OBESITY AS A CARDIOVASCULAR RISK FACTOR: ASSESSMENT OF THE COMMUNITY SERVICES RELATED TO PHYSICAL ACTIVITY IN A RURAL MIDWESTERN COMMUNITY

by

Marjorie Anne Easter RN, BSN

A Project Submitted to the Faculty of the
DEPARTMENT OF NURSING
In Partial Fulfillment of the Requirements For the Degree of
MASTERS OF SCIENCE
In the Graduate College
THE UNIVERSITY OF ARIZONA
2006
STATEMENT BY AUTHOR

This project has been submitted in partial fulfillment of requirements for an advanced degree at The University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the Library.

Brief quotations from this project are allowable without special permission, provided that accurate acknowledgment of source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or in part may be granted by the head of the major department or the Dean of the Graduate College when in his or her judgment the proposed use of the material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

SIGNED: Marjorie Easter

APPROVAL BY PROJECT DIRECTOR

This project has been approved on the date shown below:

Dr. Leslie Ritter 01/13/06
Dr. Leslie Ritter, PhD, RN
Associate Professor of Nursing
ACKNOWLEDGEMENTS

The primary investigator would like to thank the people of Davis County, Iowa who served as key informants for this project. In addition, thanks to the citizens and professionals of Davis County, Iowa for contributing their knowledge and expertise to the purpose of this project. Your community partnership was appreciated.
# TABLE OF CONTENTS

LIST OF TABLES...........................................................................................................6

ABSTRACT..................................................................................................................7

BACKGROUND..........................................................................................................8

   Cardiovascular Disease..........................................................................................8

   Obesity.....................................................................................................................9

   Long Term Risks and Consequences.................................................................11

   Pathophysiology of Obesity Related Cardiovascular Disease......................12

   Current Cardiovascular Disease and Obesity Initiatives and Standards.........14

   Rural Health, Obesity, and Cardiovascular Disease.......................................15

CONCEPTUAL FRAMEWORK......................................................................................18

PURPOSE....................................................................................................................20

SIGNIFICANCE TO NURSING...................................................................................21

METHODS....................................................................................................................22

RESULTS......................................................................................................................25

   Davis County Demographics............................................................................25

   Core........................................................................................................................28

   Recreation: Definition..........................................................................................29

   Recreation: Community Assessment Data......................................................29

   Recreation: Key Respondent Data......................................................................34

   Physical Environment: Definition.....................................................................37

   Physical Environment: Community Assessment Data.....................................37
# TABLE OF CONTENTS - *Continued*

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Environment: Key Respondent Data</td>
<td>41</td>
</tr>
<tr>
<td>Health and Social Services: Definition</td>
<td>44</td>
</tr>
<tr>
<td>Health and Social Services: Community Assessment Data</td>
<td>44</td>
</tr>
<tr>
<td>Health and Social Services: Key Respondent Data</td>
<td>50</td>
</tr>
<tr>
<td>COMMUNITY HEALTH DIAGNOSIS</td>
<td>53</td>
</tr>
<tr>
<td>Application of Findings to Muecke’s Criteria</td>
<td>54</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>55</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>58</td>
</tr>
<tr>
<td>Future Development</td>
<td>60</td>
</tr>
<tr>
<td>Implications for Advanced Practice Nursing</td>
<td>62</td>
</tr>
<tr>
<td>CONCLUSION</td>
<td>64</td>
</tr>
<tr>
<td>APPENDIX A: COMMUNITY AS PARTNER MODEL</td>
<td>66</td>
</tr>
<tr>
<td>APPENDIX B: IRB APPROVAL AND DISCLAIMER FORM</td>
<td>67</td>
</tr>
<tr>
<td>APPENDIX C: KEY INFORMANT QUESTIONAIRE</td>
<td>69</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>70</td>
</tr>
</tbody>
</table>
LIST OF TABLES

TABLE 1, Davis County Core Demographics ........................................................................26
TABLE 2, Iowa State Health Statistics, 2002 – 2003.........................................................27
TABLE 3, Iowa Vital Statistics, 2003 .............................................................................28
TABLE 4, Davis County Intracommunity Recreational Strengths and Stressors ............36
TABLE 5, Davis County Intracommunity Physical Environmental Strengths and Stressors .................................................................................................................43
TABLE 6, Davis County Intracommunity Health and Social Service Strengths and Stressors .............................................................................................................52
TABLE 7, Selection of Community Concerns (Muecke’s Criteria) ...............................57
ABSTRACT

Obesity and cardiovascular disease is a leading cause of morbidity and mortality in the United States. In rural areas, the prevalence of these diseases remain high while little is known about the perceptions of rural community members regarding physical activity as it contributes to obesity and cardiovascular disease. Approximately 20 individuals (N = 20), from one rural Iowan community, from differing professional and service organizations, in addition to lay community members, were interviewed to determine the perceptions of adults between the ages of 20 and 45 years, regarding the available physical activity community resources. Anderson and McFarlane’s Community-As-Partner model provided the organizational framework. Findings revealed that the physical activity resources were available, but the educational and motivational contributions were sometimes lacking, making actual participation in physical activity uninviting for some. Results suggested that professional guidance related to physical activity is desired, capitalizing on the expertise of the advanced practice nurse.
BACKGROUND

Cardiovascular Disease

In 2002 deaths from cardiovascular related illnesses – strokes, diseases of the heart and vascular system surpassed cancers and unintentional accidents as the most common cause of death in the United States, claiming the lives of 35.5 percent of Americans (National Center for Health Statistics, 2002). Deaths from cardiovascular disease do not discriminate individuals of differing age, sex, and race. Both men and women from American Indian, Alaska Native, African American, Hispanic, and Caucasian decent are all significantly affected. The younger population has also felt the impact of such a deadly disease, placing cardiovascular disease in the top five causes of death amongst individuals between 20 and 45 years of age (Centers for Disease Control, 2003). Estimations project that by the year 2020, cardiovascular disease will continue to rise and be the single, most common cause of deaths and disabilities in the world (Critchley & Unal, 2004).

For the past decade, the medical community remained suspicious that obesity had a causal relationship toward the onset of cardiovascular disease. Gradually, the public began to become more informed that their lifestyle habits in addition to genetic risk factors could influence their cardiovascular health. In addition, major health organizations began to suggest that hypertension, hyperlipidemia, excess weight gain, diabetes, and smoking may increase an individual’s risk for developing cardiovascular disease (Kannal, W., Brand, N., Skinner, J.J. et al, 1976; American Heart Association, 2005). Further research prompted the idea that excessive adipose tissue may be
independently linked to the development of cardiovascular disease (Kokkinos & Moutsatsos, 2004; Hubert, Feinleib, McNamara, et al, 1983; National Institutes for Health, 1998). Taken together, the research findings coupled with the increased interest from society to explain this link between lifestyle and disease has since initiated a more proactive fight against cardiovascular disease through increased patient education and improved health prevention and maintenance strategies.

Obesity

The excess accrual of body fat has prompted increased global concern. Statistics suggest that the prevalence of obesity is multiplying at a rapid pace. According to the American Heart Association (2005), the gold standard for measuring and defining an individual’s body weight is according to a calculation of an individual’s relationship between weight and height or body mass index (BMI). Ideally, the majority of society would maintain a BMI between 18.5 and 24.9. Depending on an individual’s body frame and structure, a BMI greater than 25.0 kg/m² is considered overweight, while a BMI greater than 30 kg/m² is considered obese (National Institutes for Health, 1998).

The rate of obesity is growing rapidly. In 1994, 23 percent of the United States population was considered obese. In 2000, these same obesity rates had risen to 31 percent, while currently it is estimated that over 65 percent of the United States population is either overweight or obese (Ogden, Carroll, & Flegal, 2003; Sondik, 2004). Morbidity and mortality rates along with medical expenses have also increased as a direct result of excess weight retention. Complications associated with poor diet habits coupled with excess weight gain yields four of the top ten causes of death and is responsible for
over 300,000 premature deaths and over 100 billion dollars in additional medical expenses each year (Allison, Fontaine, Manson, Stevens, & VanItallie, 1999; Sondik, 2004).

National and international trends indicate that daily calorie consumption has gradually increased; while time spent performing physical activities has declined. Gradually the problem of accruing excess body weight has become more prevalent, until most recently society has shown great concern over this rising epidemic (National Institutes of Health, 1998). According to recent statistics published from the United States Department of Agriculture (USDA), the daily average consumption of calories has increased by 300 calories between 1985 and 2000 (Putnam, Allshouse, & Kantor, 2002). An excess of 50 calories each day is associated with a weight gain of 2.1 kilograms each year (Rosenbaum, Leibel, & Hirsh, 1997).

The exact causes of obesity remain controversial. Many individuals who struggle with being overweight or obese blame their inability to lose weight on genetic theories. Although some genetic conditions have been associated with a slight increase in excess weight gain, studies are still unable to link a specific gene with the accumulation of excessive weight gain (Witchel, White, Siegel, & Aston, 2001). In fact, most of the related literature supports the theory that the excessive accumulation of weight in most individuals is a direct imbalance between excessive energy consumed and an insufficient amount of energy expended (Clement, & Ferre, 2003; World Health Organization, 2005; Jequir & Tappy, 1999; Koplin, J. & Dietz, W.,1999).
Long Term Risks and Consequences

Conceptualization of the consequences of obesity is often difficult for those individuals that have not yet been immediately affected. Thus, it is important to realize that the immediate consequences of obesity related cardiovascular disease may be acute or chronic. Acute conditions may present as sudden cardiac arrest or an acute myocardial infarction. Chronic, progressive conditions may be noticed by a gradual elevation in blood sugars, blood pressure, blurry vision, angina, or shortness of breath. Other long term risks and consequences linked to the development of obesity related cardiovascular disease may include chronic hypertension, heart and lung damage and/or failure, joint damage, sleep apnea, as well as diabetes mellitus. Results from the Framingham Heart Study suggest that over 65 percent of the cases of hypertension in adults are caused by excess body fat (Garrison, Kannel, Stokes, & Castelli, 1987).

The medical risks and social affects of excess weight gain are also having long-lasting impressions on the pediatric and young adult populations. Today’s children, adolescents, and young adults are beginning to experience diseases and conditions related to obesity and cardiovascular disease that were once limited to older adults and the elderly. Over the last 30 years, the number of overweight and obese children has nearly tripled (National Center for Health Statistics, 2002). Most concerning is the increased number of children and adolescents who suffer from cardiovascular related conditions including hyperlipidemia, hypertension, and diabetes mellitus suggesting that the young are not always protected from medical conditions related to excessive body fat (Barlow & Deitz, 1998).
Pathophysiology of Obesity Related Cardiovascular Disease

Accumulation of excess adipose tissue places physiological strain on the entire body - specifically the cardiovascular system. Obesity is defined as a progressive increase in both the number and size of adipocytes or fat cells (Spiegelman & Flier, 2001). Adipose cells have many functions including release of inflammatory factors, immune related factors, prostaglandins, angiotensinogen, and proteins to assist with energy consumption and expenditure balances inside of the body. In excessive amounts these inflammatory factors may potentate many diseases complications associated with the cardiovascular system (Clement & Ferre, 2003).

Adipose tissue releases inflammatory mediators including cytokines, tumor necrosis factor (TNF), plasminogen Activator Inhibitor 1, interleukins, and hepatic production of hs-CRP, which have been linked to the increased development of atherosclerosis. Excessive amounts of adipose tissue, an increased circulation of serum triglycerides and cholesterol, along with the normal aging process of the heart muscle has also been an associated cause of advanced atherosclerosis (Rader, D, 2000; Engstrom, et al, 2004). Also, the presence of excessive free fatty acids located in the circulating blood stream of obese individuals may cause the destruction and apoptosis of cardiac myocytes or muscle cells (Alpert, 2001). Likewise, blood viscosity is often elevated while vascular resistance is often decreased in obese individuals as a result of an alteration in the body’s normal inflammatory process and clotting cascade, thus increasing the risk for thrombosis in the legs, heart, and lungs (Thakur, Richards, Reisin, 2001; Radar, 2000; Loskutoff, & Samad, 1998).
Also, excessive fat cells may cause an increase in the body’s production and release of leptin. Leptin, a cytokine-like byproduct of adipose tissue, is produced in the body’s fat cell, and sends signals to the hypothalamic satiety receptors in the brain when a sufficient amount of food has been consumed (Schwartz, Wood, Porte, Seeley, & Baskin, 2000). The release of leptin induces synthesis and secretion of melanocyte stimulating hormone (MSH) from pro-opiomelanocortin (POMC). The MSH binds to the melanocortin-4 receptor in the hypothalamus, thus inhibiting the brain’s desire for additional energy consumption (Clement & Ferre, 2003). Conversely, the presence of leptin in excessive amounts decreases the expression of neuropeptide Y, insulin, cholecystokinin, and ghrelin hormone production – ingredients which provide short-term control of calorie consumption (Clement & Ferre, 2003).

Likewise, chronic accrual of extra weight causes long term strain on the heart. Increased blood volume, stroke volume, and cardiac output are needed to adequately perfuse the added adipose cells and tissues. Cardiac output in an individual with an appropriate weight allows about three to five liters of circulating blood to pass through the heart each minute. The resting cardiac output in an obese individual may require as much as ten liters per minute (Davy, & Hall, 2004; Kidd and Wagner, 2001). As a result of the increased work load, the heart’s pumping mechanisms - the atrium and ventricles may progressively become hypertrophied, inefficient, and eventually fail (Davy, & Hall, 2004).

Finally, long-term consequences of excessive caloric intake may cause a systemic hyper-metabolic and hyperinsulinemic state with potential development of metabolic
syndrome. Diabetes mellitus may occur after the pancreas is unable to stimulate continual production of insulin despite a chronically hyperglycemic state often seen in individuals who consume too many calories (Isomaa, Almgren, Tuomi, et al, 2001). Insulin may also act similarly to a salt-retaining hormone and in excessive amounts, causes the body to retain water, sodium, and calcium. The increase in water and water-retaining electrolytes stimulates the renin-angiotensin system to increases systemic vasoconstriction and blood pressure (Rao, Donahue, Pi-Sunder, Foster, 2001).

Current Cardiovascular Disease and Obesity Initiatives and Standards

Many national initiatives are working to combat obesity and prevent obesity related conditions such as cardiovascular disease. Healthy People 2010 called for a decrease in the prevalence of obesity by over half of the current rate (Tai-Seale & Chandler, 2003). The National Institutes for Health published guidelines for the identification, evaluation, and treatment of overweight adults, as well as the nationally recognized Body Mass Index scale and healthy recommendations for weight loss (National Institutes for Health, 1998). The World Health Organization put forth recommendations for addressing obesity which include the promotion of public prevention through increased education (World Health Organization, 2005).

The American Heart Association (2005), American Medical Association (2004), American Lung Association (2005), American College of Cardiology, American Cancer Society, and American Diabetes Association (2005) recognize obesity as a direct cause or contributing factor towards the development of chronic heart and lung disease, cancer, and diabetes (Thompson, P., Buchner, D., Pina, I., 2003; Byers, T., Nestle, M.,
McTiernan, A., 2002). Each of the societies encourage healthy eating, weight loss, and increased physical activities as methods for decreasing obesity, cardiovascular disease, chronic lung conditions, and diabetes. Finally, the American Association for Family Physicians recognizes that obesity related risk for developing cardiovascular disease is beginning to occur amidst the younger adult and pediatric populations and must be prevented (Lyznicki, Young, Riggs, & Davis, 2001).

Rural Health, Obesity, and Cardiovascular Disease

The increased amount of attention that the medical community, general public, and media have directed towards the growing trends of obesity and cardiovascular disease have produced increased efforts towards disease education, prevention, and treatment. Large research hospitals and institutions continue finance research examining disease trends, statistics, and prevalence. Additional federal funding has increased the amount of offered community screenings, as well as primary, secondary, and tertiary treatment strategies for obesity and cardiovascular disease. The rural areas have also been impacted by an increase in the available, technologically-based services that offer cardiovascular treatment, education, and prevention through teleconferencing and satellite clinics.

On the other hand, the modern, technologically-progressive outreach to some rural communities has offered challenges. Rural individuals often define health differently than urban dwellers. Rural individuals often perceive health as present-time and assuming medical care is only crises-orientated (Long, 1993). Many rural individuals maintain health conceptualizations based upon family traditions, social
norms, home remedies, and their basic ability to function and work in their environment, opposed to the beliefs of urban dwellers who often expect full access to the best health opportunities and resources available (Long, 1993).

Cooking and eating traditions, coupled with a lack of medical services, finances, and a decrease in overall physical activity have contributed towards the prevalence of cardiovascular disease and obesity amongst many rural communities. The traditional, high-calorie meals from the past are not often forfeited despite an overall more sedentary lifestyle seen with the absence of small family farms and increase in less laborious machinery (Tai-Seale & Chandler, 2005). In addition, the lack of finances and access to health care services create additional challenges for many elderly rural citizens (Schur & Franco, 1999). Recruitment of primary care physicians and specialists to a rural area is difficult as a result of decreased demand for a specific specialty, decreased wages and opportunity for advancement in addition to the unwillingness of rural society to accept a more diverse, technological medical practice in which some physicians choose to practice. In addition, many rural dwellers are of low-come or uninsured, making the cost of travel to an expensive out-of-town medical appointment difficult (Schur & Franco, 1999).

Despite these obstacles, startling statistics regarding obesity and cardiovascular disease in rural societies have begun to persuade rural residents to recognize the need for better monitored primary care, weight control, and more advanced cardiovascular care. Effective change is only successful when a new concept is needed, wanted, and embraced by community members. Therefore, before change is implemented, a thorough
assessment of the community must be performed to determine the true need and marketability of a new service, concept, or proposal (Bushy, 2000).

Many rural individuals recognize that the prevalence of obesity and cardiovascular disease is excessive, but remain unable to access potential problem-solving resources and/or solutions in the context of their own small, rural community. In addition, little is known about the perceptions of rural community members regarding physical activity in relation to cardiovascular disease, as obesity as a risk factor for cardiovascular disease, or the community and health services available for residents to prevent this growing problem. Most recent data indicates that rural residents experience higher rates of overweight and obesity compared with urban residents. In addition, rural residents tend to be more elderly, poor, and often have less of an education and income (Patterson, Moore, Probst, & Shinogle, 2004). A thorough community assessment using a systematic approach with the identification of key respondents, community services, programs, facilitators, and obstacles regarding the implementation of change has been often used to propose, personalize, and conceptualize a solution to a national problem within the context of a rural community (Anderson & McFarlane, 2004).
CONCEPTUAL FRAMEWORK

System’s theory provided the theoretical underpinnings of Elizabeth Anderson and Judith McFarlane’s Community-As-Partner Model (Appendix A, 2004), and the philosophical underpinnings for this project are consistent with the eight essential elements of primary health care (World Health Organization, 1978). Anderson and McFarlane’s Community-As-Partner (CAP) Model was originally derived from Betty Neuman’s community-as-client model (1972) and the stress adaptation theories of Selye (1973) and was further evolved to include the four metaparadigm concepts of nursing – environment, health, nurse, and client.

Anderson and McFarlane’s Community as Partner Model (2004) considers the role, interactions, and relationships between a core, or aggregate community population and eight dynamic community subsystems. The community core may consist of a chosen aggregate or group of people or may include an entire community of people. The eight community subsystems make up a wheel, encircling the aggregate population as the central core. These eight subsystems include politics and government, health and social services, safety and transportation, education, physical environment, recreation, economics, and communication (Appendix A, 2004). Each subsystem is assessed through an objective and subjective data collection process, and analyzed in relation to its interaction as well as its positive and negative influences on the core (Anderson and McFarlane, 2004).

The community assessment process as outlined by Anderson and McFarlane is a very comprehensive process. A significant amount of time and effort must be put forth
by researchers in order to be trusted and accepted by key community respondents before a thorough, realistic, and accurate exploration may occur. The full community assessment process outlined by Anderson & McFarlane – assessment of the core and eight subsystems of an aggregate is “lengthy and thorough and is often seen as too large of a task to undertake by a single person” (Anderson & McFarlane, 2004, pg. 171).

In the best interest of time, resources, and thoroughness, only an assessment of the core and three of the eight subsystems – health and social services, recreation, and physical environment were examined during this project. In addition, the intervention or community project phase of the project was not discussed or implemented. For this project, objective assessment data was collected using information gathered from the public domain. Subjective data and key respondent interviews were also collected in order to ensure partnership between the primary data collector and community members.
PURPOSE

The purpose of this project was to identify the available community resources related to physical activity and the perceptions of young adult (ages 20 to 45 years) lay community members, members of community agencies, and health and social services regarding these resources. A community assessment in one rural community of Davis County, Iowa, was conducted. The community assessment was conducted using Anderson and McFarlane’s Community-as-Partner Model (CAP) model. The community assessment focused on the physical activity-associated resources and services that are available to adults in three CAP subsystems – physical environment, health and social services, and recreation.
SIGNIFICANCE TO NURSING

The results of the assessment were used to increase the knowledge base in rural Davis County, Iowa regarding the available physical activity resources and the community perceptions of those resources. Knowledge gained assisted the future development of interdisciplinary strategies to optimize physical activity resources, and ultimately, reduce obesity and cardiovascular disease in young adults (Appendix A; Anderson & McFarlane, 2004). In addition, the role and marketability of the advanced practice nurse increased with the findings of this project. Advanced practice nurses, specifically nurse practitioners may be key players with using and acting on the information gained during this project. Advanced practices nurses may use this information to contribute to the educational and political systems in the rural setting, through their position of holistic wellness and health promotion amongst school boards, community political, development, and wellness agencies. In addition, rural nurse practitioners may use their practice in primary care to promote and respond to the community’s desire and need for wellness and physical activity though individual patient teaching.
METHODS

The community assessment and data analysis was performed with guidance from Anderson and McFarlane’s Community as Partner Model. Three of the eight subsystems – recreation, physical environment, and health and social services were analyzed. Data were collected to assess these three subsystems, only as they related to the community core - individuals between the ages of 20 and 45 years. Key respondents, including members of the lay community, community agencies, and health and social services were invited to participate after the risks and benefits of participation was explained and a disclaimer signed (Appendix B). Interviews were conducted using a seven to eight item questionnaire inquiring about the available community physical resources and the key respondent perceptions of these resources (Appendix C). Interviews were conducted either in person or via a phone conversation and lasted approximately 15 to 30 minutes. Key respondents were interviewed without regard to race, sex, weight, and ability to participate in physical activity (Centers for Disease Control, 2003; American Heart Association, 2005; United States Census Bureau, 2002; Levinson, 1986).

A total of 20 key respondents were used (N = 20). Some of the key respondents were able to contribute to more than one subsystem. Respondents for the recreation subsystem included 15 individuals (n = 15) – 6 representatives from community physical activity agencies - Mutchler Center, Totally Fit for Women, public pool, golf course, and Director of Parks and Recreation, and 9 lay individuals from the community with knowledge or perceptions regarding the available recreational resources. Additional data were collected from community brochures, literature, and advertisements communicating
information related to physical resources amongst the general public domain. Next, ten individuals (n = 10) contributed to the physical environment subsystem. Three representatives from community agencies – Director of Parks and Recreation, Director for Community wellness, and one member of the city council, in addition to seven lay community members were interviewed for this portion of the project. Additional data were extrapolated from community websites, brochures and advertisements available to the general public domain. Finally, health and social service key informants include twelve individuals (n = 12) – one nurse practitioner, one physician, one physical therapist, one social worker, four registered nurses, one member of weight watchers, one member of TOPS, and lay community members. Additional health and social service information was taken from community brochures, advertisements, and websites.

Key respondents did not include individuals from the large Amish and Mennonite communities within Davis County in consideration of cultural wishes, as well as their significantly different lifestyle risk factors and practices compared with the rest of the county. In addition, key respondents did not include those individuals less than 20 or greater than 45 years of age, nor did it include information regarding any of the resources specifically directed towards individuals that were in the target aggregate group. Questions asked were specifically related to the physical environment, health and social services, and recreational resources offered to Davis County key respondents. Data were used for educational purposes only. In addition to the general assessment data obtained for each subsystem, the perceived community strengths and stressors related to physical activity resources were also analyzed with information from key informants using
Muecke’s Criterion for Community Concern (1984) and ranked in order of community importance. Finally, a community health diagnoses was obtained using the results of Muecke’s Criterion and assisted the primary investigator with developing future applications for rural community wellness related to the project’s purpose. The project was approved by the University of Arizona Human Subjects Committee (Appendix B).
RESULTS

Results for this project were presented in Community as Partner format. Following a discussion of core demographical data, each of the three subsystems – recreation, physical environment, and health and social services, was introduced with a community definition, objective assessment data obtained from the general public domain, and key respondent data presented in terms of perceived community strengths and stressors.

Davis County Demographics

Davis County is a small county in the rural, southwest corner of Iowa, directly north of the Iowa-Missouri state line. Most recent United States census data (2002) indicates an approximate population of 8,541 total residents with approximately 850 Amish. Davis County, Iowa consists of the county seat - Bloomfield, Iowa, in addition to three smaller communities – Drakesville, Pulaski, and Floris. The three smaller communities within Davis County surround the county seat with populations of less than 250 people each. All three smaller communities are without any significant community organizations and services besides an occasional school, gas station, post office, pub, and/or church (United States Census Bureau, 2002).

Davis County is a primarily Caucasian (99.2 percent), low-income, blue-collar community. Approximately 12 percent of the population is below the federal poverty limits – placing Davis County, Iowa amongst the top 10th percentile for citizens below the state’s poverty level (Iowa Department of Public Health, 2003). Recent Census Bureau statistics also suggest that a larger amount of individuals between the ages of 20 and 45
years are beginning to relocate into Davis County (United States Census Bureau, 2002). Leading occupations include operators, fabricators, and laborers (22 %), technical, sales, and administrative support (21%), as well as farmers, forestry, and fishing (18 %). Major employers of Davis County include self-employed farms, industrial work at Plexco, and American Tank and Welding, as well as professional work at Davis County Hospital and the Davis County School District (Iowa Department of Public Health, 1998). For additional demographical statistics for Davis County, Iowa please refer to Table 1 below.

Table 1: Davis County Core Demographics (United States Census Bureau, 2002)

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>8541</td>
<td>100</td>
</tr>
<tr>
<td>Male</td>
<td>4226</td>
<td>49.5</td>
</tr>
<tr>
<td>Female</td>
<td>4315</td>
<td>50.5</td>
</tr>
<tr>
<td>Primary Language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>8473</td>
<td>99.2</td>
</tr>
<tr>
<td>Race:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>8400</td>
<td>98.3</td>
</tr>
<tr>
<td>African American</td>
<td>15</td>
<td>0.2</td>
</tr>
<tr>
<td>Asian</td>
<td>17</td>
<td>0.2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>61</td>
<td>0.7</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>4</td>
<td>0.1</td>
</tr>
<tr>
<td>American Indian</td>
<td>18</td>
<td>0.2</td>
</tr>
<tr>
<td>Average Household Size</td>
<td>2.61</td>
<td>X</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Graduate or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher</td>
<td>4401</td>
<td>78.9</td>
</tr>
<tr>
<td>Bachelor’s Degree or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher</td>
<td>636</td>
<td>11.4</td>
</tr>
<tr>
<td>People with Disabilities</td>
<td>626</td>
<td>14.2</td>
</tr>
<tr>
<td>Average Household Income</td>
<td>32,864 (dollars)</td>
<td>X</td>
</tr>
<tr>
<td>Average Family Income</td>
<td>40,982 (dollars)</td>
<td>X</td>
</tr>
<tr>
<td>Individuals Below Poverty</td>
<td>987</td>
<td>11.9</td>
</tr>
<tr>
<td>Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individuals 18 to 65</td>
<td>4738</td>
<td>55.5</td>
</tr>
<tr>
<td>years</td>
<td>1486</td>
<td>17.4</td>
</tr>
<tr>
<td>Individuals 65 years and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>older</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Specifically for Iowans, statistics show that over the past decade the prevalence of obesity in Iowa has risen by ten percent (22.19 percent, up from 12.8 percent) (Centers for Disease Control, 2003). With that, about one fourth of Iowans were told that they were hypertensive, while approximately one-third of Iowans had hyperlipidemia (Centers for Disease Control, 2003). In 2002, Davis County Iowa averaged 548/100,000 deaths from heart disease, and 133/100,000 deaths from cerebrovascular disease, making the overall deaths from cardiovascular-related diseases the leading cause of death in the county (Centers for Disease Control, 2003). Current weight and health statistics for the aggregate population in Davis County, Iowa remained consistent with Iowa state and national averages, identifying approximately two-thirds the population as being overweight or obese (Centers for Disease Control, 2003). Please refer to Table 2 and 3 for additional statistical information.

Table 2. Iowa State Health Statistics: 2002-2003. (Centers for Disease Control, 2003)

<table>
<thead>
<tr>
<th></th>
<th>Iowa State Statistics (%)</th>
<th>Nationwide Statistics (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco Use</td>
<td>23.2</td>
<td>23.0</td>
</tr>
<tr>
<td>Obesity</td>
<td>22.9</td>
<td>22.1</td>
</tr>
<tr>
<td>Overweight</td>
<td>38.3</td>
<td>37.0</td>
</tr>
<tr>
<td>Diabetes</td>
<td>7.9</td>
<td>7.6</td>
</tr>
<tr>
<td>No Leisure time Spent towards physical activity</td>
<td>21.8</td>
<td>24.4</td>
</tr>
<tr>
<td>Hypertension</td>
<td>25.1</td>
<td>24.8</td>
</tr>
<tr>
<td>--------------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>31.7</td>
<td>33.1</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
<th>Davis County Population 8541</th>
<th>Total Iowa State Population 2,944,062</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Births</td>
<td>130</td>
<td>38139</td>
</tr>
<tr>
<td>Infant Death Rate (per 1000 live births)</td>
<td>1</td>
<td>216</td>
</tr>
<tr>
<td>Deaths from Heart Disease</td>
<td>25</td>
<td>7825</td>
</tr>
<tr>
<td>Deaths from Cerebrovascular Disease</td>
<td>11</td>
<td>2073</td>
</tr>
</tbody>
</table>

Core

Anderson and McFarlane’s Community as Partner Model defines the community core as being an aggregate of individuals within a community, with a common set of values, beliefs, culture, and lifestyle (Anderson & McFarlane, 2004). This project assessment involved a core of individuals between the ages of 20 and 45 years of age from on small, rural community in Davis County Iowa, with experiences or perceptions regarding the available physical activity resources in the community. While the basic principles assessed were related to the physical activity resources in the community, common themes related to cultural norms, beliefs and values, in addition to religious preferences were reflected in the data.

Approximately 2560 Davis County residents were between the ages of 20 and 45 years. Nine hundred twenty eight of these individuals lived within the city limits of a
Davis County community, while only 754 of the 2560 aggregates lived within the city limits of Bloomfield Iowa, and were conveniently located within walking distance of those available community resources which promoted physical activity. The additional community residents were located amongst the community outskirts, and commuted in order to participate in many community functions or services (United States Census Bureau, 2002).

Recreation: Definition

Recreational activities and resources were defined as activities that an individual participated in for leisure or hobby, rather than for work. Recreational activities were self-defining and consisted of activities for play, sport, and/or exercise. A variety of recreational resources were available for those Davis County residents who were willing and able to travel or potentially pay a nominal fee to obtain access to these services.

For the purposes of this community assessment, the recreational services available for individuals in Davis County Iowa were assessed. Although a variety of recreational activities existed in Davis County, only those recreational activities or services available to individuals between the ages of 20 and 45 years of age, which impacted participation in physical activity, in an effort to decrease obesity as a risk factor for developing cardiovascular disease were discussed.

Recreation: Community Assessment Data

Davis County Iowa supported four public parks. Each community – Bloomfield, Floris, Pulaski, and Drakesville had a city park located in a safe, central location in the middle of the community. In addition, the elementary school in Bloomfield maintained
play equipment with soft sand and/or grass, free of charge during non-school hours. The city park located in Bloomfield also provided resident with lighted tennis court and baseball field, batting cage, and basketball court. The parks in Davis County were small and unsupervised without room for sidewalks or designated trails for joggers, walkers, and/or bikers. Each park promoted a well-kept grassy area to encourage participation in other recreational activities such as kite flying, Frisbee or ball tossing. Access to each park was of no cost and was open to the general public from dawn until dark each day of the week (personal communication, July 13, 2005).

Davis County Iowa had one outdoor heated, public pool with a small water-slide located in the city limits of Bloomfield, Iowa. The pool was open each day during the months of May through September during afternoon and early evening hours. The cost to use the pool was $2.75 each day. Lifeguards were available during hours of operation. The pool was 25 meters across and is available for adult lap swimming during designated children’s rest periods. Occasionally during the summer months, an adult water aerobics class was provided over the noon hour, two or three days each week for six weeks. The class was generally held during the month of July and August for a small fee, and was taught by a local resident of the county (personal communication, July 13, 2005).

Bloomfield, Iowa offered one private golf course open for play from April through October. The course remained open from dawn until dusk. An annual membership cost adults $394.35 for each person. The course included nine holes of grass, hills, and an occasional stream or pond. The course was able to be played twice for a standard 18-hole game. Non-members of the golf course were invited to golf twice a
year, for a nominal green fee, if they were accompanied by a member. Davis County Country Club and Golf Course provides golfers with a safe, quiet environment for recreational golfing. Services did not include a driving range, loaned golf clubs, professional golf pros, or any individual or group golf lessons (personal communication, July 13, 2005).

Golfers were able to rent a golf cart for 10 to 16 dollars each day, but were encouraged to walk the course for exercise. League play was available for interested golfers throughout the week to encourage fellowship and group exercise. Ladies’ league played every Tuesday evening, men’s league every Wednesday evening, while a Co-ed league was held every Friday evening. Tournaments were frequently held during seasonal weekends (personal communication, July 13, 2005).

Davis County, Iowa offered residents two public exercise/physical activity facilities. The largest facility was the Mutchler Community and Recreation Center located in Bloomfield, Iowa. The Mutchler Center provided participants with a basketball court, indoor walking track, weight machines, free weights, cardiovascular equipment, as well as one racquetball court and indoor batting cage. The Center was open to men and women of all ages.

Yearly memberships for the center were reasonably priced. A yearly adult membership costs 105.00 dollars each year. Memberships were also available on a daily, weekly, monthly, and/or quarterly basis. While the exact hours of availability varied, the Center was open each day during morning, afternoon, and evening hours to accommodate individuals with a variety of personal schedules. The Center was not open during
holidays or during one entire week in July. The Mutchler Center was employed each day by one or two community citizens but did not provide certified physical trainers who were able to instruct members regarding equipment use or personalized workout plans (personal communication, July 13, 2005).

During most of the year, the Mutchler Center provided one or two group fitness classes in addition to a variety of league-play. The type of group fitness class often varied to match the interest and capabilities of the instructor, and was generally limited to two or three nights a week, for six or eight weeks at a time. Each class attracted approximately 10 to 15 participants. During the summer months, group fitness classes were not routinely offered due to lower gym attendance and availability of the instructors. In addition, adults were invited participate in men’s, women’s, or co-ed basketball or volleyball leagues offered during the winter months (personal communication, July 13, 2005; Mutchler Community Center, 2004).

Complementing the services provided by the Mutchler Center, Totally Fit for Women was another facility that offers an indoor facility for exercise. Totally Fit for Women was a women’s only derivation of the more popular chain workout program - Curves. Totally Fit for Women was located in the same building as a local hair and tanning salon and was managed by the salon’s owner. Totally Fit for Women offered a thirty minute, pre-choreographed exercise routine, including weight resistance machines located in a circular pattern with walking and/or running stations in between each machine. Adult women were invited to purchase a one-year membership for 295 dollars
a year. Hours of operation included weekdays from 5:30 am to 7:30 pm and Saturdays from 8:00 am until noon (personal communication, July 13, 2005).

 Totally Fit for Women provided members with trained instruction regarding the standard program details and use of the machines. The instructors were not nationally certified personal trainers, but were specifically trained on the use of the program-sponsored equipment. Throughout the year specials, promotions, and incentives were offered by the Totally Fit for Women organization in order to encourage new member participation, as well as to increase enthusiasm and participation amongst existing members (personal communication, July 13, 2005).

 Those interested in outdoor sports, exercise, or physical activities had a variety of options in Davis County. Community streets and sidewalks were available for biking, walking, or jogging, or roller blading. The streets and sidewalks provided safe, well-lit environment for an active lifestyle. The only designated trail in Davis County was located on the outskirts of Bloomfield. McGowan Conservation Area provided 1 to 2 miles of freely accessible, unlighted, unmonitored gravel walking paths for individuals to enjoy walking or jogging on during the daylight hours only. Bicyclists were discouraged from riding on this trail (Iowa Department of Transportation, 2002). Currently, no organized clubs, programs, or races existed for walkers and joggers within the County. Many community members found that walking and jogging in groups encouraged social activity, exercise, and personal motivation (personal communication, July 13, 2005 and July 25, 2005).
Avid cyclists rode on city and county roads during the spring, summer, and fall months. Davis County did not have designated biking trails (Iowa Department of Transportation, 2005). There was one organized bike ride during the month of June. The ride advertised 80 miles of biking, starting in Bloomfield, Iowa and ending in a neighboring county. The ride invited competitive bicyclists but also included frequent stops for those who desired a more leisure ride. While no official cycling club or organization existed in Davis County, interested community members often traveled together to participate in established rides in neighboring communities (personal communication, July 5, 2005; personal communication, July 25, 2005).

Recreation: Key Respondent Data

Fifteen (n = 15) community respondents were interviewed for this portion of the project. Respondents were obtained as representatives for each of the community services or organizations listed above in addition to some lay individuals who have in the past, or currently use these services. Six respondents (n=6) were representatives from a variety of community agencies such as Mutchler’s Center, Totally Fit for Women, the public pool, golf course, and the Parks and Recreation Department. The remaining nine respondents (n = 9) were lay individuals from the community with knowledge, experiences, or perceptions regarding the physical resources listed. Key community respondents identified available, convenient resources for self-motivated recreational participation based upon personal experiences, use, and exposure to the recreational offerings of Davis County, Iowa. Respondents stated that they felt they were able to utilize community services with ease. Most respondents felt that the available services in
Davis County did an adequate job with meeting their recreational interests. For the most part, key respondents felt Davis County offered many beneficial recreational services. Most notably, key respondents suggested that the availability of safe resources, roadways, and sidewalks was a positive county characteristic. Also, key respondents noted that the friendly community members helped increase personal satisfaction with the recreational resources in Davis County through frequent invitations to join in group walks, jogs, or cycle rides.

Most community respondents were pleased with the recent additions of Mutchler Community Center and Lady Fit, but mentioned that continual expansion and improvement is desirable. Some respondents received the local community centers with mixed feelings, stating that while expensive, these resources were better than nothing. Other key informants were disgusted with the high prices and felt inappropriately uninfluenced to give their money or service in support of a community business (personal communication, July 5, 2005). In addition, some key informants dissatisfied with the current lack of designated trails and pathways for walkers, joggers, and cyclists, but were pleased to know that the County was working towards this expansion (personal communication, July 25, 2005).

Some key respondents noted dissatisfaction with some of the community’s recreational resources. These individuals voiced displeasure with the lack of services and opportunities for participation in the recreational activity of their choice. Some informants stressed the community’s need for an indoor public pool for use during the cold, winter months. Many of the key informants that lived outside of the city limits
suggested that some of the recreational resources were either too exclusive, expensive, or inconveniently located and not worth the commute during oddly available times. Some concerns regarding the cleanliness, safety, and upkeep of community resources, streets, trails, sidewalks, and highways was also mentioned (personal communication, July 5, 2005).

The most common concern voiced by key informants in response to the available recreational resources in Davis County included the lack of professional instruction, motivation, and recreational guidance. While respondents acknowledged that the physical resources exist, those community members who lacked knowledge related to equipment use, exercise plan development, personal motivation felt that there was little professional guidance to assist in their recreational participation and success (personal communications, July 13, 2005). Table 4 below summarizes the community strengths and stressors voiced from key respondents regarding the recreational facilities in Davis County, Iowa.

Table 4. Davis County Intracommunity Recreational Strengths and Stressors.

<table>
<thead>
<tr>
<th>Community Strengths</th>
<th>Community Stressors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sufficient facilities for adequately trained, self-motivated individuals. (Mutchler Center, golf, Lady Fit, public pool, etc.)</td>
<td>Facilities do not have professional trainers or fitness instructors to instruct individuals on fitness routine, equipment use.</td>
</tr>
<tr>
<td>Many community members participate in activities for social motivation.</td>
<td>Community members hesitant to use facilities because they are unsure of the personal benefits of facility use.</td>
</tr>
<tr>
<td>Availability of a variety of activities and sport venues for those of all interests – golf, baseball, basketball, tennis, etc.</td>
<td>Location in a rural area limits personal choice regarding recreational options such as bike paths, walking trails, fitness facilities.</td>
</tr>
<tr>
<td>Most recreational facilities have modern equipment and are free or of low cost.</td>
<td>Some facilities require expensive memberships and have limited services or equipment.</td>
</tr>
</tbody>
</table>
During specified times of the year, group fitness programs offered.  Group fitness programs sporadically available and instructed by non-certified instructor.

Different options available for recreational use during all seasons.  Seasonal climate limits use of certain facilities during parts of year.

Physical Environment: Definition

Physical environment defined the internal and external surroundings in which an individual lives.  The physical environment of the community included the presences or absence of sidewalks, streets, streetlights, paths, landscaping, and flora, in addition to the accessibility and road-side appeal of houses, schools, and businesses.  Physical environment also reflected the size and appearance of the community, as well as the climate, air, and water quality.  Also the hospitality amidst a community witnessed through interactions amongst citizens, neighbors, and animals helps defined the physical environment of an area.

For this project, those aspects of the physical environment related to participation in physical activity were examined.  Anderson and McFarlane’s windshield survey (2004) along with relevant excerpts from the workability survey developed by the National Center for Bicycling and Walking (2002) and the Roberts Woods Johnson Foundation (2002) provided the framework for this portion of the community assessment.

Physical Environment: Community Assessment Data

The physical environment in Davis County Iowa provided a safe, quiet, and pleasant atmosphere for individuals to enjoy outdoor physical activities.  Within the city limits roadways and streets consisted of adequately maintained pavement or hard-gravel.  Beyond the city limits, paved highways along with gravel country roads, with medium to
large shoulders provided acceptable accommodations for individuals on foot, bicycle, or horseback. Road and highway maintenance within the County was directed by Davis County and the Iowa Department of Transportation (2005).

Roadways were maintained with street sweepers, large mowers, and snow plows during seasonal times (personal communication, July 1, 2005). Most of the available time, resources, and funding directed towards County and community maintenance and development was directed towards and evidenced by the continuous improvement of the pre-existing county buildings, city streets, and major highways (personal communication, July 25, 2005). In the smaller communities of Pulaski, Floris, and Drakesville, 50 percent of the roads are paved, while 50 percent remain firmly-packed gravel. Most of Davis County’s financial and community resources were directed towards building, home, and community center maintenance. Rarely were new roads, buildings, businesses, and subdivisions established in Davis County as the population could not support such expansion (Davis County Development Corporation, 2005).

Approximately 75 percent of the streets inside the city limits of each Davis County community had adequately maintained, well-lit sidewalks. Streetlights were dispersed amongst major city streets and residential areas. Sidewalk maintenance was the primary responsibility of the homeowner, along with some financial assistance from the City of Bloomfield or Davis County at the homeowner’s request. Sidewalks were located on most well-marked streets throughout each community, but were known to terminate sporadically without notice or reason. Many of the sidewalks contained vegetation growth amidst the many cracks, but were still adequate for cautious walking
and jogging (personal communication, July 1, 2005). Once outside the city limits of each Davis County community, the presence of sidewalks and streetlights remained sparse. Country roads accommodated cautious pedestrians when vehicles were not present; however there was no clear distinction of space for walkers, joggers, and bikers. Exercising on the country roads was deemed at the risk of each individual (personal communication, July 29, 2005; personal communication, July 5, 2005).

Average speed limits varied in Davis County, Iowa. Within most city limits the average observed speed limit was 25 miles per hour (National Center for Bicycling and Walking, 2002). Many of smaller community streets and residential roads did not post speed limits, but contained a narrow design with frequent stops for speed control. Traffic and speed control around city parks, recreation centers, and schools was maintained through the presence of speed humps or crossing guards. Davis County, Iowa contained four stop lights in the city of Bloomfield, but lacked radar or stop-light cameras used for traffic enforcement (personal communication, July 1, 2005). Outside the city limits the average speed limit was 55 miles per hour (Iowa Department of Transportation, 2005).

Davis County was an interesting, beautiful county, offering plenty of grass, nutritious soil, clean water, and clean air for individuals who desired to participate in outdoor activities. The vast, open spaces and unpopulated land allows residents of Davis County a variety of venues for participation in physical activity. Much of Davis County’s beautifully maintained homes, landscaping, and architecture were aged and ornate with plenty of space for large, fruitful flowers and gardens during the spring and summer months. The air and water quality in Davis County remained without smog or
pollutants from urban factories or mass transportation. The air was clean during most of the year with exception for dust or smoke from open burns during planting and harvest seasons (personal communication, July 1, 2005).

Located in the rural Midwest, the climate in Davis County, Iowa varied. During the spring and fall months, maximum average temperatures reach 60 to 70 degrees Fahrenheit, making outdoor activities pleasant. During the humid summer months, highs reached in the 90’s, increasing the danger for illnesses and injuries caused from sunburn, heat exhaustion, and heat stroke. Precipitation was often moderately dispersed while most days offer pleasant sun or overcast conditions. During the winter months, temperatures ranged from below zero to just above freezing point. Outdoor activities were often limited and sparse during these months (World Climate, 2005).

Along with the pleasant climate, the hospitable atmosphere and environment surrounding Davis County, Iowa provided residents with a secure environment for outdoor activities and exercise. Residents enjoyed participating in physical activities outdoors as weather permits, without fear of assault or injury. Six city police officers patrolled the streets of Bloomfield, Iowa during the day and night hours. State patrolmen were also dispersed amongst the rural streets, communities, and county highways. Crime statistics for 2003 in Davis County, Iowa remained low and included 38 violent crime events for each 100,000 people, consisting of aggravated assault, burglary, larceny, and theft. No rapes, murders, kidnappings, or forced entries were reported in Davis County during 2003 (Federal Bureau of Investigation, 2000). Davis County did not have an
established neighborhood watch system; however residents remained mindful of the activities occurring in their neighborhood (personal communication, July 1, 2005).

Finally, the physical environment for Davis County Iowa provided sufficient access to the community recreation centers, parks, hospitals, and residential streets. Residents who lived in the city limits of Bloomfield, Iowa were within a one-mile walking distance from all of the community’s major attractions and services. Rural residents of Davis County were forced to drive about ten miles to reach major health care and recreational services. During the spring and summer months the commute to access services and resources remained manageable for most. However during ice, snow, and cold winter months, driving to access services was inconvenient and burdensome at times (personal communication, July 1, 2005).

Physical Environment: Key Respondent Data

Ten community (n = 10) respondents who lived and interacted with the physical environment of Davis County, Iowa were interviewed for this portion of the project. Three (n = 3) respondents represented community agencies such as the Department of Parks and Recreation, Community Wellness, and the city council. The remaining seven (n = 7) respondents were lay community members with knowledge or perceptions regarding the physical environment of Davis County, Iowa. Some individuals spent the majority of their work and recreational time utilizing the physical environment and knew it quite well. Other individuals had different perceptions as a result of their occupational, residential, and social habits within Davis County, Iowa. The majority of key respondents were pleased with the physical environment in Davis County, Iowa. Most
residents felt that the physical environment was clean, appealing, safe, and accommodating to their participation in physical activities. Respondents mentioned that they enjoyed talking with neighbors and felt that they could participate in outdoor activities without fear of being harmed by people or loose pets. Key informants stressed that the streets were acceptably well-lit and generally encouraged slow-moving traffic within the city limits. In addition, many key community informants were drawn to the closeness and convenience of community services compared with an urban area. Finally, key informants enjoyed the mild climate and seasonal changes which made participation in physical activities pleasant, interesting, and motivating (personal communication, July 1, 2005).

On the other hand, key community informants stressed that they would be more motivated to participate in physical activities if city beautification was improved, additional, larger community streets and sidewalks were established with less cracks and bumps, and designated trails for cyclists, walkers, and joggers were developed across the entire County. Many of the existing streets and sidewalks were reported by respondents as being inconsistently located and some key areas remained poorly lit or un-kept to ensure safe participation in physical activities. In addition, participation outside of the city limits was discouraged by many key informants as a result of the high-speed traffic areas, inhospitable gravel roads, and unlit pathways (personal communication, July 13, 2005).

While seasonal changes were appealing to some key informants, others stated that the drastic changes in weather and climate discouraged participation in physical
activities. During the summer months, allergies and asthma conditions were often exacerbated by the local farms, open burns, and hot, humid weather. In addition, winter months brought unbearable cold, harsh weather, and winter storms making travel and outdoor activities uninviting. Other community members remained dissatisfied by the inconsistent snow clearing policy during winter months. These informants suggested that packing the snow on the street was not safe and the slow action of many snow plows delayed productivity in the morning hours. Finally, key informants in the outskirt areas mentioned that the location of their home away from many of the facilities encouraging physical activity makes their participation difficult. They state that the physical environment surrounding their home is beautiful, but often does not accommodate their activity of choice (personal communication, August 1, 2005). Table 5. below offers a key respondent summary regarding the strengths and stressors related to the physical environment of Davis County.

Table 5. Davis County Intracommunity Physical Environmental Strengths and Stressors.

<table>
<thead>
<tr>
<th>Community Strengths</th>
<th>Community Stressors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe outdoor accommodations for physical activity</td>
<td>Lack of designated trails, walkways for walkers, joggers, cyclists.</td>
</tr>
<tr>
<td>Well lit, paved sidewalks and roadways in-town</td>
<td>Inconsistent, unpredictable condition and location of sidewalks.</td>
</tr>
<tr>
<td>Slow-moving traffic within city limits</td>
<td>Out of town roads unsafe, busy, gravel, without light or sidewalks, often contain high-speed traffic</td>
</tr>
<tr>
<td>Short distance (1 to 10 miles) to access community services if live in town.</td>
<td>Lack of personal motivation and difficulty traveling from home during winter weather.</td>
</tr>
<tr>
<td>Clean environment – without pollution, litter, trash</td>
<td>Inconsistent snow clearing during winter.</td>
</tr>
<tr>
<td>Overall mild climate</td>
<td>Winter weather extremely cold, summer weather extremely hot, humid at times.</td>
</tr>
</tbody>
</table>
Health and Social Services: Definition

Health services were defined as those community offerings provided by physicians, nurse practitioners, nurses, as well as other medical staff or community health agencies. Medical services provided primary, secondary, and tertiary health maintenance and treatment. Services varied to satisfy the health concerns of the designated population as well as to accommodate and complement the services of neighboring health agencies and communities. In rural areas, health services are directed towards more primary care and/or crises orientated health care, whereas more specialized care is often referred out to more urban, tertiary institutions. In addition, the amount of health care providers, location, and distance traveled to obtain health care defined the health system of the community.

Social services consisted of those community services that offer programs, initiatives, and memberships for participation, but were not necessarily sponsored by an existing health-care organization. These programs included clubs or organizations designed to meet the health needs of an individual in a structured social environment, without the direct counsel of a medical professional. For this project, only those health and social services which were aimed at preventing obesity and cardiovascular disease in individuals between the ages of 20 and 45 years amongst Davis County residents were evaluated.

Health and Social Services: Community Assessment Data

Davis County, Iowa promoted some health services geared towards adults, and was looking towards further expansion of health promotion and screening services in the
near future. Currently Davis County, Iowa employed five physicians and two family nurse practitioners, who conducted routine health screenings and individual counseling on a variety of topics, including weight loss, health promotion, and diet. Davis County, Iowa was not considered a primary care health shortage area. One 25-bed hospital served as the primary medical facility for Davis County residents. In addition, Davis County Hospital maintained a contract with a part-time dietitian as well as other specialty physicians from urban areas. Specialty clinics were held at the hospital routinely for the convenience of local residents. Nutrition and dietary concerns were referred to the dietitian who was available three days each week by appointment only (Davis County Hospital, 2005).

In addition, the Davis County offers County and Community Health. Davis County did not have a stand-alone county agency. Instead, the activities of the Health Department were partnered with the neighboring Wapello County Health Department to provide services related to basic health, immunizations, sexually transmitted diseases, and communicable diseases. For the most part, the services offered by the Public Health Department provided basic cardiovascular disease and physical activity recommendations set forth by the American Heart Association, but did offer specific programs towards the promotion of physical activity.

In addition, Davis County Home Health Department employed registered nurses and certified nurse’s assistants who visit Davis County residents from all ages on a daily, out-patient basis. Home health services included health maintenance, health screenings, medication dispensing, as well as simple diet and nutrition counseling. In addition, the
home health agency promoted and provided continuous care for health-related physical activities initiated by a personal physician. Davis County Home Health Agency recognized that the prevalence of obesity and cardiovascular disease was growing in Davis County and encouraged physical activity to all patients who were physically capable to participate. Davis County Home Health Care saw patients by appointment only. Patients were referred to this agency at the request of their personal physician and care was covered by most insurance plans (personal communication, July 23, 2005).

Additional outpatient services offered by Davis County Hospital included a cardiac rehab program and physical therapy department - available to counsel referred patients regarding diet, exercise, and cardiovascular health. Physical therapy participants were matched with a physical therapist to develop a personalized workout to maximize personal health and retain lost strength or endurance following a period of injury or illness. The physical therapy department was offered to referred patients only and was covered by most insurance plans. Occasionally, the physical department offered a group water aerobics class during the winter months. These classes were restricted for the use and wellness of hospital employees only. During the time of this assessment, the physical therapy department did not provide counseling, fitness instruction, or health recommendations to the general public without a referral from a primary care physician (personal communication, July 20, 2005; personal communication, July 19, 2005; Davis County Hospital, 2005).

The cardiac rehabilitation program offered by Davis County Hospital offered a supervised arena for heart conditioning and exercise for men and women of any age, who
had suffered a cardiac event. Patients were referred to this out-patient program during stages two and three of their cardiac rehabilitation process or two weeks following a cardiac event. The rehabilitation program was personalized to each participant’s cardiovascular needs and also included instruction concerning overall lifestyle changes such as weight loss, diet changes, cholesterol control, hypertension, and stress management (Davis County Hospital, 2005; personal communication, July 13, 2005).

The Davis County Hospital in partnership with Davis County Development Corporation was working to extend their cardiovascular facilities and resources by providing additional health screenings, prevention, and health promotional activities to community residents with identifiable cardiac risk factors. “Rockin’ Cardiac Rehab,” targeted individuals of all ages, who were obese, smokers, or have a strong personal or family cardiac including hypertension or hyperlipidemia (personal communication, July 13, 2005). The primary objective of the cardiovascular risk reduction and prevention program was to perform on-the-job health screenings to workers within Davis County. In addition, area primary care physicians had the option to screen and refer their at-risk patients to this service for monitored risk reduction. Each participant was teamed with a dietitian and rehabilitation specialist to reduce their personal risk factors through a structured, monitored, and personalized exercise and diet regimen (personal communication, July 13, 2005).

Davis County, Iowa advertised two social services and organizations which promoted healthy eating, increased physical activity, as well as obesity reduction. Both clubs were open to men and women from all ages. The programs were geared for
individuals who desired to lose weight and preferred weekly and/or monthly meetings for social encouragement, personal accountability, and exercise or nutrition counseling. Taking Off Pounds Sensibly (TOPS), in addition to the nationally-known Weight Watchers programs held weekly meetings for members in Davis County, Iowa.

Taking Off Pounds Sensibly (TOPS), was a non-profit, non-commercial organization established in 1948, which promoted weight loss through sensible diet control and physical activity promotion. There are 200,000 members of TOPS worldwide, while approximately 20 to 30 individuals were members of the Davis County chapter. Membership was 20 dollars each year. Taking Off Pounds Sensibly provided members with a variety of health information including experts in the fields of medicine, nutrition, psychology, fitness, and medical research. These experts assisted participants with safe, effective, realistic weight loss and weight control. Taking Off Pounds Sensibly used program ambassadors as real-life weight loss experts with personal experiences and struggles regarding weight loss and weight control (Taking Off Pounds Sensibly, 2005).

Each week, members attend TOPS meetings and shared personal successes and struggles that arose during the past week related to weight loss, diet, exercise, and nutrition. Occasionally, meetings included motivational or educational speakers present to discuss a weight-related topic. Each member received a personalized diet and exercise plan to reflect the optimal daily calorie allowances for a designated active lifestyle. Food and exercise plans were not commercialized or endorsed by a specific company, but were tailored to meet the needs of the individual participant. In addition, food and exercise
plans were developed with close supervision from a personal physician (Taking Off Pounds Sensibly, 2005).

Recently, Weight Watchers was recognized as a leading weight loss plan in the United States (Weight Watchers, 2005). Fortunately, a Weight Watchers chapter was available for the convenient participation of residents in Davis County. Weight Watchers is a commercial organization encouraging individuals participation through in-person or on-line meetings. Members paid monthly dues of approximately 11 dollars each month in person or $16.95 per month if chosen to participate on-line. At each meeting, members weighed-in, learned more about healthy eating, dieting, and physical activity promotion, and listened to personal success stories and guest speakers (Weight Watchers, 2005). Weight watchers was open to all adults, both men and women, who carried excessive weight. Pregnant women were discouraged to participate and lactating women were given an even more specific individualized plan (Weight Watchers, 2005; personal communication, June 29, 2005).

The Weight Watchers program was derived around a point system. A specific number of calories, translated in the form of points were allocated to each member for daily consumption. Points are assigned to foods based upon the fiber, calorie, and fat content of the food (personal communication, June 29, 2005). Weight Watchers used a social system to encourage achievement of personal goals. Each new member was advised to consult with a physician before participation. Depending on initial body weight and body mass index, members were encouraged to lose 10 percent of their
starting body weight. Safe, individualized nutrition and exercise plans were prepared for each member (Weight Watchers, 2005).

Health and Social Services: Key Respondent Data

Key respondents communicated a variety of sentiments in regards to the health and social services offered in Davis County, Iowa. Twelve respondents (n = 12) were obtained from a variety of personal and professional backgrounds. Two respondents (n = 2) were lay individuals and had personal experiences with a variety of the health and social services offered by Davis County Hospital and community. Other respondents included health professionals with a variety of backgrounds including nurses (n = 4), a nurse practitioner (n =1), a physician (n =1), a social worker (n=1), and a physical therapist (n=1). Many key respondents were satisfied with the available, personalized, and timely health care that they were able to receive in Davis County. Individuals voiced that they were often able to make same-day or walk-in appointments with their physician in order to discuss personal diet, exercise, and nutrition goals. On the other hand, respondents admitted that they were unlikely to make a specialized appointment to seek out this information due to a variety of financial or time constraints. Key respondents were also satisfied with the variety of health and social resources available to them in Davis County. In particular, the specialty clinics, cardiac rehabilitations services, physical therapy and home health services were viewed as popular, personalized health services. Social services such as Weight Watchers and TOPS were also welcomed amongst community residents (personal communication, July 19, 2005).
On the contrary, the majority of key respondents stated that they were hesitant to discuss weight loss, nutrition, and exercise with their primary care practitioner. Many key informants felt that it was a private issue, and while they often had unanswered concerns regarding these topics, they were often unable to receive counseling from an outside source for a variety of reasons. Other respondents welcomed the available information, but were unwilling to take time to make an appointment to discuss these issues. Other respondents recognized a deficiency in objective community resources available to provide consistent motivation and instruction regarding exercise, diet, and weight loss strategies. This inconsistency made it difficult for these informants to feel comfortable seeking out personal information (personal communication, July 13, 2005).

In addition, many of the health care professionals voiced personal hesitancy to sporadically bring up the subjects of weight loss, diet, and exercise to patients if the presenting chief complaint did not lead to the discussion. While the topics of diet and exercise were always open for discussion, many providers felt that patients knew their personal exercise, nutrition, and health status, and seemed closed to personal counseling on the issue. Many informants acknowledged that obesity and cardiovascular disease are a significant problem within Davis County, but also realize that unhealthy eating traditions along with displeasure for exercise are hard traditions to break. In turn, many practitioners used non-verbal cues of patient resistance as a signal to abandon the time spent in patient screenings, patient teaching, and counseling on diet, exercise, and weight topics, unless it was a strictly warranted (personal communication, July 20, 2005).
Professional key respondents also felt that Davis County lacked in available, organized prevention programs targeted towards weight reduction, health maintenance, and cardiovascular risk reduction. Most of the health or social programs currently available or affordable were designated for tertiary health maintenance rather than risk-reduction and/or prevention. In addition, key respondents felt that inter-community resources open for referrals, and geared towards physical activity counseling seemed limited (personal communication, July 13, 2005).

Table 6. Davis County Intracommunity Health and Social Service Strengths and Stressors.

<table>
<thead>
<tr>
<th>Community Strengths</th>
<th>Community Stressors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendly, timely medical appointments available for diet, exercise, nutrition counseling with PCP.</td>
<td>Hesitancy from PCP’s to approach overweight patients with weight loss, exercise recommendations.</td>
</tr>
<tr>
<td>Variety of health resources – cardiac rehab, specialty clinics, nutritionists, physical therapy.</td>
<td>Lack of consistent health resources – specialty clinics, dietitians available only certain days during month.</td>
</tr>
<tr>
<td>Available social clubs designed to assist with weight loss, exercise motivation for those with stated need.</td>
<td>Lack of social, exercise, health programs geared towards healthy individuals – most programs geared towards tertiary not primary interventions.</td>
</tr>
<tr>
<td>Some community programs free of cost or covered by insurance programs.</td>
<td>Many programs cost money – not covered by insurance.</td>
</tr>
</tbody>
</table>
COMMUNITY HEALTH DIAGNOSIS

Information for this assessment was collected using interviews from community health and service facilities. Data was collected from key respondent interviews, observation, and from the public domain. Conversation remained focused on only those resources, services, or comments that directly influenced participation in physical activity as it relates to obesity as a cardiovascular risk factor. A total of twenty individuals (n = 20) from a variety of professional and personal backgrounds were interviewed for this project. Representatives from public and private community services were interviewed regarding their organization’s specific offerings to the core group. In addition, community advertisements, websites, pamphlets, and brochures from different organizations contributed to the accrual of information regarding services available for the general public domain and core. Medical professionals, including nurses, a physician, nurse practitioner, social worker, and physical therapist were interviewed regarding the health and social services that they provide or utilize within the community which promotes physical activity amongst the core. Finally, a total of ten lay community members (n = 10) served as core key respondents, giving their personal perceptions of community resources and services derived from personal experiences with past or current use of the environmental, health and social services, and recreational resources. The collected data was discussed and the identifiable strengths and stressors for each subsystem were summarized in table format (Tables 4, 5, & 6).
Application of Findings to Muecke’s Criteria

Muecke’s Criterion for Community Concern is a Likert scale which rates each community concern, previously discussed as community stressors, on a scale of zero to two – zero being a concern of no priority, with two being a concern of highest priority. For this project each community concern, identified and summarized in the assessment process was placed into Muecke’s scale and ranked based upon appropriateness for the role of the community health nurse (CHN), prevalence of risk, severity of risk, potential for risk reduction, degree of community interest, expected duration of program effects, and availability of resources. The ranking associated with community interest was double weighted in an effort to strengthen the partnership between a potential intervention and the best interest of the aggregate community.

Using the data collected during the community assessment and information gathered from key community respondents, ten leading community concerns were identified. Each of the ten concerns were selected after they were identified by key respondents, supported by assessment data, and remained consistent with the project’s central theme. The ten community concerns were then entered and analyzed using Muecke’s Criteria for Community Concern (1984) listed below in Table 7.

The level of priority for each community concern was identified by the researcher with input from key informants, area health professionals, and community members – a process that is philosophically consistent with the CAP model. The leading community concern was the realization and desire to improve personal knowledge deficits and improve the lack of motivation related to the development of an effective fitness or
nutrition program. Supporting the leading community concern included the realization of the high prevalence of obesity and cardiovascular disease within Davis County, Iowa. Key informants and community members seemed concerned that the prevalence of cardiovascular disease and obesity exceeded their personal and community expectations for concern. Community members and key informants felt that with an increase in personal knowledge and motivation, they may reduce their own risk for developing obesity and cardiovascular disease. On the other hand, the area of lowest priority for community members, according Muecke’s criteria (Table 7) remained the absence of a safe and structured environment in which to increase motivation for exercise and weight loss. For the complete listing of community concerns and their Muecke’s rankings refer to Table 7, below.

Diagnosis

Two community health diagnoses were developed to most appropriately address the leading community concerns (Table 7). In addition, Prochaska’s theory for change (2003) guided the development of the second diagnosis. The community nursing diagnosis reflected the need for increased community awareness and knowledge regarding specific health related behaviors. However, some assessment data suggested that portions of the community remained in a precontemplative state regarding a personal lifestyle change (Prochaska, 2003). Thus, the chosen nursing diagnoses’ were:

- Community resource deficit related to paucity of obesity and cardiovascular disease prevention interventions as manifested by a lack of trained professionals that are educated
in preventing and treating obesity and the availability of patient education resources regarding development of an exercise, diet, and weight loss regimen.

• Prevalence of community members in the pre-contemplative state for change related to limited utilization of natural community resources as manifested by lack of participation in physical activity.
Table 7. Selection of Community Concern (Mueckes’s Criteria)

<table>
<thead>
<tr>
<th>Community Concern</th>
<th>Appropriate for CHN role</th>
<th>Prevalence of Risk</th>
<th>Severity of Risk</th>
<th>Potential for Risk Reduction</th>
<th>Community Interest</th>
<th>Expected Duration of Program Effects</th>
<th>Availability of Resources</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Recreational resource deficit.</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2 x 2 = 4</td>
<td>1</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>2. Knowledge Deficit r/t development of a fitness or nutrition program.</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2 x 2 = 4</td>
<td>2</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>3. Community participation deficit with existing health/ community services.</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1 x 2 = 2</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>4. Low income; Large proportion of families below state poverty level.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1 x 2 = 2</td>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>5. Resistance to change of sedentary lifestyle</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1 x 2 = 2</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>6. Lack of trained fitness/nutritional professionals.</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2 x 2 = 4</td>
<td>1</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>7. Absence of safe, structured exercise environment</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1 x 2 = 2</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>8. High community prevalence of obesity</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2 x 2 = 4</td>
<td>2</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>9. High community prevalence of cardiovascular disease.</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2 x 2 = 4</td>
<td>2</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>10. Community Health/ Social Service Deficit</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1 x 2 = 2</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Weighting schema: *Community interest column was double weighted to emphasize the importance of community interest.

0 = no priority
1 = some priority
2 = high priority

DISCUSSION

Anderson and McFarlane (2004) suggested that the community assessment process considers the community core and its partnership with the community as a whole, when developing a community agenda. In the case of the rural community in Davis County, Iowa this project helped identify that while the physical resources existed, more was needed to effectively optimize the use of the resources amongst community members. The recreational services were available, but were often limited, expensive, seasonal, and without direction and/or instruction. When offered, group fitness classes were sporadic, unpredictable, and often at inconvenient times. Professional, certified instruction was often lacking for community members that generally felt unable or unmotivated to utilize the recreational resources available without instruction.

Ultimately, participation in physical activity remained self-motivating and self-limiting. While individuals could be held somewhat responsible for this trend, the community of Davis County could likewise address the issues at hand, and aim to expand their services to meet the growing demands of the residents. This assessment helped bridge the gap between the resources that the available community resources and what the community members desire.

Overall, community key informants reported satisfaction with the calm, quiet, and attractive physical environment of Davis County, Iowa. They also agreed that the recreational resources were sufficient. Most were pleased with the available health and social services in the community given their choice to live in a small, rural area. On the other hand, optimal use of the existing resources could have been expanded to include
funding of the community’s desire to provide additional resources. Resources such as
additional walking, jogging, and cycling paths, in addition to an indoor pool would
expand and improve the community’s perception of the available resources. In addition,
providing community members with certified trainers or physical activity instructors
would help increase safe, motivated, knowledgeable participation in physical activity.

Issues surrounding diet, physical activity, and weight loss in the health and social
service arena remained a sensitive subject. Many area health care providers offered
different approaches to weight loss and exercise recommendations. For the most part,
most of the primary care providers felt it was best to handle the subjects of diet and
exercise delicately, and found it best to discuss the matter only if it directly pertained to a
presenting health issue. Even then, the progression of the conversation, and types of
recommendations remained dependent on the reception from the patient.

As a result, it is also a responsibility of the community to request that their health
care providers include basic preventative health, obesity reduction screening and
counseling, in addition to cardiovascular risk reduction in the daily health routines of
their primary care practice. Although the issues of obesity, cardiovascular disease, and
physical activity remain a sensitive subject, they are issues that can not be ignored. Lay
community members, community health care providers, and community services must
partner together to make certain that these critical health risk factors are addressed and
minimized through optimal use of existing community resources and accrual of
additional services. Thus, it is evident that the lack of physical activity, accrual of excess
weight, or increased risk for cardiovascular disease in this, or perhaps any rural
community, are the responsibility of the community as a whole, and not only one component of the community. Each person must take responsibility for their personal actions, while community services and agencies must optimize the resources and funding given towards services that address physical activity, obesity, and cardiovascular disease for individuals between the ages of 20 and 45 years. In other words, community subsystems must “partner” in order to implement positive change.

Future Development

This project mirrored the theoretical underpinnings and systematic methodology designed by Anderson and McFarlane, to conduct a focused assessment of one rural Iowa community. Objectives for this project identified the available community resources related to physical activity and the perceptions of young adult lay community members regarding these community resources. Physical activity is known to reduce the prevalence of obesity and the risk for developing cardiovascular disease. In the rural areas, the prevalence of obesity and cardiovascular disease are as high as most urban areas, but little is known about the perceptions of rural community members regarding physical activity in relation to cardiovascular disease, as obesity as a risk factor for cardiovascular disease, or the community and health services available for residents to prevent this growing problem. Most Davis County residents realize that obesity and cardiovascular diseases are highly prevalent in their own community, but remain unsure how they may best reduce their own personal risk where informative resources are limited.
This community assessment examined three of the eight community subsystems with a focus on impacting physical activity. Five subsystems remain that may or may not influence the participation in physical activity amongst Davis County residents. These subsystems must be thoroughly examined before a complete analysis of the community can be obtained and community health intervention implemented. In addition, many other factors such as hypertension, diet, and genetics may contribute to the onset of obesity and cardiovascular disease and also deserve a more complete review.

Prochaska’s Readiness for Change theory (2003) suggests that an individual must be in the appropriate stage of readiness to accept and commit their lives towards change. Change is not an immediate occurrence, but rather a process of empowerment. Therefore it is critical that in the case of any community assessment, where an intervention is desired, community partnership is strong. Additional work and time is required to partner with the community of Davis County related to potential interventions of reduction of obesity as a cardiovascular risk factor. With continual work and development, this project may provide an initial guide or tool for development of a more complete community-based need assessment and resulting community-based interventions. In addition, this project may serve as a stepping stone towards understanding the dynamics of other rural communities across the United States. This project may help gain future insight regarding the availability of services in the rural areas, as well as to the perceptions of rural community members regarding their personal risks for developing obesity and cardiovascular disease.
Due to the project nature, purpose, resources, and allocated time, many project limitations existed. First, Anderson and McFarlane’s Community-As-Partner Model provided a very comprehensive framework for completing a community assessment. The Model was designed for use by multiple investigators and with extended community involvement. For this project, a single primary investigator conducted a focused community assessment, restricting the comprehensive and holistic nature of the CAP model. In the interest of time, portions of the CAP model were omitted from discussion during this project. Only three of the eight subsystems were thoroughly addressed. In the future, examination and analysis of the remaining five subsystems is necessary before a community health intervention is obtainable.

Finally, the principle investigator was unable to sort out some key respondent biases amongst new resident and/or lifetime residents who had preconceived ideas regarding desirable and undesirable community services. The background and demographics of key informants could have been more diverse (Davis County Iowa is 99 percent Anglo-Saxon) to include a broader population, where the results could be applied to additional rural areas with a more diverse mix of races and ethnic background. In addition, a more comprehensive background and demographical survey and key informant questionnaire from respondents may have added some value to this project.

Implications for Advanced Practice Nursing

The results and analysis of the assessment data provide significant opportunities for the advanced practice nurse in the rural setting – in particularly for the community of Davis County, Iowa. In a rural setting, it is often easier for a single voice to be heard
amongst a crowd, and for nurses in the Advanced Practice Role to also serve and impact other community roles, committees, and functions. Using the subsystem model from Anderson and McFarlane, advanced practices nurses have the potential to contribute towards each of the subsystems – recreation, physical environment, health and social services, etc., that encapsulate a community.

First, advanced practices nurses (APN’s) must make certain that they hold the most current knowledge regarding health and physical activity promotion or program development. Then, they can begin to contribute to the wellness of the community through community service positions such as being a member of the parks and recreation, community wellness, and community development boards. Advanced practice nurses may also use their positions to appeal to schools or after school programs in their community to advocate for personal and community health and physical activity promotion. In their personal professional practice, nurse practitioners can use their position as a primary health care provider and holistic health educator to counsel their patients regarding personal risk reduction and physical activity promotion.
CONCLUSION

Due to the growing prevalence and concern regarding obesity and cardiovascular disease across the ages, much interest and research has been dedicated to the topics of obesity and cardiovascular disease prevalence, prevention, and treatment. Children and young adults are beginning to develop conditions related to unhealthy lifestyle factors such as excess weight. In addition, living in a rural environment often dictates the availability of resources, knowledge, research, and treatment options. Rural citizens are often overlooked as possible research subjects or potential treatment candidates because they are not present. Yet the prevalence of obesity and cardiovascular disease is high amongst rural residents and must not be ignored.

A partial community-based needs assessment was completed to gain understanding and knowledge of rural perceptions and services regarding physical activity, obesity, and cardiovascular disease. Project results found that the tangible physical activity resources were available to community members; however the educational and motivational elements were sometimes lacking, making actual participation in physical activity uninviting for some. With continual research and assessment, the knowledge obtained during this project may assist with future development of community need-based interventions, treatment plans, or practice recommendations for Davis County Iowa, in addition to providing knowledge regarding the issues facing many other rural communities related to physical activity, obesity, and cardiovascular disease. In addition, the advanced practice nurse and the advanced practice nurse practitioner may capitalize on the assessment information gained and may
expand their practice to promote health and physical activity through their own practice, in addition to influencing community agencies that contribute to community health and wellness.
Appendix A. Nursing diagnosis formation and program planning and implementation using Anderson and McFarlane’s Community as Partner Model. (Anderson & McFarlane, 2004, pg. 253).
APPENDIX B: IRB APPROVAL AND DISCLAIMER FORM

The University of
Arizona
Tucson Arizona

1350 N. Vine Avenue
P.O. Box 249137
Tucson, AZ 85724-5137
(520) 626-6721

15 December 2005

Marjorie Easter, BSN
Advisor: Leslie Ritter, Ph.D.
College of Nursing
PO Box 210203

RE: ASSESSMENT OF COMMUNITY PHYSICAL ACTIVITY SERVICES AND PERCEPTIONS OF THESE SERVICES IN A RURAL MIDWESTERN COMMUNITY

Dear Ms. Easter:

We received documents concerning your above cited project. Regulations published by the U.S. Department of Health and Human Services [45 CFR Part 46.101(b)(2)] exempt this type of research from review by our Institutional Review Board. Note: A copy of your disclaimer form, with IRB approval stamp affixed, is enclosed for duplication and use in enrolling subjects.

Please be advised that clearance from academic and/or other official authorities for site(s) where proposed research is to be conducted must be obtained prior to performance of this study. Evidence of this must be submitted to the Human Subjects Protection Program office.

Exempt status is granted with the understanding that no further changes or additions will be made either to the procedures followed or to the consenting instrument used (copies of which we have on file) without the review and approval of the Human Subjects Committee and your College or Departmental Review Committee. Any research related physical or psychological harm to any subject must also be reported to each committee.

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely,

Rebecca Dahl, R.N., Ph.D.
Director
Human Subjects Protection Program

cc: Departmental/College Review Committee
APPENDIX B: IRB APPROVAL AND DISCLAIMER FORM

Subject Disclaimer Form

Assessment of community physical activity services and perceptions of these services in a rural Midwestern community.

You are being invited to voluntarily participate in the above-titled research project. The purpose of the project is to identify and assess the community resources for physical activity. Physical activity is known to reduce the prevalence of obesity and the risk for developing cardiovascular disease. You are eligible to participate in this project because you are a resident of this community (Davis County, Iowa), or are a health professional.

If you agree to participate, your participation will involve an informal interview about personal exercise preferences, personal utilization of community resources, or services and community offerings related to physical activity, that are available to you in Davis County, Iowa. The interview may take place in person and/or over the phone and will last approximately 15 to 30 minutes. You may choose not to answer some or all of the questions. During the interview, only written notes will be made in order to help the investigator review what is said. Your name will not appear on these notes.

Any questions you have will be answered and you may withdraw from participation in the project at any time. There are no known risks from your participation and no direct benefit from your participation is expected. There is no cost to you except for your time and you will not be compensated for your participation.

In order to maintain your confidentiality, your name will not be used in the informal interview notes or in any reports that result from this project. The anonymous interview information will be locked in a cabinet in a secure place, and will be destroyed at the completion of the investigator’s program of study.

You can obtain further information from the principal investigator, Marjorie Easter, RN, Family Nurse Practitioner Student, University of Arizona College of Nursing, at (641) 664-3942. If you have questions concerning your rights as a research participant in this project, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721.

By participating in the interview, you are giving permission for the investigator to use the information obtained to be used for research purposes.

Thank you.

Marjorie Easter, RN

I hereby give my consent and wish to participate in the project. The stated risks, benefits, and time requirements of the project have been explained to me. All data collected from the project is will be destroyed after the study is complete.

Signature ___________________________ Date ___________________________
APPENDIX C: KEY INFORMANT QUESTIONNAIRE.

Sample Interview Questions for key respondent community members.

- Do you enjoy participation in physical activity?
- Do you participate in physical activity on a routine basis?
- What kind of physical activities do you most participate in? (walking, jogging, cycling, etc.)
- What factors increase your likelihood to consistently participate in physical activities? (fun, exercise, known health risk factor, social pressure, etc.)
- What factors decrease your likelihood to consistently participate in physical activities? (health, lack of enjoyment, lack of facilities, etc?)
- Do you find the physical environment to be accommodating to your physical activity needs? If so, why? If not, why not?
- Does Davis County Iowa provide the sufficient resources for you to participate in the physical activity of your choice?
  - If not, are their any resources or services that if they were available, would improve or encourage your participation in physical activities?
  - In your perception, what resources are available in the community for individuals to participate in physical activity, even if you don’t choose to participate in them?
- Davis County, Iowa that prevents individuals from participating in physical activity?

Sample Interview Questions for key respondent health professionals.

- Do you find that the lack of participation in physical activity is common amongst the patients you see?
- Do you find that patient counseling regarding the need for weight loss through exercise or diet changes is a sensitive subject amongst your patients?
- How do you approach patient counseling regarding weight loss or exercise for disease prevention?
- Do you change your approach if the patient is not interested in listening to your advice? How?
- If a patient presents to your office, interested in learning about weight loss, diet changes, or developing an exercise plan, what is your typical treatment plan, approach?
- Are their any community resources, health or social services, in which you may refer patients who wish to learn more about diet changes, exercise routines, or weight loss?
- Do you use any alternative methods for encouraging weight loss or obesity reduction amongst your patients? (ie. Diet pills, surgery)
REFERENCES


REFERENCES – Continued


REFERENCES – Continued


REFERENCES – Continued


REFERENCES - Continued


REFERENCES - *Continued*
