreement confirming that she was a woman age 18- 44 years of age, fluent in English, and that she understood that this discussion was entirely voluntary, with the understanding that names would not be used in any report. Exclusion criteria were made for those women who were in any type of supervised housing, did not speak English or had an appointed guardian.

The data collection consisted of performing personal audiotaped interviews in a setting that would provide confidentiality for the interview content. The individual structured interviews were all done personally by this researcher for continuity. The

interview protocol included the greeting, and consenting of participants and an informal hospitality of beverages and snacks. The audiotaped interviews were performed with a structured set of questions (see Appendix B). Audio recording was used to document the focus group process and capture data accurately. Discussion questions were read and then reflective/ confirming statements were made to augment the conversation. Personal documentation of subjective data in context can provide an accurate reflection of a person's perspective (Merriam, 2009). So, participants were asked to fill out an evaluation that asked if they felt that their concerns were understood which included a place to write any further comments. This was designed to allow the expression of thoughts that, for varying reasons the participant did not feel comfortable sharing aloud during the session which may have then potentially affected the results. Participants were thanked and given thank-you gifts of certificates to local restaurants and a grocery store in the area with a value of ten dollars following the interview.

I conducted the interviews and served as the consistent single coder for the data. The coding themes found to be in line with the goals of the program noting not only consensus but significant outlying information. Identifying the consensus and outlying information from each interview provided accuracy and depth and understanding to the information. Information from the interviews was assessed for saturation of the group. The findings were reviewed within the planning and stakeholder group.

Data Analysis

The audiotaped interview data was transcribed verbatim and the data was coded using open and axial coding strategies. The structured interview protocol provided

structure for basic themes and further themes were identified across the data. The content analysis was done by sorting the responses into categories.

Transcribing, coding, reviewing, and analyzing data was done with attention to objectively and methodically sorting the data. Data was reviewed to identify any enlightening, or unexpected findings and to identify any incomplete notions (Soriano, 2013). The data from the interviews regarding the needs of the women of childbearing age for healthy weight management were analyzed. Data in the form of written notes and audio recorded interviews was reviewed by a sole researcher. Responses were recorded and coded for anonymous association with the participant. Data analysis began after the first sessions using the Life Course Theory and the goals of the project as a guide for searching for and identifying themes. The data was de-identified and transcription was done by the researcher in double spaced documents. As each line was read, lines were highlighted and notes were written in margins to facilitate sorting of the data with consideration of Life Course Theory and the goals of the project though this open coding process. Then axial coding was done by grouping the bits of data into broader thematic groups so that all of the data found to be pertinent to the goals of the project was included in these categories (Strauss & Corbin, 2008).

This data was compiled into a report to the local project planning committee for review. After review of the data, a literature search was done using key words in the themes and operational word such as “program” and intervention.

Coding Data

Collected data was coded with open coding at first. Each transcript was read and re-read, tagging or coding each data bit that seems relevant to the problem. These were then examined and coded axially by synthesizing the collection and grouping this datum into categories or themes (Merriam, 2009). For example, open coding may identify datum such as "noodles costs less broccoli" or "gym membership is too expensive" to express the particular operational barriers. In axial coding this data would be categorized, for example, as "financial barriers" to be identified as a category of relevance to the study. There will be enough categories to contain the data with very few clear outliers to enhance the reliability of the findings. The coded data of all of the interviews were reviewed with the interdisciplinary stakeholder team before preparing a report of the findings and recommendations. Transcribed data and audio tapes are now kept in secure medical records storage at BRMH and will be kept for 7 years.

Report Findings and Make Recommendations

A full report of the findings was created for presentation to the sponsoring agency and stakeholders. The results of the needs assessment included a summary of the identified needs of the community, evaluation of community resources and needs by local stakeholders and health professionals, and interview data. An itemization of logistic and perceived barriers to healthy weight management was compiled. The information garnered culminated in the interdisciplinary team formulating a report of the strengths, weaknesses, needs and barriers to weight management for the target group. Recommendations for enhancing existing and potential future community resources to

improve the weight management for women of childbearing age in the BRMH service area based on the needs identified through the in depth needs assessment were constructed.

A report of the findings and recommendations were presented in a meeting of the local health agencies including stakeholder representatives from the team. The interdisciplinary team members were invited to provide insights and to formulate recommendations for new community programming or enhanced existing services and programs to facilitate for inclusion in the final report. This report was made BRMH administration and made also available to stake holding community agencies to meet the goals and objectives of this project. See Appendix C

Summary

A qualitative investigation into the needs of childbearing age women in the designated local, rural service area was planned by a local work group of stakeholders and professionals. The method developed including the questions and the protocol were developed by the local work group. I carried out the individual interview protocol with sixteen local women between 18-44 years of age that were English speaking and did not have an appointed guardian nor live in a nursing facility. I then transcribed the interviews and then coded the data using open and axial coding. The structured interview format was used to limit bias and provided some guidance for the coding themes. The needs of the childbearing age women to achieve a healthy weight when effectively addressed in the BRMH service area suggested meaningful effective interventions and may inspire

interventions for further study. This data may also provide evidence to support the selection and endorse the need for local programs.

In reviewing the qualitative data collected, the insights gained suggest similarities and differences with findings to those in different demographics, suggesting further inquiry for research.

Section 4: Findings, Discussion, and Implications

Purpose

The purpose of this project was to examine the diverse factors that influence lifestyle choices in a rural county in west-central Wisconsin. Review of the local needs assessment and a variety of literature sources helped to illuminate the factors that encourage women to achieve a healthy weight as well as the barriers that limit their interest in or participation in, strategies that promote weight management.

A report of the findings from the literature, review of community resources and barriers, and data from the interviews was made to the stakeholders and the sponsoring agency. This information suggests meaningful interventions and strategies to improve weight management of childbearing age women in this service area.

Description of the Participants

Sixteen interviews were included in this report about the weight management needs of childbearing age women in the BRMH service area. While specific demographic information was not solicited, the recruiting efforts, prescreening information, and responses to the interview questions revealed that, this information was collected from participants from fairly representative of the local population with good representation of the most vulnerable groups. Of the participants, four were recruited at the WIC clinic, six from the food pantry, three from BRMH, and two recruited from the community at large. The participants also included employed women including five who identified themselves as professionally employed, two who identified themselves as employed, and one who

worked in manufacturing. Two participants identified themselves as having a Ho-Chunk tribal affiliation and three identified themselves as students.

Findings

Copious data were generated from the face-to-face structured interviews. The following themes were identified: health literacy, barriers to a healthy diet, barriers to healthy activity, motivation for a healthy lifestyle, effective strategies for weight management.

Health Literacy

The findings indicated that all but one of the women had someone that had talked with them about what their healthy weight should be. Some identified that their worksite wellness program identified this and some reported being counseled by healthcare professionals, including doctors and nurses. P6 “Yes, I guess a doctor did- he told me that even before I got pregnant that I was overweight- he tried telling me to exercise.”

More than half of the women recognized the term BMI but less than half knew their own BMI. Four found the term obese offensive. One respondent said it was dependent on the context. Some said they found the word obese offensive and judgmental. P2 said, “If someone were to call me obese –I would be like- ‘I’m sorry’…” The term overweight was found to be less offensive and was described by one participant as “gentler.”

When asked to identify the difference between overweight and obese ten of the women identified obese a difference in stratified weight. Most women were able to identify that the difference between overweight and obese was a stratification but some

did not know there was a difference. A few were able to identify obese and overweight as medical classifications. P3 disagreed with the BMI charts assessment of her weight saying “I do still think the BMI is confusing- because I’m short and I don’t think I am that big.” These findings are consistent with Burke, Heidler, and Nadler (2010), who wrote that women underestimate their weight and health related risks. Five women identified that extra nutrition was necessary for breastfeeding, two knew nothing about breastfeeding and weight management. It was encouraging to find that eight cited that breastfeeding helped postpartum weight loss. Most of the women believed that healthy weight was important for a healthy pregnancy but felt that this should be more lenient and individualized during pregnancy (see Figure 1). More than half of the women were able to identify that breastfeeding was healthy for the baby and also help mothers achieve a healthy weight after pregnancy as described by Hatsu, McDougald, and Anderson (2008). P13 said “I don’t know a lot but I noticed that when you do breast feed- a lot of those [women] lose weight”

Two identified this as a functional issue identifying that obesity is seen as excess weight affecting mobility. Six of the women reported favorable feelings about their own weight. Two identified that they should lose weight and two said they struggled with weight and their feelings, and three reported negative feelings about their weight.

These themes in health literacy indicate that women in this underestimate the severity of obesity or the risks associated with it especially as it relates to pregnancy outcomes. Feelings of being judged for not being of healthy weight or being “bad” or “wrong” if obese was a common. Most participants seem to positively correlate

breastfeeding with healthy weight management and nutrition for the infant.

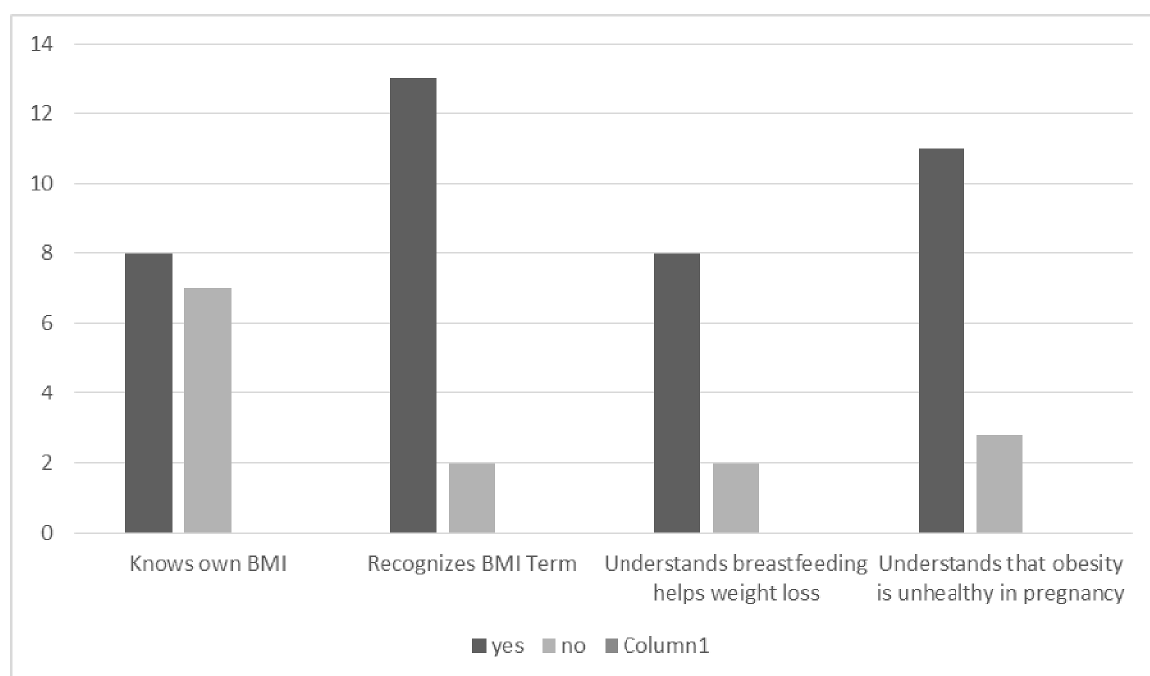

Figure 1. Health Literacy of Women of Childbearing Age in BRMH Service Area

Barriers to Healthy Diet

Barriers to a healthy diet were assessed. With an understanding of community programs, local shopping, transportation, and the local intergeneration cultures the questions were designed to illuminate likely barriers.

The acquisition of healthy food is a key part of having a healthy diet. There are only two grocery markets in Jackson County. There are many convenience stores but these are usually higher priced have limited selection. However, lack of variety in local shopping at the two available grocery stores was identified by two participants. Only one participant identified as shopping as a barrier to healthy meals and interestingly, transportation was a noted as a barrier to healthy nutrition only for two in spite of lack of public transportation in the area,

Finances were cited frequently by these participants as a barrier to good nutrition. Only one woman admitted that at times she did not have food available to herself and her family. Although all women said they had the availability of healthy food for breakfast and supper they cited difficulty in having enough money for healthy food, especially for fresh fruits and vegetables. Ten women identified money as being a barrier to having healthy food. Eight cited specifically that money prevented them from buying fresh fruits and vegetables. Five women cited that finances were especially a problem when buying or fruits and vegetable in the winter. Interestingly, according to the local WIC program, about one third of the farmer's market checks go unredeemed. Given this was a rural community with limited public transit it was suspected that transportation to procure healthy food may be a barrier.

Daily healthy family meals are correlated with healthy eating practices and successful weight management of women of childbearing age even in socially disadvantaged neighborhoods as described by Mc Farlane, Abbott, Crawford and Ball (2009). Finding time to have a family meal at least daily was identified as a barrier by only two women. Five cited that schedules are challenges to having a daily family meal. In fact, nearly all the women describe making time to eat together at least daily was a priority using statements like "always have dinner together " and P11 said, "we are pretty religious – I make it a point- we have supper together."

Preparation of healthy meals remains a challenge to this group. While schedules and time constraints were cited by seven of the women as challenges to having healthy meals many of them having limited time for preparation. Responses indicating time

constraints to healthy diet consisted mostly of having enough time to prepare healthy meals. P14 describes her struggles to cook a healthy family meal, “I can do it [Meal preparation], but it’s just so time consuming that after working all day long, it’s just like, oh my gosh let’s just throw some chicken nuggets in the oven and have macaroni and cheese and call it a day.” P13 says that “I don’t have time to prepare the meals. If you don’t have time to pre-prep then it doesn’t make your week a lot easier.[Meal preparation] it’s not bad if you prep ahead.” In an industrial setting, P16 found frustration in the limited time at break to warm a prepared meal or go for a walk.

> “I guess during the week you’re just so busy at work, you get a 10-minute break, and a 10-minute break, and then a 20-minute break. Well, it’s hard to have something prepared that’s really healthy that you can have consumed in 20 minutes. If you want to use the microwave you might have to stand in line for 5-10 minutes.”

Ability to cook or prepare food within the daily time constraints of a busy family represents a significant barrier in this target group. One woman identified that she had difficulty with preparing food. One said that she had difficulty cooking unfamiliar healthy foods and two women identified that they had limited cooking ability. However, many cited that they did not have time to prepare nutritious home cooked meals.

Development of healthy food choices as described by Delormier, Frohlich, and Potvin, (2008) is influenced through socialization through families but are also developed in work and school social settings. Women not liking healthy food choices and/or children not liking healthy food was cited by more than half of interviewees in varying

degree of severity. Findings that were cited infrequently were stress, lack of garden space, and needed dental work. Two women noted that stress was a barrier to a healthy weight.

The barriers to heathy diet seem to be related less to access to food and shopping but more to limited ability to afford fresh fruits and vegetables. (See Figure 2) With the WIC access to farmers fresh produce in the summer time it seems more likely that the identified issues of lack of time and knowledge to prepare nutritious home-cooked meals and women and family member's preferences for other less nutritious foods are the more constraining issues.

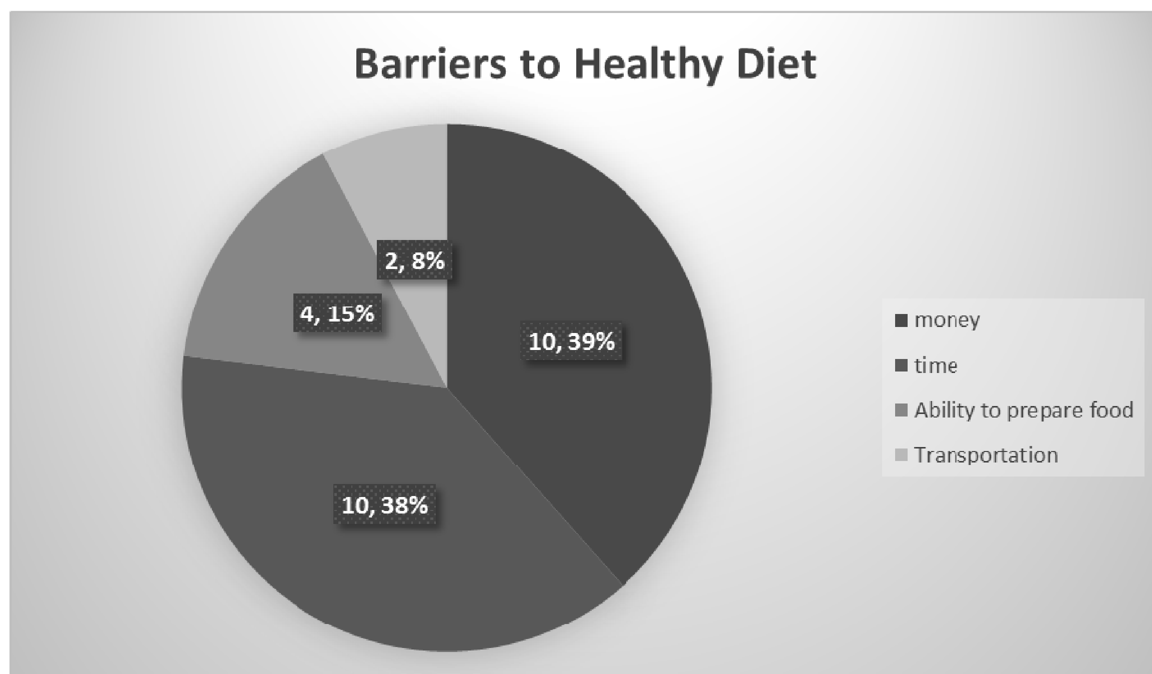

Figure 2. Barriers to a Healthy Diet

Barriers to Healthy Activity

Healthy activity levels are more elusive than ever. Lack of fun activities to do was cited as a barrier to activity by eight women. Lack of fun and affordable activities during bad weather was specifically cited by four women. Self-motivation to pursue a healthy activity level was considered a barrier by seven of the women.

P11 expresses these frustrations saying, “If there was more things to do with my son- I mean it’s good in the summer but in the late fall through early spring it’s really hard to find things to do within a budget.” With P14 testifying to these difficulties, “ To go [exercise] by myself and knowing that the kids were with somebody and having fun while I go off and do my exercise- cause it seems like if you have your kids with you with you- you don’t have the full exercise out of it.” Time constraints or family schedules were cited by more than half of the women. Lack of childcare or coinciding fun child’s activity was cited by six. P11 emphatically described this barrier saying, “ I’m not paying a babysitter so I can go the gym- that’s crazy talk.- but if there we more things to do inside [in the winter] for small children around here then it would be easier.” Lombard, Deekis, Jolley, and Teede, (2009) also found that a school based intervention including elements of information on weight management, healthy lifestyle, physical activity as well as social support for mothers of school aged children was effective. Poor health was noted by two women as a barrier to activity. Too much screen/technology time was noted by one to be a barrier in an unsolicited comment. Lack of garden space was cited as a barrier to activity by one woman. Lack of spousal support was listed by one. Lack of affordable

activities was cited by four. Lack of money for a gym membership or home exercise equipment was noted by one participant.(See Figure 3)

The barriers to healthy activity cited by the participants in this assessment could be largely addressed with community resources providing low cost activities for families or with adult activities with concomitant children's organized physical activities. Campaigns to limit screen time and increase physical activity in parents and children would likely be beneficial to improving the culture of healthy weight management (see Figure 3.)

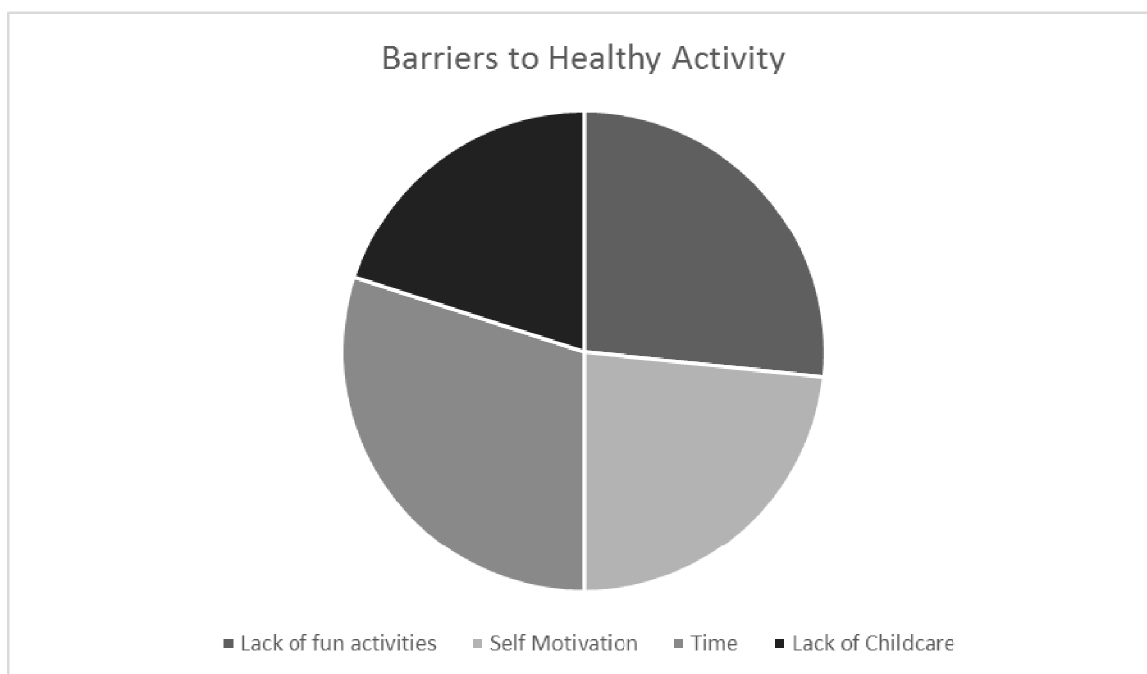

Figure 3: Barriers to a Healthy Activity Level

Motivation for a Healthy Lifestyle

Motivation to pursue a healthy lifestyle is difficult to inspire. Yet, all of the women cited in some way their children motivated them to eat healthy and/or be active, some want to provide a good role model, some children required work and activity as part of their care, and one wanted to be healthy for her children (See Figure 4). P2, a young mother, concedes that her children require her to be active in meeting their needs but she also says, "beyond that- knowing that I want to be able to do things with them later… I don't want to be unhealthy- so that I can do things with the kids- that's something that's very, very, important to me." Six women cited that their significant others helped them be healthy. Six women shared that they were motivated by family involvement in healthy eating and exercise. Two were motivated by their own mother. P2 notes, "My mother- she is the – not to say angel- but she is that person on my shoulder and the voice in my head telling me I probably shouldn't eat that." Three women cited that having good health was a motivator for activity and healthy diet. Two were inspired by friends to have healthy lifestyles.

Two cited media, including social media as inspiring healthy eating as well as healthy activity. One example was provided of inspiring media by P15 currently addressing her unhealthy weight , "Media and the motivation 'you should be doing all of this—you see this person who is all paralyzed and they are still doing exercise- what's your excuse' kind of thing."

One woman cited her motivation for pursuing a healthy weight was advice of a medical professional. From this study it is unclear if more of the women were not advised

about attaining a healthy weight and lifestyle or if the interactions were not seen as motivators to change. One described a social group forming a team as motivating her activity (See Figure 4).

The moral norm i.e. having healthy behaviors judged as good and unhealthy weight and behaviors judged as "bad" was identified as being a motivator in this group as the terms being "good", or "right" or "bad", "terrible" or "guilty" were indicated by three participants. This has been known to be correlated to successful weight management by Godin, Conner and Sheeran (2005).Social groups and worksite wellness programs and incentives also motivated and reinforced positive lifestyle choices.

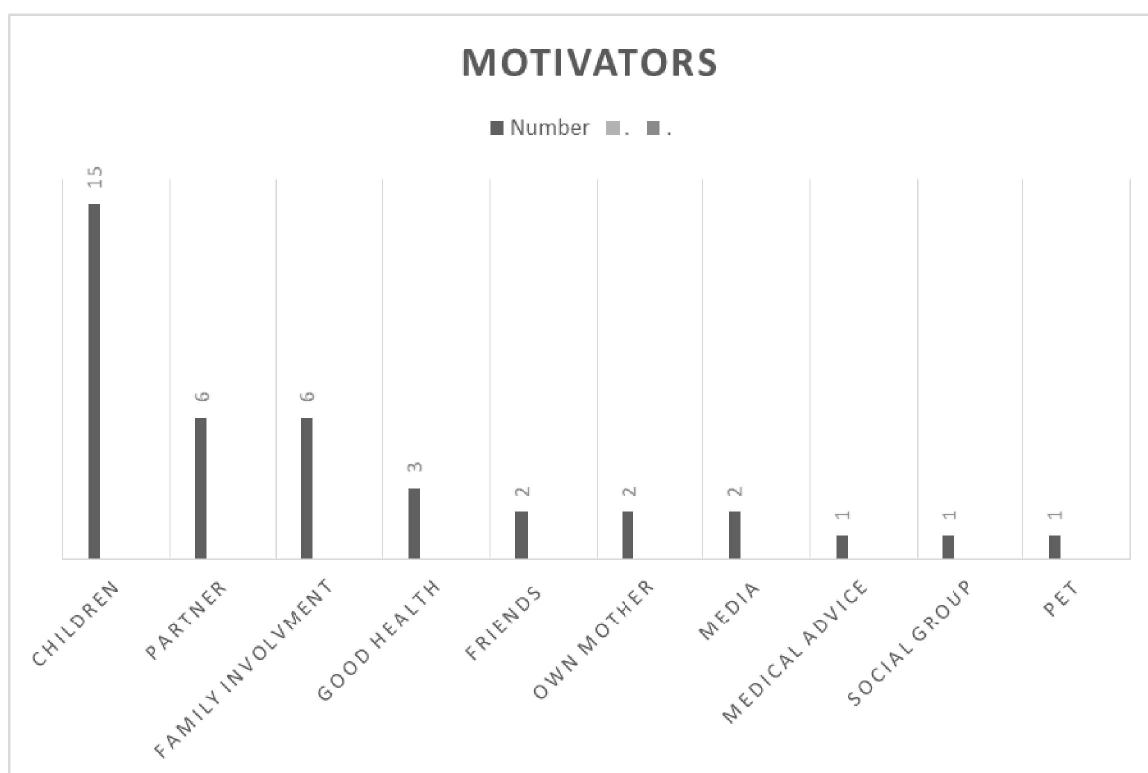

Figure 4: Motivators to Adopt Healthy Lifestyle Measures

Effective Strategies

Healthy diet and exercise were the only identified means to effectively manage weight while not breastfeeding. Ten identified that diet and exercise were ways to manage their weight, three identified only diet and two identified only exercise. The women interviewed women employed strategies of calorie counting, setting exercise goals in minutes, and tracking their weight in pursuit of a healthy weight. Women looked for innovation, social support and fun in the employment of these tools. P15 said, "I guess I am kind of on that track of finding activities I like to do rather than something that feels like you're being forced to go… and you don't really enjoy it- like I am doing dancing as opposed to like running." Many women reported enjoying activities and were able to stick to healthy diets when everyone in the family participated.

As designed, the food pantry, WIC, and food stamps were found to be helpful programs that improve healthy eating. Tachenne, Ball, and Salmon (2009) noted that disadvantaged women desired information about the detriments of a sedentary lifestyle and found online activity tracker and diary to be helpful in improving activity levels. Specific tools identified included Weight Watchers, My Fitness Pal phone app, and exercise DVD's. This group of rural women valued the participation and support of family and friends in the pursuit of healthy diet and exercise. They also found education and inspiration in the form of media campaigns, and online resources, online tools, and digital media and phone apps. Education is a meaningful intervention that has been found to improve the relationship of intention and behavior (Godin et al., 2010) and is affirmed

as these women identify that education and support are important and especially helpful and convenient in these forms

Strengths and Limits

The scope of this needs assessment was targeted to address the specific needs of women of childbearing age in 2014 to achieve and maintain a healthy weight in the BRMH service area. Since this assessment was facilitated by BRMH, other community stakeholders may not have been motivated or supported in participation therefore a limitation of this assessment may include lack of full participation by community groups and/or stakeholders. Qualitative inquiry was especially suited to this project because the purpose is to illuminate variables, and interventions (Corbin & Strauss, 2008) and not yet to test them. In qualitative investigation it is possible that the researcher may influence the data (Merriam, 2009). In this study the researcher was on the team constructing the structured interview, performed the personal audio-recorded interviews, and transcribed and coded the data. To limit bias the interview protocol included a structured interview to minimize influence by the interviewer and the structure of the interviews guided the coding process. In the initial plan the structured interview was planned to be used in a focus group setting. However, due to difficulty in recruiting focus group participants. The format was changed to individual interview format. Although provisions were made for the comfort and confidentiality of the participants of the proposed focus groups, changing the format to the individual interview provided a secure and confidential avenue for data collection. It is felt that this format limited peer pressure and improved confidentiality. Audio taping and verbatim transcription aided limiting bias and influence of the

researcher. Objectivity is a key concern in conducting a needs assessment that is valid (Soriano, 2013). This author, as a concerned member of the community and health care professional that is not a paid employee of BRMH, provided leadership of an interdisciplinary team to objectively identify needs of the women of childbearing age to achieve and maintain healthy weight in the BRMH service area. As an APRN that has lived in this community for more than 50 years many of them as an obese woman, this author lent both insight and sensitivity gained through the journey of healthy weight attainment.

Using the Life Course theory as a tool for guiding this qualitative inquiry improved the strength of the inquiry. And, as Soriano (2013) describes, also explained findings or observations and guided recommendations with regards to conceptual linkages.

The purpose of this project was to inform BRMH service area health improvement initiatives. This timely information may serve to suggest further research into rural needs and interventions.

Implications

The implications of the findings in the literature and the data generated in the needs assessment are broad based but well supported. The culture of health in the community may be impacted by thoughtful consideration of these findings as aligned with community organizations goals. This programs goal was to suggest meaningful interventions

Health literacy is important to health outcomes so and is developed through provider relationships, family, media and community sources. Public information should then be consistent in media, schools, public places including retail and municipal buildings as well as health care facilities. As an example the food of the month at school could be promoted at the lunch program, and repeated in the community at the grocery, daycare, restaurants, and with recipes in the newspaper. Health literacy in preconception and postpartum times are very sensitive and interventions should be targeted heavily in these time periods. Pre-conception care, inter-conception care and postpartum times are sensitive times to improve the health of the population.

Healthy meals taken together as a family is a powerful avenue for a healthy diet. The barriers in this local groups seem to be in knowing how to quickly and efficiently prepare healthy meals. Perhaps education or information on affordable recipes, pre-preparation, crockpot dinner, and kitchen skills such as chopping techniques would challenge and engage this group to prepare healthy family meals.

The literature and the information from this assessment suggests that family involvement in healthy lifestyles should be supported. Co-programing to include both children and adults should be considered as meaningful ways to improve the culture of health in the community. Community organizers should consider social work out activities and activities that have children's co-programming or childcare on site to improve involvement in physical activities.

To enhance motivation employing the moral goodness of healthy choices, campaigns to normalize the "goodness" of healthy choices and to inspire healthy lifestyle

change will be important considerations. An example would be a campaign to send short messages such as a sign by the elevator pointing out how "good" it would feel to take the stairs. Education and support are the best ways to improve healthy lifestyle changes and should include attractive and available venues in all avenues of the community and include electronic, digital, and video media supports as well. As an example the food of the month at school could be promoted at the lunch program, and repeated in the community at the grocery, daycare, restaurants, and with recipes in the newspaper.

Conclusions

Rural women have similar but unique needs to manage their weight. While they experience the same risk factors as urban childbearing women face, the culture and effective strategies to address these needs may be different. Further study of the effectiveness of any proposed interventions is warranted.

Section 5: Scholarly Product

Weight Management of Women of Childbearing Age

Obesity in the United States directly affects more than one third of the population thereby threatening the health of the nation (CDC, 2012). Women of childbearing age are at especially high risk for obesity (Lombard, Deeks, Jolley, & Teede, 2009). Further, women strongly influence the health and dietary choices of families (Robinson, 2011). The lifestyle choices that lead to obesity in women likely will influence lifestyle choices of families (Robinson, 2011). Life circumstances such as economics, culture, genetics, as well as imposed factors such as pregnancies, education, and stress serve to alter life trajectories of health and wellbeing (Kuh et al., 2003). Understanding the factors affecting healthy weight management in this key group may affect the life course trajectories for women as well as their family members with regards to their current and future health.

Background

Lifestyle factors that influence weight management such as food choices and activity participation are varied and complex. In the Black River Memorial Hospital (BRMH) service area obesity was identified as a significant health risk by a community health needs assessment (BRMH, 2012). The service area assessed was the rural area within a thirty five mile radius of the hospital. The only county included in its entireness in the service area is Jackson County. In Jackson County, obesity has been a persistent problem and even though effective weight management strategies exist, they have been underutilized. The problem addressed in this project is that information related to the

factors that affect healthy weight management in the women of childbearing age is limited in the BRMH service area of rural Black River Falls, Wisconsin.

Purpose

Factors that influence lifestyle choices are diverse. The Jackson County area is diverse in resources, cultures, and lifestyles. The purpose of this project in the form of a needs assessment was to examine these phenomena in this community from multiple perspectives. The needs assessment is provided for use as a tool to illuminate factors that influence women to achieve a healthy weight as well as barriers that limit motivation or participation in weight management strategies in this rural community. The findings from the literature, review of community resources and barriers, and interviews were used to formulate a report to inform stakeholders and the sponsoring agency and suggest meaningful interventions and strategies to improve weight management of childbearing age women in this service area. Description of Black River Memorial Hospital Service Area

The agency sponsoring this project was Black River Memorial Hospital. This rural Wisconsin critical access hospital thirty five mile radius service area includes all of Jackson County as well as portions of Clark, Trempealeau, and Monroe counties. Clark, Trempealeau, and Monroe counties also have health care facilities within those counties.

This area is home to the tribal offices of the Ho-Chunk Nation as well as a gaming facility and tribal housing, tribal lands, and pow-wow grounds. German, Norwegian, Polish cultures are also strongly represented, as are smaller groups of Mexican and Amish. This area is strongly involved in agriculture, mining, and manufacturing. There is

a minimum and maximum security prison in the designated service area. Hunting, fishing, hiking, watersports and motorsports are popular recreational activities. Black River Memorial Hospital has sponsored the Community Health Needs Assessment (BRMH, 2012) which identified obesity as a priority issue in the service area. Jackson County has an obesity rate of 30% and a low birth weight infant rate of 7.4% both above Wisconsin's rate and well above national benchmarks. Low socioeconomic status has been associated with obesity (MacFarlane, Abbott, Crawford, and Ball, 2009). In Jackson County the children living in poverty is at 18% which is above the state rate of 14% and well above the national benchmark of 11% (BRMH, 2012). Cultural demographics in this area include the well-established indigenous Ho-Chunk Nation, which was further settled by a current majority of Caucasians, many of Germanic and Scandinavian descent as well as an increasing numbers of other racial and cultural minorities.

Evidence-Based Significance

The need for effective weight management strategies is described in mass media as well as healthcare literature. In spite of national public nutrition and fitness awareness and educational initiatives as well as the regulation of food marketing and other strategies, obesity continues to be a significant health risk for the people of the United States.

The impact of this health problem is described in terms of significant morbidity and mortality to childbearing age women (CDC, 2006). Women of childbearing age are identified as a priority population for weight management initiatives because the problem of maternal obesity affects the mother's health, and is associated with delivery

complications and complications with the child's health including a higher rate of birth defects (CDC, 2006). Further, women strongly influence the lifestyle choices of their entire family affecting the alarming childhood obesity rates (Robinson, 2011, Vanhala et al., 2009).

Pertinent Literature

Literature was reviewed to plan the investigation by identifying issues, correlations, target groups, attitudes and potential barriers for women in this service area. Once the investigation was planned and the interviews conducted and the datum coded, the literature was once again consulted to suggest meaningful community planning initiatives and community strengths on which to build by using key words in the themes and operational words such as "program" and "intervention."

A search of full text articles with limiters of English language, years 2009 through 2014, on the CINAHL and MEDLINE library databases is done using search words of women, obesity, weight management, exercise, emotional support, socioeconomic status, childbearing age, attitudes. Some articles were identified within the references for reviewed articles. All resources were obtained, reviewed, and included if they were written by respected individuals and publications providing peer review.

Literature Strengths

The literature available to uphold need for this project was strong, providing correlations of increased risk for women of child bearing age and risks associated with obesity. Current literature upheld the need for measures to improve the health of women

of childbearing age and offered insights into the needs of socioeconomically disadvantaged women as it applied to weight management. The literature supported the Life-Course Theory and gave guidance to sensitive times that interventions would be most efficacious.

Literature Weaknesses

The literature that described barriers for women of childbearing age in weight management were limited to studies and measures done in urban areas with largely African American populations. No literature was identified that spoke to Native American Cultures or primary Caucasian groups. No current literature was available discussion the needs of rural low income women or effective rural strategies to address weight management. Therefore a lack of knowledge justified a need for this investigation and suggests that further evaluations of interventions in rural areas is needed.

Research Design and Methods

The prior needs assessment (BRMH, 2012) and the Jackson County Impact Report (Stetter, 2012) as well as the national (CDC, 2012) and the state (CDC, 2009) evidence served to inform a local project team about the normative, perceived, expressed, and relative needs as described by Kettner, Maroney, and Martin (2008). After IRB approval, the planning of a qualitative investigation in the form of a needs assessment was done through an interdisciplinary team with members from local agencies representing a number of the community subgroups and invested stakeholders. The project group planned interviews that were conducted with individual women from the service area.

Sample of Participants

Each participant filled out a paper that pre-screened with some broad demographic information such as inclusion criteria, employment status and during the interview some questions focused on community services so it was learned which communities the participants represented individual interviews on site at WIC, the food pantry, and at the hospital (BRMH). Recruitment was done through flyers at local businesses and on the local radio station and on site at the local food pantry during a distribution day, on site at a local WIC clinic during a check pick up day. Sixteen individual interviews were conducted. The on-site recruitment and interviews provided some assurance that the highest risk population were reached at the WIC and food pantry sites. Individual private interviews were conducted with residents from the community and these participants were found to represent particularly sensitive demographics representing women of child bearing age that have delivered babies within the last two years, both employed, and unemployed including both professionally employed and employed in non-professional roles.

Administration of Interviews

It was understood that subjects may undergo negative consequences in participating in during the interview process. This risk is of undergoing potential stress or embarrassment of speaking to others about weight management and was deemed to be commensurate to stress that may be encountered in daily life. After approval from the IRB was granted to change the project procedure from focus groups to individual interviews participants were recruited and audiotaped interviews were performed on-site

at local WIC clinic and food pantry as well as on-site at BRMH by one sole interviewer. Sixteen interviews were conducted, however, one interview with a professionally employed woman was not included in the data as the audio recording quality disallowed accurate transcription.

Inclusion Criteria

Each participant consented with a written consent agreement confirming that she was a woman age 18- 44 years of age, fluent in English, understood that this discussion was entirely voluntary, with understanding that names would not be used in any report.

Exclusion Criteria

Exclusion criteria were made for those women who were in any type of supervised housing or had an appointed guardian or did not speak English.

Data Collection

The data collection consisted of performing personal audiotaped interviews in a setting that would provide confidentiality for the interview content. The individual structured interviews were all done personally by this researcher for continuity. The interview protocol included the greeting, and consenting of participants and an informal hospitality of beverages and snacks. The audio-taped interviews were performed with a structured set of questions (see Appendix B). Audio recording was used to document the focus group process and capture data accurately. Discussion questions were read and then reflective/ confirming statements were made to augment the conversation. Participants were asked to fill out an evaluation that asked if they felt that their concerns were understood and included a place to write any further comments. This was designed

to allow the expression of thoughts that for varying reasons the participant did not feel comfortable sharing aloud during the session then potentially affecting the results. Personal documentation of subjective data in context can provide an accurate reflection of a person's perspective (Merriam, 2009). Participants were thanked and given thank-you gifts of certificates to local restaurants and a grocery store in the area with a value of ten dollars following the interview.

This researcher conducted the interviews and served as the consistent single coder for the data. The coding themes found to be in line with the goals of the program noting not only consensus but significant outlying information. Identifying the consensus and outlying information from each interview provided accuracy and depth and understanding to the information. Information from the interviews was assessed for saturation of the group. The findings were reviewed within the planning and stakeholder group.

Analysis of Data

The audio taped interview data was transcribed verbatim and the data was coded using open and axial coding strategies. The structured interview protocol provided structure for basic themes and further themes were identified across the data. The content analysis was done by sorting the responses into categories scrutinizing the data for the frequency each response was elicited by individual participants. For instance, Participant "2", "If I had a sitter I could exercise" and Participant "3", "I have no one to watch the kids so I can go work out" were grouped together in a response category and qualified as "2 of the 15 participants identified lack of child care as a barrier to exercise." This

process was done for each interview and the results of each interview were compared with the other interviews for a thematic analysis.

Transcribing, coding, reviewing, and analyzing data was done with attention to objectively and methodically sorting the data. Data was reviewed to identify any enlightening, or unexpected findings and to identify any incomplete notions (Soriano, 2013). The data from the interviews regarding the needs of the women of childbearing age for healthy weight management were analyzed. Data in the form of written notes and audio recorded interviews was reviewed by a sole researcher. Responses were recorded and coded for anonymous association with the participant. Data analysis began after the first sessions using the Life Course Theory and the goals of the project as a guide for searching for and identifying themes. The data was de-identified and transcription was done by the researcher in double spaced documents. As each line was read, lines were highlighted and notes were written in margins to facilitate sorting of the data with consideration of Life-Course Theory and the goals of the project though this open coding process. Then axial coding was done by grouping the bits of data into broader thematic groups so that all of the data found to be pertinent to the goals of the project was included in these categories (Strauss & Corbin, 2008).

Findings

Qualitative results of this investigation were reviewed in light of available but limited literature for the purpose of guiding local programs and initiatives to improve the health of the service area.

Health Literacy

Understanding obesity and the risks it poses allows individuals to make informed decisions about weight management. As Malnory and Johnson (2011) recognize health information and health literacy are formed in many settings including medical visits but also in the drug store, playground or at family discussions. The findings in this investigation indicated that all except one of the women had someone that had talked with them about what their healthy weight should be. Some identified that their worksite wellness program identified this and some reported being counseled by healthcare professionals including doctors and nurses. One participant reported, "Yes, I guess a doctor did- he told me that even before I got pregnant that I was overweight- he tried telling me to exercise."

It is recognized that weight management is a very emotionally sensitive subject and that individuals often feel judged by being classified overweight or obese and that often underestimate their risk category (Burke, Heidler & Nadler, 2010). Almost all of the women recognized the term BMI but less than half of the women knew their own BMI. Four found the term obese offensive, while nine did not. One respondent said it was dependent on the context. Some said they found the word obese offensive and judgmental. One woman said, "If someone were to call me obese –I would be like- 'I'm sorry'. The term overweight was found to be less offensive and was described by one participant as "gentler."

When asked to identify the difference between overweight and obese ten of the women identified obese a difference in stratified weight. Most women were able to

identify that the difference between overweight and obese was a stratification but some did not know there was a difference. A few were able to identify Obese and overweight as medical classifications. One woman disagreed with the BMI charts assessment of her weight saying "I don't think I'm that big." These findings are consistent with Burke, Heidler, and Nadler, (2010) work that women underestimate their weight and health related risks. Five women identified that extra nutrition was necessary for breastfeeding, two new nothing about breastfeeding and weight management. It was encouraging to find that eight cited that breastfeeding helped postpartum weight loss. Most of the women believed that healthy weight was important for a healthy pregnancy but felt that this should be more lenient and individualized during pregnancy. More than half of the women were able to identify that breastfeeding was healthy for the baby and also help mothers achieve a healthy weight after pregnancy as described by Hatsu, McDougald, and Anderson (2008). One woman said conspiratorially "I don't know a lot but I noticed that when you do breast feed- a lot of those [women] lose weight."

Instead of a weight risk stratification two identified obesity as a functional issue identifying that obesity is seen as excess weight affecting mobility. Six of the women reported favorable feelings about their own weight. Two identified that they should lose weight and two said they struggled with weight and their feelings, and three reported negative feelings about their weight.

These themes in health literacy indicate that women in this underestimate the severity of obesity or the risks associated with it especially as it relates to pregnancy outcomes. Feelings of being judged for not being of healthy weight or being "bad" or

"wrong" if obese was a common. Most participants seem to positively correlate breastfeeding with healthy weight management and nutrition for the infant.

Barriers to Healthy Diet

Barriers to a healthy diet were assessed. With an understanding of community programs, local shopping, transportation, and the local intergeneration cultures the questions were designed to illuminate likely barriers.

The acquisition of healthy food is a key part of having a healthy diet. There are only two grocery markets in Jackson County. There are many convenience stores but these are usually higher priced have limited selection. However, lack of variety in local shopping at the two available grocery stores was identified by two participants. Only one participant identified as shopping as a barrier to healthy meals and interestingly, transportation was a noted as a barrier to healthy nutrition only for two in spite of lack of public transportation in the area,

Finances were cited frequently by these participants as a barrier to good nutrition. Only one woman admitted that at times she did not have food available to herself and her family. Although all women said they had the availability of healthy food for breakfast and supper they cited difficulty in having enough money for healthy food, especially for fresh fruits and vegetables. Ten women identified money as being a barrier to having healthy food. Eight cited specifically that money prevented them from buying fresh fruits and vegetables. Five women cited that finances were especially a problem when buying or fruits and vegetable in the winter. Interestingly, according to the local WIC program, about one third of the farmer's market checks go unredeemed. Given this was a rural

community with limited public transit it was suspected that transportation to procure healthy food may be a barrier.

Daily healthy family meals are correlated with healthy eating practices and successful weight management of women of childbearing age even in socially disadvantaged neighborhoods as described by Mc Farlane, Abbott, Crawford and Ball (2009). Finding time to have a family meal at least daily was identified as a barrier by only two women. Five cited that schedules are challenges to having a daily family meal. In fact, nearly all the women describe making time to eat together at least daily was a priority using statements like “always have dinner together “ and “we are pretty religious – I make it a point- we have supper together.”

Preparation of healthy meals remains a challenge to this group. While schedules and time constraints were cited by seven of the women as challenges to having healthy meals many of them having limited time for preparation. Responses indicating time constraints to healthy diet consisted mostly of having enough time to prepare healthy meals. One women describes her struggles to cook a healthy family meal, “[Meal Preparation]it’s just so time consuming that after working all day long it’s just like, oh my gosh let’s just throw some chicken nuggets in the oven and have macaroni and cheese and call it a day.” Another says that “I don’t have time to prepare the meals.” “If you don’t have time to pre-prep then it doesn’t make your week a lot easier- it’s not bad if you prep ahead.” In an industrial setting one women found frustration in the limited time at break to warm a prepared meal or go for a walk. She said, “ I guess during the week you’re just so busy at work you get a ten minute break and a ten minute break and then a

twenty minute break – well It's hard to have something prepared that's really healthy that you can have consumed in twenty minutes. If you want to use the microwave you might have to stand in line for 5-10 minutes."

Ability to cook or prepare food within the daily time constraints of a busy family represents a significant barrier in this target group. One woman identified that she had difficulty with preparing food. One said that she had difficulty cooking unfamiliar healthy foods and two women identified that they had limited cooking ability. However, many cited that they did not have time to prepare nutritious home cooked meals.

Development of healthy food choices as described by Delormier, Frohlich, and Potvin (2008) is influenced through socialization through families but are also developed in work and school social settings. Women not liking healthy food choices and/or children not liking healthy food was cited by more than half of interviewees in varying degree of severity. Findings that were cited infrequently were stress, lack of garden space, and needed dental work. Two women noted that stress was a barrier to a healthy weight.

The barriers to heathy diet seem to be related less to access to food and shopping but more to limited ability to afford fresh fruits and vegetables. With the WIC access to farmers fresh produce in the summer time it seems more likely that the identified issues of lack of time and knowledge to prepare nutritious home-cooked meals and women and family member's preferences for other less nutritious foods are the more constraining issues.

Barriers to a Health Activity Level

Healthy activity levels are more elusive than ever. Lack of fun activities to do was cited as a barrier to activity by eight women. Lack of fun and affordable activities during bad weather was specifically cited by four women. Self-motivation to pursue a healthy activity level was considered a barrier by seven of the women.

One women expresses these frustrations saying, “If there was more things to do with my son- I mean it’s good in the summer but in the late fall through early spring it’s really hard to find things to do within a budget.” With another woman testifying to these difficulties, “ To go by myself and knowing that the kids were with somebody and having fun while I go off and do my exercise- cause it seems like if you have your kids with you with you- you don’t have the full exercise out of it.” Time constraints or family schedules were cited by more than half of the women. Lack of childcare or coinciding fun child’s activity was cited by six. One woman emphatically described this barrier saying, “ I’m not paying a babysitter so I can go the gym- that’s crazy talk.- but if there we more things to do inside [in the winter] for small children around here then it would be easier.” Lombard, Deekis, Jolley, and Teede, (2009) also found that a school based intervention including elements of information on weight management, healthy lifestyle, physical activity as well as social support for mothers of school aged children was effective. Poor health was noted by two women as a barrier to activity. Too much screen/technology time was noted by one to be a barrier in an unsolicited comment. Lack of garden space was cited as a barrier to activity by one woman. Lack of spousal support was listed by

one. Lack of affordable activities was cited by four. Lack of money for a gym membership or home exercise equipment was noted by one participant.

The barriers to healthy activity cited by the participants in this assessment could be largely addressed with community resources providing low cost activities for families or with adult activities with concomitant children's organized physical activities. Campaigns to limit screen time and increase physical activity in parents and children and to promote spousal and social support would likely be beneficial to improving the culture of healthy weight management.

Motivation for a Healthy Lifestyle

Motivation to pursue a healthy lifestyle is difficult to inspire. Yet, all of the women cited in some way their children motivated them to eat healthy and/or be active, some want to provide a good role model, some children required work and activity as part of their care, and one wanted to be healthy for her children. A young mother concedes that her children require her to be active in meeting their needs but she also says, "Beyond that- knowing that I want to be able to do things with them later… I don't want to be unhealthy- so that I can do things with the kids- that's something that's very, very, important to me." Six women cited that their significant others helped them be healthy. Six women shared that they were motivated by family involvement in healthy eating and exercise. Two were motivated by their own mother. One participant notes, "My mother- she is the – not to say angel- but she is that person on my shoulder and the voice in my head telling me I probably shouldn't eat that." Three women cited that having good

health was a motivator for activity and healthy diet. Two were inspired by friends to have healthy lifestyles.

Two cited media, including social media as inspiring healthy eating as well as healthy activity. One example was provided of inspiring media by a woman currently addressing her unhealthy weight , “Media then motivation ‘you should be doing all of this—you see this person who is all paralyzed and they are still doing exercise- what’s your excuse’ kind of thing.”

One woman cited her motivation for pursuing a healthy weight was advice of a medical professional. From this study it is unclear if more of the women were not advised about attaining a healthy weight and lifestyle or if the interactions were not seen as motivators to change. One described a social group forming a team as motivating her activity.

The moral norm i.e. having healthy behaviors judged as good and unhealthy weight and behaviors judged as “bad” was identified as being a motivator in this group as the terms being “good”, or “right” or “bad”, “terrible” or “guilty” were indicated by three participants. Social groups and worksite wellness programs and incentives also motivated and reinforced positive lifestyle choices

Effective Strategies

Healthy diet and exercise were the only identified means to effectively manage weight while not breastfeeding. Ten identified that diet and exercise were ways to manage their weight, three identified only diet and two identified only exercise. The women interviewed women employed strategies of calorie counting, setting exercise

goals in minutes, and tracking their weight in pursuit of a healthy weight. Women looked for innovation, social support and fun in the employment of these tools. One woman said, “I guess I am kind of on that track of finding activities I like to do rather than something that feels like you’re being forced to go… and you don’t really enjoy it- like I am doing dancing as opposed to like running.” Many women reported enjoying activities and were able to stick to healthy diets when everyone in the family participated.

As designed, the food pantry, WIC, and food stamps were found to be helpful programs that improve healthy eating. Tachenne, Ball, and Salmon (2009) noted that disadvantaged women desired information about the detriments of a sedentary lifestyle and found online activity tracker and diary to be helpful in improving activity levels. Specific tools identified included Weight Watchers, My Fitness Pal phone app, and exercise DVD’s. This group of rural women valued the participation and support of family and friends in the pursuit of healthy diet and exercise. They also found education and inspiration in the form of media campaigns, and online resources, online tools, and digital media and phone apps. Education is a meaningful intervention that has been found to improve the relationship of intention and behavior (Godin et al., 2010) and is affirmed as these women identify that education and support are important and especially helpful and convenient in these forms.

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Conclusion

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Appendix A: Interview Questions

Interview questions
Has anyone everyone ever talked to you about what your healthy weight should be?
Have you ever heard the term BMI?
Do you know your BMI?
What is the difference between overweight and obese?
Is the word obese offensive?
How about overweight?
How do you feel about your weight?
What can you do to help yourself be at a healthy weight?
What do you know about how your weight may affect a pregnancy or the baby?
What do you know about weight control, diet and exercise after having a baby?
What do you know about weight control, diet and exercise during pregnancy?
What do you know about breastfeeding and weight control?
What helps you control your weight?
What helps you eat healthy? How often do you have a family meal at home?
What keeps you from being able to have healthy meals?
Shopping for healthy food?
How about transportation?
How about money?
How about food preferences?
How is your ability to cook healthy food?
How is your knowledge in preparing food?
What gets in the way of having a family style meal?
Do you have the availability of healthy meal at breakfast or supper?
How to family schedules affect your weight?
What helps you be active?
What would help you be more active?
What about where you live helps you with your weight
Makes it hard to watch your weight?
What would improve the chances that you would eat more fruit would and vegetables?
What would improve the likelihood that you would engage in physical activity?
Who helps you eat healthy?
Who helps you be active?
Who keeps you from being active or eating healthfully?
Does your employer offer wellness incentives? Allow time for exercise? Support healthy diet like have a fridge or provide on- site healthy food?

Appendix B: Interview Protocol

Individual Interview Protocol

Women of Childbearing Age Needs Assessment

Participants will be greeted, offered refreshments and asked to sign in and sign the consent form which will also confirm that the participants meet the inclusion criteria. Introductions of facilitators and orientation to facility such as restrooms will be done. Participants will be reminded that the interviews are voluntary, they may leave at any time, and the interviews will be audio-recorded that all data will be de-identified when results are tabulated. Before interview questions are asked the purpose of the needs assessment will be reviewed.

Interview questions are asked.

After the interview is complete the participants will be invited to do an evaluation of the interview and on this form a blank area will be provided for further comments to be provided.

Participants will be thanked and given a token gift and offered an opportunity to provide their e-mail if they would like to be included in future surveys.

Appendix D: Local Stakeholders Report

Needs Assessment: Women of Childbearing Age Weight Management in the Black River Memorial Hospital Service Area

Women of Childbearing Age Need Assessment

The community needs assessment done in 2012 found obesity in the Black River Memorial Hospital (BRMH) service area to be a priority concern (BRMH, 2012). To improve the health of the people in this area, BRMH agreed to work with this researcher to illuminate the barriers to healthy weight in the service area. It was identified that women of childbearing age are not only at more risk for negative health outcomes of obesity (Lombard, Deeks, Jolley, & Teede, 2009) but they also strongly influence the lifestyle and health of their families (Robinson, 2011).

A team was assembled with partners from area agencies including BRMH, the Department of Health and Human Services, Jackson County Health and Human Services Board, and Krohn Clinic, Ho Chunk Nation, area clergy, and food pantry. Based on understanding of the community and a review of the literature regarding factors that influence healthy lifestyles an interview protocol including a structured group of questions was developed. Audio taped interviews were performed with area women aged 18-44 years.

Findings

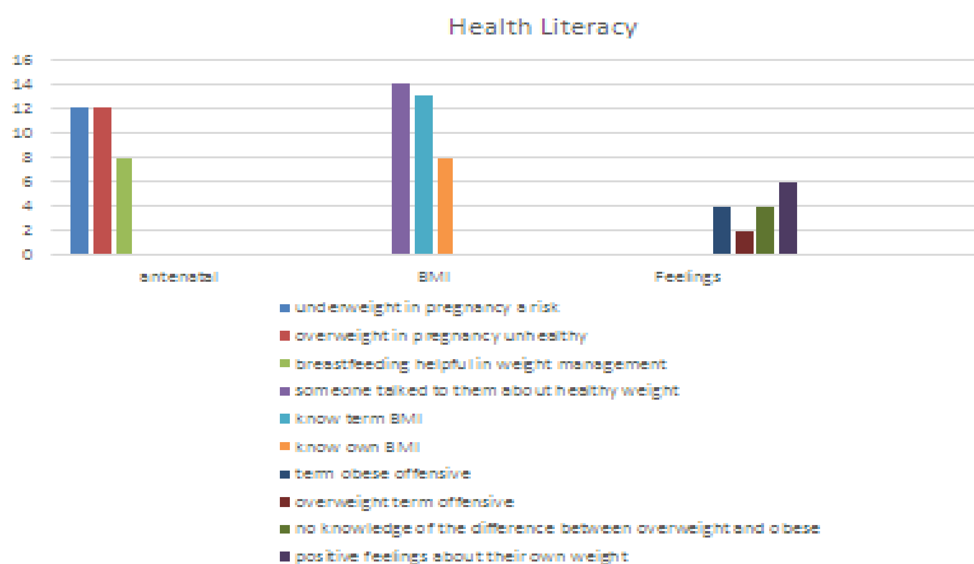
Fifteen interviews were done and the findings are included in this report about the weight management needs of childbearing age women in the BRMH service area. While specific demographic information was not solicited, from the pre-screening information, recruiting efforts and overall discussion it has been found that this information represents employed women including five that identified themselves as professionally employed, two that identified themselves as employed, and one that worked in manufacturing, two that identified themselves as having Ho-Chunk tribal affiliation, three that are identified as students. Of the participants, four were recruited at WIC clinic, six recruited at the food pantry, three were recruited at BRMH, and two recruited from the community at large.

The information was de-identified and coded. The information was sorted into the following themes, health literacy needs, barriers to healthy diet, and barriers to healthy activity, motivation to healthy diet and exercise, and effective strategies.

Theme: Health Literacy

- All except one of the women identified that someone had talked to them about what their healthy weight should be.
- All except two women recognized the term BMI; but, seven of the fifteen did not know their own BMI.
- Four found the term obese offensive, while nine did not. One respondent said it was dependent on the context.

- However, the word overweight was found to be offensive to two women, less offensive than "obese" by two and not offensive by eleven. Two identified that depending on the context it could be offensive.
- When asked to identify the difference between overweight and obese ten of the women identified obese a difference in stratified weight. Four did not know what the difference between overweight and obese.
- One did not agree with the BMI chart's assessment of her own weight saying, "I'm not that big." One did not appreciate the BMI classification of weight gain in pregnancy feeling this should be more individualized.
- Two identified this as a functional issue- obese seen as weight affecting mobility
- Six of the women reported favorable feelings about their own weight. Two identified that they should lose weight and two said they struggled with weight and their feelings, and three reported negative feelings about their weight.
- One cited her hormones as a barrier to healthy weight management.
- Twelve identified that good nutrition was important for a pregnancy
- Twelve identified that being underweight was unhealthy in pregnancy
- Eleven identified that being overweight was unhealthy in pregnancy. One understood this but felt that this should be more individual.
- Five women identified that extra nutrition was necessary for breastfeeding, two new nothing about breastfeeding and weight management. However, eight cited that breastfeeding helped postpartum weight loss.



Theme: Barriers to Healthy Diet

Shopping: Lack of variety at the two available grocery stores was identified by two participants. One identified as shopping as a barrier to healthy meals Finances were cited as a barrier to good nutrition. One woman admitted that at times she did not have food available to herself and her family. Although all women said they had the availability of healthy food for breakfast and supper they cited difficulty in having enough money both for healthy food and especially for fresh fruits and vegetables.

- Ten women identified money as being a barrier to having healthy food
- Eight cited specifically that money prevented them from buying fresh fruits and vegetables
- Five women cited that finances were especially a problem when buying or fruits and vegetable in the winter

Time constraints

- Although only two women said they did not have a daily family meal; five cited that schedules are challenges to family meal
- Schedules and time constraints were cited by seven of the women as challenges to having healthy meals many of them having limited time for preparation.

Ability to cook or prepare food

- One woman identified that she had difficulty preparing food.

- One said that she had difficulty cooking unfamiliar healthy foods
- Two identified that they had limited cooking ability

Transportation

- One thought that gas money to get to a larger town for better shopping. But transportation was a noted as a barrier but only for two.

Food preferences

Women not liking healthy food and/or children not liking healthy food was cited by more than half of interviewees in varying degree of severity.

Stress

- Two women noted that stress was a barrier to a healthy weight

Temptations

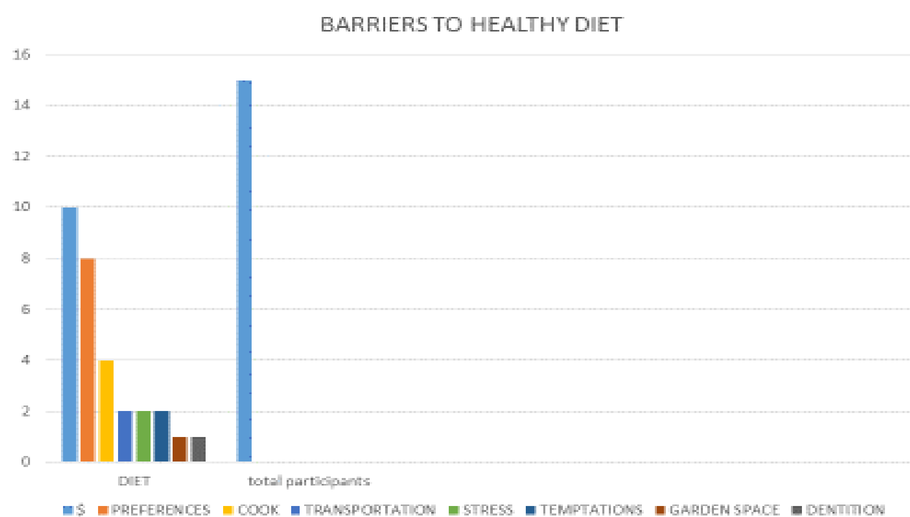
- Two described temptations in media and at food vendors as barriers to healthy diet

Dental Care

- One woman cited a barrier to her ability to eat more healthfully was lack of needed dental work.

Garden Space

- Lack of garden space was cited as a barrier to better nutrition by one woman



Theme: Barriers to Healthy Activity

Lack of fun activities

- Lack of fun activities to do was cited as a barrier to activity by eight women.
- Lack of fun and affordable activities during bad weather was specifically cited by four.

Self-motivation

- Self-motivation was considered a barrier by seven.

Time constraints

- Time constraints or family schedules were cited by more than half of the women.

Lack of childcare or coinciding fun child's activity

- Lack of childcare or coinciding fun child's activity was cited by six.

Health

- Poor health was noted by two women as a barrier to activity.

Screen Time

- Too much screen/technology time was noted by one to be a barrier in an unsolicited comment.

Garden Space

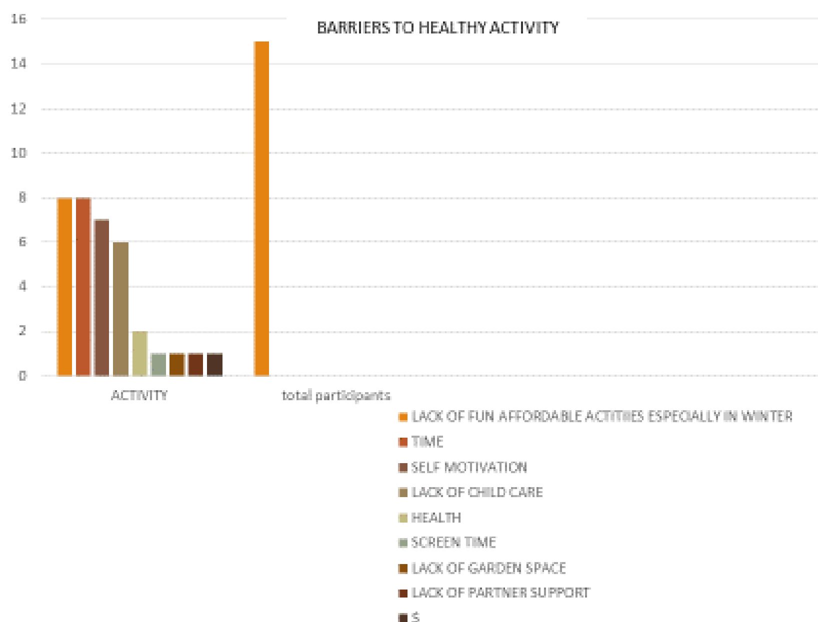
- Lack of garden space was cited as a barrier to activity by one woman.

Spousal Support

- Lack of spousal support was listed by one.

Finances

- Lack of affordable activities was cited by four
- Lack of money for a gym membership or home exercise equipment was noted by one.



Theme: Motivation for Healthy Lifestyle

Children

- All of the women cited in some way their children motivated them to eat healthy and/or be active, some want to provide a good role model, some children required work and activity as part of their care, and one wanted to be healthy for her children.

Spousal / Family Support

- Six cited that their significant others helped them be healthy.
- Six women were motivated by family involvement in healthy eating and exercise
- Two were motivated by their own mother.

Good Health

- Three women cited her good health as a motivator for activity and healthy diet.

Friends

- Two were inspired by friends.

Media

- Two cited media, including social media as inspiring healthy eating as well as healthy activity.

Advice of a Medical Professional

- One woman cited her motivation for pursuing a healthy weight was advice of a medical professional.

Pets

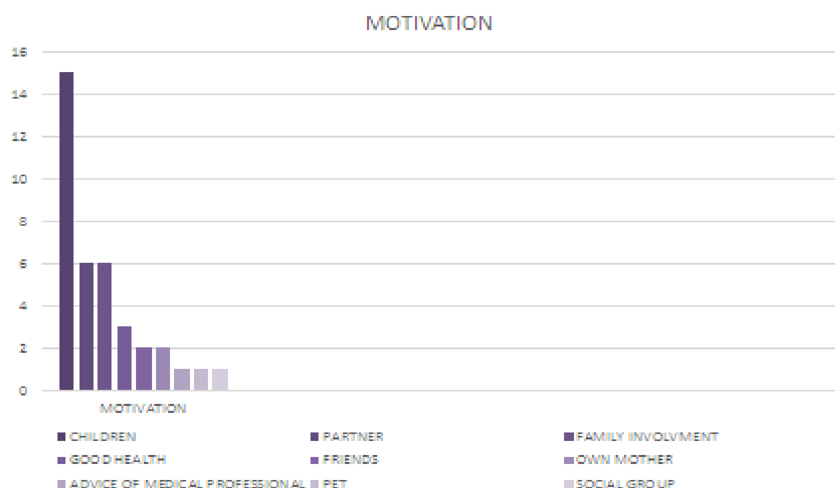
- One was motivated by her pet to be more active.

Social Groups

- One described a social group forming a team as motivating her activity.

The Moral Norm

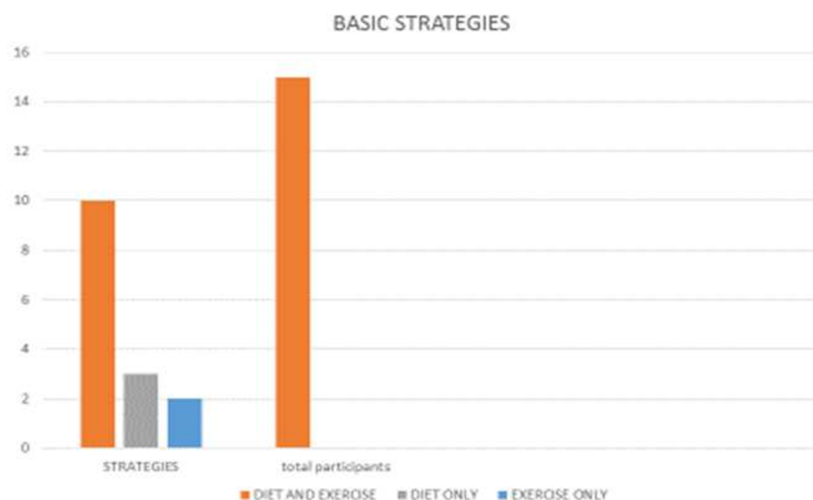
- Having healthy behaviors is judged as good and unhealthy weight and behaviors judged as “bad” was identified as being a motivator in this group as the terms being “good”, or “right” or “bad”, “terrible” or “guilty” were indicated by 3 participants.



Theme: Effective Strategies

- Ten identified that diet and exercise were ways to manage their weight, three identified only diet and two identified only exercise.
- The women interviewed women employed strategies of calorie counting, setting exercise goals in minutes, and tracking their weight in pursuit of a healthy weight.
- Food pantry, WIC, and food stamps were cited as helpful programs that improve healthy eating.
- Specific tools identified included Weight Watchers, My Fitness Pal phone app, and exercise

DVD’s



Work Site Wellness Programs

- Six employers provided wellness incentives
- Four employers provided time for exercise
- Seven employers had resources for storing, cooking, or obtaining healthy food while at work
- One reported employer provided none of these benefit.
- Seven were unemployed

Findings in Light of Current Literature

The literature was reviewed using key words in the themes finding published information to support or further elucidate the local findings in the areas of motivation, health literacy, and effective strategies and programing.

Childbearing Age Target: Preconception, Inter-conception, and Postpartum Care

Guided by the Life-Course theory this study identified that women of childbearing age as at higher risk for health risks posed by overweight and obesity and also influential in affecting the lifestyle choices and behaviors of children and young families. We recognize that the post-partum time is an especially sensitive time to affect healthy weight. According to Ostbye, et al, (2009), those that do not loose postpartum weight in the two years following birth tend to retain this weight long-term.

Atrash et al. (2006) urge action steps such as health promotion campaigns, and in clinical settings to address the preconception and inter-conception (between pregnancies) care to improve perinatal outcomes as recommended by the Institute of Medicine, American College of Obstetrics and Gynecology, and American Academy of Family Physicians addressing many health risks including maternal obesity. Lu, et al (2006), exercise for pre and postpartum mothers, priorities regarding weight management in the interconception time to include the promotion of breastfeeding, exercise and healthy dieting. Malnory and Johnson (2011) support this strategy in promoting a more universal reproductive life plan including preconception and interconception care as a means to improve birth outcomes. Brown et al (2011) further support interventions and support for the women in the adolescent and preconception time.

In addition, Hatsu, McDougald, and Anderson (2008) provided further evidence to support that breast feeding promoted greater weight loss in postpartum and concluded that that measures to promote breastfeeding could be a means to prevent overweight an obesity.

Health Literacy and Motivation

In this needs assessment, women understood that diet and exercise affected weight management and that underweight, overweight and obesity negatively affected a pregnancy. Many understood what BMI was but many were unaware of their own BMI and may underestimate their own risks associated with high BMI. This finding would be consistent with the findings of Keely, Gunning, and Denison (2011) as well as Burke, Heiland, and Nadler (2010). In understanding this, the urgency to address inter-partum (between pregnancy) weight Keely Gunning, and Denison (2011) found in that many women do not come to understand the risks to a pregnancy that obesity poses. In that qualitative study they conclude, as did Allen, Duggan, and Munhoz (2011), that health promotion about obesity risks is important and recommended support and

training for perinatal health care providers in addressing this sensitive topic with women noting that this group is highly motivated to have healthy infants.

The BRMH service area has a high obesity rate. The women in this area have a lower than state average education and income level (BRMH, 2011). The women interviewed in this needs assessment identified stress and many identified financial and social stressors as barriers to healthy lifestyle. To address the health disparities presented by life stressors Davis, Stange, and Borwitz (2010) propose a public health framework to support finding novel approaches to identify at risk women, modifiable factors and focusing obesity prevention efforts in the postpartum time.

In this needs assessment, all of the women cited that their children were in some way motivated them to seek a healthy weight and/or lifestyle. The literature supports this finding as Lombard et al (2009) concluded that women with children are more likely to be motivated to attend prevention programs to address weight and intervention programs. They further recommended that these types of programs are needed to support women's attempts to achieve healthy lifestyle changes. Recruiting and delivery of a prevention program through primary schools was very successful and success was correlated with a fairly structured program as opposed to the more loosely scheduled opportunities.

Family involvement and support was identified as a need for successful weight management and lifestyle changes in this needs assessment. In support of this influence Turer et al. (2013) found that the American Academy of Pediatrics recommendations of eating 5 fruits and vegetables a day, limiting screen time to less than 2 hours a day, eliminating consumption of sugar sweetened beverages, limiting fast food consumption, regularly eating family meals together and including one hour of physical activity a day were more apt to be met by preschoolers if their mothers also met these behavior goals.

The local needs assessment findings confirmed that food preferences within families presented challenges to healthy eating. Understanding that food and eating are part of the culture and measures to influence population nutrition and eating patterns as described by Delormier, Frohlich and Potvin (2009) can positively impact life course trajectory. In short, some of these concepts include the daily practices of choosing food, obtaining food, preparing food, and consuming food in context of ways these practices symbolize and reinforce social relations.

So it is no surprise that preferences of adolescents are a combination of influences from family and school influences.

Self-motivation was another common need identified in this target group. Women felt very responsible for their own lifestyle choices. In some cases they identified feeling “guilty” over unhealthy choices and “good” over healthy choices. Godin, Conner, and Sheeran, (2005) identified that when people perceive a correctness of behavior they are more likely to enact a behavior change. In addition Godin, et al (2010) examined models of social structure, social cognition, as they related to physical activity and found that after adjusting for life circumstances and socio-economic stressors that except for age, the only variant that moderated the intention to change behavior was education.

Healthy Activity Promotions

Healthy activity levels and regular exercise are measures that have been associated with long term healthy weight maintenance (Mekary et al., 2010). The AAP has recommended an hour a day of moderate activity and it was found that children whose mothers met the health behavior goals were more apt to meet the goals as well (Turer et al. 2013). Social structure factors however, show marginal effects on behavior change in physical activity and only education improved the intention to actual behavior change (Godin, et al., 2010).

Tools and Strategies

Ostbye et al. (2008) conclude that in a post-partum group needed motivational cues to action, feelings of confidence in ability to change that come from having the tools and knowledge to accomplish the change as well as ongoing support to sustain the changes. As part of a behavior modification plan to combat obesity Burke and Wang (2011) recommend a step to limit stimulus such as limiting the temptation of unhealthy foods. They also concluded that pharmacotherapy and bariatric surgery are viable treatment options for obesity.

Motivating and influencing improved lifestyle choices for this target age may be increasingly challenging as traditional programs are less appealing to this age group (Gokee-Larose, Gorin, Clarke, & Wing, 2011). Emerging data confirms that many mobile, electronic, or web based tools, programs and reminders are effective tools in this age group (Soureti, et al., 2011).

Recommendations

In community planning we are challenged to deeply understand what challenges and motivates our community to more effectively be able to identify opportunities for meaningful interventions to improve the health and well-being of our neighbors and families. Based on the Life-course Theory (Kuh, et al., 2003) it is felt that by addressing barriers and enhancing or providing supports for women of childbearing age in this community that a healthier life course for these women and their children will have an impact for generations of improving the culture of healthy lifestyle in this rural community. The consideration of the identified themes in this study in light of current knowledge described in the literature, local resources and standing partnerships may suggest workable and affordable programming to positively impact the culture of health in the BRMH service area.

Target Group and Sensitive Time Frames

Women of childbearing age affect the lives and lifestyles of themselves and their families. Promoting the behaviors identified by the American Academy of Pediatrics (AAP) will improve the lives of women and children. Pre-conception including college age women and adolescence is an important time to promote healthy lifestyle choices and healthy weight before pregnancy. Postpartum is an especially sensitive time for women to commit to a healthier lifestyle. Education and support measures to promote breastfeeding, and achieve a healthy weight and activity level should be concentrated here.

Interventions to Address the Identified Barriers to Healthy Lifestyle

Using strategies that local participants identified as useful tools in the pursuit of healthy lifestyle may be particularly effective in this group. Workplace strategies are helpful and enhancement and expansion of these programs should be considered. Using social media as well as media in the form of magazines, television, and newspaper stories to educate and inspire healthy diet and exercise is endorsed as a viable strategy. Offering or promoting tools such as home exercise DVD's, calorie counting and weight monitoring programs such as My Fitness Pal, workplace challenges, and workplace and/or social group sponsored teams, Weight Watchers, and lifestyle classes are recommended.

Steps to Improve Health Literacy

The understanding of BMI as a clinical term could be enhanced. Since the understanding of these topics were found to be provided to these participants by medical professionals or at their employer's health screenings enhancing these delivery systems may be viable options to improved health literacy regarding BMI. Providing tools and training for health care professionals about how to effectively address this sensitive topic is recommended.

Health literacy regarding breastfeeding having a positive impact on postpartum weight management is a promising area for enhanced support as a strategy. Partnerships with agencies identified locally as helpful such as WIC, Food Pantry, and Food stamps may be key to development and delivery of health, diet, and exercise education and life stress management in improving life-course trajectories of these most at -risk women.

Recommendations to Promote Healthy Diet

The majority of the women cited time and/ or schedules as barriers to preparing healthy meals. Ways to enhance pre-preparation or healthy fast and affordable options are felt to be a need for the majority of women.

Time and family schedules were indicated as barriers to family meals although most were able to have at least a daily family meal of some sort. Encouraging and promoting family meal time is important in supporting social supports and integrating healthy food preferences and behaviors.

Food preferences of women and their families were often identified as barriers to healthy diets. Understanding that schools and families influence food decisions and behaviors creates an urgency to provide consistent messaging through media, schools, education, restaurants, indeed the community in promoting healthy food choices to improve fruit and vegetable intake, decrease sugar sweetened beverage intake and have regular meals together in families. Knowing ways to make fruit and vegetables more appealing and accepted was desired by many of these women.

The perception of this group of women is that the cost of fresh fruit and vegetables is a barrier to healthy diet especially in winter. However, WIC records show that about a third of the fruit and vegetable vouchers go un-redeemed. Perhaps we may consider that the family preferences and hesitation to spend money on fresh food that would spoil because no one likes it or no one knows how to prepare the food is as identified by one interviewee is a larger problem. Perhaps promoting less expensive and more frequently available frozen fruits and vegetables and efforts to improve the food preferences for children may be considered as strategies to improve healthy diets in this area. Enlisting nutrition experts to further suggest public programs to address this issue may be valuable.

Knowledge of cooking, and particularly cooking unfamiliar foods was identified by about twenty percent of the participants. Efforts to improve cooking and knowledge of cooking fruits and vegetables into tasty dishes accepted by family members may be worthwhile effort.

Transportation for shopping was identified as an issue for only two participants. Perhaps enhancing the community knowledge of services available and/or enhancing public transportation service to local groceries and food pantries would address this barrier.

Temptations in advertising, and marketing at restaurants were identified in unsolicited comments as barriers to healthy diet. Measures to address this may be to compete for this

attention by enhancing advertising and marketing for healthy foods such as food of the month and "500 club" offerings. Local programming such as the "Harvest of the Month" campaign seems to be properly aligned and its enhancement involving schools and public advertising may address food preferences as well in the overall culture of this community

Stress was noted as a barrier to healthy meals in unsolicited comments. While it may be impractical to affect the stressful nature of women of this community, stress reduction/management measures and activities may be a benefit and providing improved access such as rides or life coaching to the most at risk socio-economic women such as WIC and food stamp and food pantry participants.

Lack of garden space was identified as a barrier to healthy diet. Improved knowledge of available garden space or increased availability of garden space at local rentals and at varied locations may improve the availability and affordability of fresh fruits and vegetables. Considering the knowledge of the local area, perhaps addressing the lack of gardening and food preservation skills in this area might be valuable.

One woman identified lack of dental health as a barrier to chewing healthy foods. This finding along with knowledge of community resources endorses a need for affordable and accessible dental care.

It was identified by those participating in food pantry and at WIC clinics that these programs have been supportive in having a healthy diet. Enhancing these programs or using methods to support or encourage active participation in these programs may be worthwhile.

Recommendations to Improve Healthy Activity Levels

Lack of fun activities to do was cited by more than half of the interviewed women. Activity in the winter was particularly challenged by the short days and weather. Women cited lack of daylight, and unsafe or uncomfortable outdoor conditions, and lack of group or indoor affordable activities as barrier to healthy activity.

Time constraints or family schedules were identified as barriers to activity. Partnering with schools and existing events may improve time setting priorities. Frequently cited by mothers of small children was lack of child care or coinciding fun children's activity to allow exercise time. So, free or affordable child care and/or co-programming should be considered when developing activity opportunities. Co-programming through schools and existing children's programming is recommended. Expanding current community activity programming options is recommended.

Health was identified as a barrier. Measures are ongoing to optimize access to health care.

Lack of spousal support was identified as a barrier. This is seen as a common theme supported in the literature. Strategies to encourage spousal and family support and involvement in healthy diet and activity is seen as important in support the efforts of this group to be healthier. Appropriate venues may be worksite wellness programs.

Too much TV/technology/ screen time was identified as a barrier to healthy activity in an unsolicited comment. Limiting screen time for children is recommended

by the American Academy of Pediatrics Perhaps measures that would enhance this understanding for adults could compliment the childhood recommendations and enhance physical activity in the culture of this community. Public service education campaigns as well as challenges based at schools aimed at engaging family members is recommended

Lack of garden space was cited as a barrier to activity. Although there are community garden opportunities in this area, again perhaps increasing awareness and availability or transportation to available of garden space would address this issue. Perhaps working with local food pantries, farmers markets, and other local programs such as UW Extension, Boys and Girls clubs and schools could suggest further programming to enhance the local culture and heritage of agriculture to improve healthy diet and activity in the area.

Lack of money for gym membership or home exercise equipment was cited specifically by one woman and this issue could be addressed by affordable activity programs in the aforementioned. Addressing this as well as the need for low cost fun things to do may include parks with playground equipment for both children and adults as seem in nearby communities.

Employing Effective Tools

When considering interventions and strategies this report offers information to elucidate the tools and strategies that area women of childbearing age identify as motivating and helpful.

Methods that enhance the motivation identified by these women including in weighted order.

1. Children were the most powerful motivator for healthy lifestyle. Whether as the parent serving as a role model, needing to be healthy for children, feeling required to provide healthy lifestyle for the child’s health, being required to be active to tend to the children or encouragement by children to be active or eat healthfully children are at the core of what motivates mothers.
2. Self-motivation was identified commonly as a barrier to healthy activity levels by nearly half.
3. Nearly half were motivated by significant others or a parent
4. Having family involved in healthy lifestyle choices.
5. Having good health
6. Friends inspiring healthy diet and/or activity
7. Media inspiring healthy diet and activity
8. The advice of a medical professional
9. Social group formation and encouragement (i.e. church formed a softball team)
10. The motivation of having a pet encourages activity.

Reinforcing the “goodness” of healthy nutrition and activity as the moral norm would contribute to improved health choices. Improving public education and knowledge of nutrition, physical activity and stress management through structured programs and public awareness campaigns would serve to improve motivation and weight management

of this local population. Community initiatives to improve healthy lifestyle choices should include all arenas including social groups, workplaces, restaurants, media of all forms, veterinarians' offices, health offices, dental offices, social agencies etc…

Web based and mobile apps are new and effective low cost intervention strategies and it is recommended that options to employ these methods to provide education, motivation, support and tools to manage diet and activity to attain a healthy weight and lifestyle should be promoted.

Effective Programs, Strategies and Tools.

- Calorie counting
- Weight monitoring
- Setting exercise goals
- Weight Watchers
- My Fitness Pal phone app
- Using exercise DVDs
- Assistance and education provided through WIC, Food Pantry, and food stamps
- Workplace wellness incentives
- Workplace exercise programs
- Workplace support of healthy eating with healthy food on-site, or available refrigerators or microwaves for those that bring food to work
- Workplace support of breastfeeding employees is encouraged

These identified programs strategies and tools were identified as effective. Initiatives to provide ways and means to provide more of these types of supports and services at community agencies, programs, workplaces, and institutions will undoubtedly improve the culture of health in the community.

Conclusions

Women of childbearing age in the BRMH service area are an important demographic group to support in healthy lifestyle choices because they impact the health and lifestyle choices of their families. The time between pregnancies and the postpartum time is an especially sensitive time for women to be motivated to adopt healthy lifestyle changes and pursue a healthy weight. Improving health literacy about BMI and risks associated with unhealthy BMI is an ongoing need. Education and support of local health care professionals in addressing weight management and obesity Time constraints, limited knowledge in preparing healthy affordable meals were identified as needs in this area. These findings support that healthy dietary habits can be encouraged by improving women's knowledge and confidence in preparing fast and affordable healthy meals. These skills are important in limiting the barriers to women's ability to provide a daily family meal.

Initiatives to improve the activity level of women should include marketing and programs to limit screen time, involve family and friends in activities and provide child care or children’s co-programming. Workplace supports of healthy diet and exercise are helpful and should be enhanced. It may be especially effective to partner with schools and childcare agencies in education and physical activity programs. Enhancing the existing programs that were identified as successful in improving education and nutrition such as WIC, food stamps, and food pantry may improve health literacy and nutrition of the most socioeconomically challenged women in the service area.

Improved marketing and public education about healthy diet and activity should be consistent and include venues throughout the community. Employing advertising that would reinforce the moral norm of healthy diet and activity is recommended to enhance the developing culture of health and wellness n this community. The targeted venues should include schools, medical and dental facilities, veterinarian, retail, grocery, restaurant, and employers. Initiatives to enhance or create social supports, social groups, structured group education and group activities are attractive options. Web based, mobile apps, media including social media may also be viable delivery methods.

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