

FACTORS ASSOCIATED WITH WOMEN, INFANTS, AND CHILDREN (WIC)  
PARTICIPANTS EATING HEALTHY FOODS AND ENGAGING IN EXERCISE

A Dissertation by

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Eating Healthy Foods and Engaging in Exercise

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## ABSTRACT

As barriers to engaging physical activities or consuming healthy foods increase, the frequency of reported exercise and consumption of healthy foods decreases. The purpose of this study was to develop an instrument that would assess barriers preventing adult Women, Infants, and Children (WIC) clients from engaging in physical activities and eating healthy foods.

WIC participants in five Kansas counties were asked upon arrival to their appointments to complete a survey, the WIC Nutrition and Exercise Survey 3 (WNES 3), that assessed barriers to engaging in physical activity and eating healthful foods. A sample (n=176) of the 1,624 returned surveys were analyzed for concurrent validity.

Six primary factors emerged as barriers to engaging in physical activities and consuming healthy foods: food selection, access, positive prompts, exercise knowledge, health knowledge, and intentional behaviors. The highest factor correlation (0.46) was between food selection and exercise prompts, explaining 21% of the variance. For seven of the eight hypotheses developed to test the concurrent validity of the instrument, the null hypothesis was rejected.

The WNES 3 has relatively strong concurrent validity and can be utilized in WIC clinics as a tool to assess WIC clients' barriers to engaging in physical activities and eating healthy foods. The tool could assist WIC clinics in becoming more responsive to their low-income clients' physical activity and nutritional needs.

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## INTRODUCTION

### *Research Purpose*

The foundation of this study rests in the health literature that indicates that consuming a healthful diet and engaging in physical activity are fundamental behaviors that lead to healthy living. Participation in both is often attempted and abandoned; therefore, it is critical to understand the barriers that prevent the practice and adoption of these health behaviors. As barriers to engaging in physical activities or consuming healthy foods increase, frequency of reported exercise and consumption of healthy foods decreases (Jones, & Nies, 1996).

Low-income women tend to experience more barriers to engaging in physical activities and consuming healthful diets than any other group (Anderson, Bybee, Brown, McLean, Garcia, Breer, & Schillo, 2001; Armstrong, Bauman, & Davies, 2000); consequentially, the population for this study includes Women, Infants, and Children (WIC) participants residing in Kansas. The purpose of this research is to identify what barriers Kansas WIC participants experience, preventing them from engaging in physical activity and eating healthful foods.

### *Barriers to Practicing Healthy Behaviors*

There are a number of factors that influence the practice of certain healthy behaviors. Health behaviors such as engaging in physical activity and consuming healthful diets can be difficult behaviors to practice and adopt (Brawley, Rejeski, & King, 2003; Lappalainen, Saba, Holm, Mykkanen, & Gibney, 1997). Participation in both may be attempted, although many revert to previously practiced health behaviors.



Barriers to and benefits of an activity can significantly influence health behaviors (Ajzen, & Fishbein, 1980; Ajzen, 1991). Assessing perceived barriers and/or motivations underlying an activity could be useful in efforts to promote participation in that activity (Booth, Bauman, Owen, & Gore, 1997). Once barriers are identified, the activity of interest, or the strategy used to engage the target population in the activity of interest, could be altered or adapted to meet the needs and interests of that population.

### *Why Healthful Diet?*

There is strong and consistent support in the literature indicating that eating fruits and vegetables reduces risks of numerous chronic diseases such as cardiovascular disease and up to 15 types of cancer (Ness, & Powles, 1997; Slattery, Potter, Coates, Ma, Duncan, Berry, & Caan, 1997; Steinmetz, & Potter, 1996; Kono, & Hirohata, 1996; Dorgan, Ziegler, Schoenberg, Hartge, McAdams, Falk, Wilcox, & Shaw, 1993; Steinmetz, & Potter, 1993; Block, Patterson, & Subar, 1992). Increased fruit and vegetable intake is arguably the most important dietary achievement for health promotion and disease prevention. As a result, several countries, including the United States, have established recommended fruit and vegetable intake guidelines (US Department of Health and Human Services, 2000; United States Department of Health and Human Services, 1991).

Those who report eating healthfully suggest their behaviors are due to their desire for health, to feel good or better, and to live long lives (Eikenberry, & Smith, 2004). Benefits of eating healthfully include improved cognitive functioning and a feeling of greater mental alertness. Eating healthfully can result in psychological benefits where individuals can feel good about treating themselves well, enhance self-esteem, and

improve physical performance with a greater production of energy (O’Dea, 2003). Those who eat healthfully report feeling physically good, fresh, and clean (O’Dea, 2003), improving feelings of overall well-being.

### *Barriers to Eating Healthful Diet*

#### *Cost*

The most frequently cited barrier to eating a healthy diet, especially among low-income groups, is the perceived cost of healthy foods, including fruits and vegetables (Eikenberry et al., 2004; Nestle, Wing, Birch, Disogra, Drenowski, Middleton, Sigmangrant, Sobol, Winton, & Economos, 1998; Andajani-Sutjahjo, et al., 2004; Treiman, Freimuth, Damron, Lasswell, Anliker, Havas, Langenberg, & Feldman, 1996; Henry, Reicks, Smith, Reimer, Atwell, & Thomas, 2003). In fact, several studies have cited cost as the most important variable in food selection (Glanz, Basil, Maibach, Goldberg, & Snyder, 1998). The price of healthy foods, especially in comparison to inexpensive, fast foods, is perceived by many, especially low-income women, to be exorbitant (Biloukha, & Utermohlen, 2001; Brug, Lechner, & Vries, 1995; Keim, Stewart, & Coichick, 1997; French, Story, Jeffery, Snyder, Eisenberg, Sidebottom, & Murray, 1997; Dittus, Hillers, & Beerman, 1995). As a result, many low-income women and their children do not purchase healthy foods, such as fruits and vegetables, due to cost.

#### *Time*

Probably the second most cited barrier to eating healthfully is time. Due to time constraints at work (Andajani-Sutjahjo, et al., 2004), busy lifestyles and irregular working hours (Biloukha et al., 2001), many low-income women are not able or willing

to find or dedicate the time to purchasing or preparing healthy foods (Eikenberry et al., 2004). Moreover, having children influences women's abilities to adopt healthy habits, such as healthy diets (Ball, Crawford, & Warren, 2004; Brown, Ball, & Powers, 1998; Wing, & Klem, 1997).

#### *Convenience and Motivation*

Lack of motivation, being "lazy," or inconvenience are frequently cited barriers to healthful eating (Eikenberry et al., 2004; Andajani-Sutjahjo, et al., 2004). Less healthful alternatives are plentiful and convenient, making healthy foods a burden to purchase and prepare (O'Dea, 2003; Eikenberry et al., 2004; Treiman et al., 1996). Moreover, fruits and vegetables, among other healthy foods are often not readily available in low-income neighborhoods (Eikenberry et al., 2004; Reicks, Randall, & Haynes, 1994; Treiman et al., 1996; Henry et al., 2003; Dittus, Hillers, & Beerman, 1995). Additionally, many low-income groups are concerned about perishability of fruits and vegetables (Treiman et al., 1996; Henry et al, 2003).

#### *Taste*

Another critical barrier frequently cited in the literature is that of taste, preferences, or "being picky" (Eikenberry et al., 2004; Triman, Freimuth, Damron, Lasswell, Anliker, Havas, Langenberg, & Feldman, 1996; Smith, & Owen, 1992; Harnak, Block, Subar, Lane, & Brand, 1997; Brug, Lechner, & Vries, 1995; Henry et al., 2003; O'Dea, 2003; Cotugna, Subar, Heimendinger, & Kahle, 1992; Domel, Thompson, Davis, Baranowski, Leonard, & Baranowski, 1996). One's food preference is an important variable in food selection (Glanz, Basil, Maibach, Goldberg, & Snyder, 1998). Some have cited the difficulty of "giving up the food I like" as a barrier or trying "unappealing"

food as a difficulty (Biloukha et al., 2001). Some perceive a lack of discipline or “will power” as a barrier (Eikenberry et al., 2004), indicating they do not want to change their eating habits (Biloukha et al., 2001).

#### *Lack of Knowledge*

Some researchers have cited lack of knowledge and education as a barrier for low-income families to consume healthy foods (Eikenberry et al., 2004; Patterson, Kristal, Lynch, & White, 1995). While some low-income groups report they do not know enough about healthy foods to purchase and prepare them, some are confused, stating that experts “keep changing their minds” (Biloukha et al., 2001).

#### *Systematic Barriers*

A systematic barrier cited in the literature involves public food assistance programs where participants need identification and proof of residency and citizenship, eligibility is dependent upon a narrow income margin, and there are restrictions on the number of times participants are eligible for the program (Eikenberry et al., 2004). Other system barriers include being unable to choose food, being dependent upon food assistance programs, and transportation (Eikenberry et al., 2004). The literature also notes other barriers, including: lack of self-efficacy and social support (O’Dea, 2003), living alone (Eikenberry et al., 2004), learned behaviors from childhood (Eikenberry et al., 2004), and living in a culture where one “treats” oneself to unhealthy foods, eats when bored, or engages in emotional eating (O’Dea, 2003).

#### *Why Physical Activity?*

Exercise and physical activities are life-enhancing events. The literature illustrates significant physical and psychosocial benefits from participating in physical

activity (Sevick, Dunn, Morrow, Marcus, Chen, & Blair, 2000; Morris, Heady, Raffle, & Parks, 1953). Those who exercise receive physical performance benefits. Some engage in physical activity as a coping strategy, to relieve stress, relax, and release frustration (O’Dea, 2003). Those who are physically active have reported feeling a sense of personal accomplishment, increased muscle strength, improved muscle tone, and improved mental health (Fahrenwald, & Walker, 2003). Other benefits have included weight loss/getting “in shape,” especially after pregnancy, time alone, and time to spend with a child (Fahrenwald, & Walker, 2003).

It has been proposed that physical inactivity and high levels of sedentary behavior are strong contributing factors associated with overweight and obesity (Obarzanek, Schreiber, Crawford, & Goldman, 1994; Goran, Hunter, Nagy, & Johnson, 1997). A strong link between health and physical activity has been well supported in the literature. Physical activity decreases one’s risk for hypertension, type II diabetes, and coronary heart disease (US Department of Health and Human Services, 2002; US Department of Health and Human Services, 2000).

The literature is filled with the relationship between physical inactivity and increases in body fatness (Klesges, Klesges, Eck, & Shelton, 1995; Reiterer, Sudi, Mayer, Limbert-Zinterl, Stalzer-Brunner, Fuger, & Borkenstein, 1999; Johnson, Figueroa-Colon, Herd, Fields, Sun, Hunter, & Goran, 2000; Epstein, Valoski, Vara, McCurley, Wisniewski, Kalarchian, Klein, & Shrager, 1995). More specifically, sedentary activity, especially watching television (Berkey, Rockett, Gillman, & Colditz, 2003), is tightly associated with adiposity (Andersen, Crespo, Bartlett, Checkin, & Pratt, 1998;

Hernandez, Gortmaker, Colditz, Peterson, Laird, & Parra-Cabrera, 1999; Dietz, & Gortmaker, 1985).

Conversely, increased physical activity levels are associated with lower body mass index (BMI) and less television watching (Eisenmann, Bartee, & Wang, 2002). In one study, the relationship between increased television watching and increased BMI is more distinct than between physical inactivity and BMI (Eisenmann et al., 2002). This might be due to increased caloric intake due to advertisement (Dietz, & Gortmaker, 1985), or physical inactivity. Regardless, youth who engaged in less activity watched more television. National Health Examination Surveys II and III revealed that the prevalence of obesity among 12 to 18 year olds increased 2% per hour of television watched each day (Eisenmann et al., 2002). While most researchers point to inactivity in overweight children as a contributing factor to overweight, some researchers suggest that overweight children may elect sedentary play, not necessarily that inactivity contributes obesity (Troost et al., 2003).

Regardless of the direction of the relationship, increases in recreational inactivity are associated with larger BMI in girls. Increasing physical activity through aerobics and dance has been associated with decreases in BMI for boys and girls (Berkey et al., 2003).

### *Barriers to Engaging in Physical Activity*

#### *Time*

The most frequently cited barrier to engaging in physical activity and exercise is time (Sherwood, & Jeffery, 2000; Tappe, Duda, & Ehrnwald, 1989; Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Allison, Dwyer, & Makin, 1999; Dishman, Sallis, & Orenstein, 1985; King et al., 1990). Several studies report time constraints, especially

among low-income groups, restrict many interested in physical activity to sedentary lifestyles.

Time constraints are especially difficult among mothers (O’Dea, 2003). Having children influences women’s abilities to adopt healthy habits, such as engaging in physical activity (Ball et al., 2004; Brown, Ball, & Powers, 1998; Wing, & Klem, 1997). Lack of childcare is frequently cited among mothers as a central barrier preventing them from being physically active (Fahrenwald, & Walker, 2003).

#### *Access*

Access, especially among low socioeconomic status (SES) groups, is another commonly reported barrier to engaging in physical activity (Sherwood et al., 2000). The lack of recreational facilities and athletic programs, the presence of neighborhood crime, drugs, traffic, and prejudice are well cited in the literature (Aneshensel, & Sucoff, 1996; Sallis, Johnson, Calfas, Caparosa, & Nichols, 1997). Low SES groups have poorer access to parks, trails, and exercise equipment (Brownson et al., 2001), and the cost associated with joining a health club is cost-prohibitive (Allison et al., 1999).

#### *Self-Efficacy*

It is well supported that lack of confidence or self-efficacy is a barrier to engaging in physical activities (Allison, Dwyer, & Makin, 1999; Dishman, Sallis, & Orenstein, 1985; Sallis, & Hovell, 1990; Sallis, Hovell, Hofstetter, Faucher, Elder, Blanchard, Caspersen, Powell, & Christenson, 1989; Hovell, Sallis, Hofstetter, Spry, Faucher, & Casperseon, 1989; Hofstetter, Sallis, & Hovell, 1990; Stephens, & Craig, 1990). When one is not confident about being able to engage in physical activities and has no context or experience to rely upon, it is less likely that one will proceed to exercise (Allison et al.,

1999). Moreover, the fear of injury has been cited as a barrier to exercising (Allison, Dwyer, & Makin, 1999; Stephens, & Craig, 1990); those who have greater anxiety, less self-efficacy, or less experience around physical activity fear injuring themselves.

### *Social Support*

A lack of social support and interaction is highly associated, especially among women, with physical inactivity (Allison, Dwyer, & Makin, 1999; Stephens, & Craig, 1990; Andajani-Sutjahjo, et al., 2004; Suarez, Nichols, & Brady, 1993; Hovel, Sallis, Hofstetter, Barrington, Hackley, Elder, Castro, Kilbourne, 1991; King, Taylor, Haskell, & DeBusk, 1990; Hovell, Sallis, Hofstetter, Spry, Faucher, & Caspersen, 1989). Those who have friends involved in sedentary activities, experience a lack of parental support, criticism, or teasing from others are less likely to engage in physical activities (O’Dea, 2003). Feeling supported by family and friends, and perhaps exercising with a partner, predicts higher levels of physical activity participation.

### *Fear of Tiring, Motivation, and Enjoyment*

Many perceive that physical activity is hard work and results in physical exhaustion (Fahrenwald, & Walker, 2003). In addition to this barrier, many report not wanting to exercise because they feel tired or lack energy (Brownson et al., 2001; Allison, Dwyer, & Makin, 1999, O’Dea, 2003). Some report barriers such as having a lack of interest or desire to exercise (Tappe, Duda, & Ehrnwald, 1989), while others lack motivation to engage in activity. Some report lacking “self-discipline,” (Allison, Dwyer, & Makin, 1999) while others report that physical activity is not fun (Allison et al., 1999).



### *Sedentary Activities, Weather, Illness, and Overweight*

Indoor sedentary activities such as watching television, reading books, and listening to music are sometimes reported as preferred activities (O'Dea, 2003) to engaging in physical activities. Other barriers to engaging in physical activities include: inclement weather (Fahrenwald, & Walker, 2003; Tappe, Duda, & Ehrnwald, 1989), feeling ill (Fahrenwald, & Walker, 2003; Allison, Dwyer, & Makin, 1999), and being overweight (Ball et al., 2000).

### *Consequences of Inactivity and Unhealthful Eating*

Consumption of poor-nutrient foods leads to undernutrition and malnutrition that often results in less than optimal functioning of immune system and vulnerability to develop frequent and more severe infections (Singh, 2004). Physical growth and neuromotor development are dependent upon the intake of a number of micronutrients (Wasantwisut, 1997). Deficiencies in iron, iodine, zinc, vitamins A and D, folate, vitamin B12, and riboflavin are associated with a number of adverse health outcomes such as cancer and cardiovascular disease (Viteri, & Gonzalez, 2002; Caballero, 2002). Moreover, malnutrition significantly increases morbidity and mortality (Bhan, Sommerfelt, & Strand, 2001).

Physical inactivity and unhealthful diets often result in overweight or obesity. The prevalences of overweight and obesity have dramatically increased over the past several decades (World Health Organization, 1997). From 1962 to 1994, the age-adjusted prevalence of overweight, as defined as BMI between 25 and 30 kg/m<sup>2</sup>, increased from 48% to 59% in men and 39% to 59% in women (Flegal, 1999). Furthermore, the prevalence of obesity, as defined as BMI greater than 30 kg/m<sup>2</sup>,

increased from 12% in 1991 to 18% in 1998 (Mokdad, Serdula, Dietz, Bowman, Marks, & Koplan, 1999).

The prevalences of overweight and obesity have also substantially increased among children in the last two decades (Stauss, & Pollack, 2001). The prevalence of childhood overweight, defined by being equal to or greater than the 85<sup>th</sup> percentile for weight-for-height, increased from 18.6% in 1983 to 21.6% in 1995, a relative increase of 16.1% (Mei, Scanlon, Grummer-Strawn, Freedman, Yip, & Trowbridge, 1998) (Figure 1). The prevalence of childhood obesity, defined by being equal to or greater than the 95<sup>th</sup> percentile for weight-for-height, increased from 8.5% to 10.2% in the same period (Mei et al., 1998).

Childhood overweight and obesity are strongly associated with high blood pressure, (Gutin, Basch, Shea, Contento, DeLozier, Rips, Irigoyen, & Zybert, 1990; Shear, Freedman, Burke, Harsha, & Berenson, 1987) diabetes (Gaylor, & Condren, 2004), adult obesity (Garn, 1985), orthopedic problems (Kelsey, Acheson, & Keggi, 1972), and psychosocial disorders (Dietz, 1985). Moreover, childhood obesity has been linked with higher childhood and adulthood morbidity (Gunnell, Frankel, Nanchahal, Peters, & Davey Smith, 1998; Power, Lake, & Cole, 1997; Nieto, Szklo, & Comstock, 1992; Must, Jacques, Dallal, Bajema, & Dietz, 1992) such as diabetes (Fagot-Campagna, Pettit, Engelgau Burrows, Geiss, Valdez, Beckles, Saaddine, Gregg, Williamson, & Narayan, 2000), sleep disorders (Redline, Tishler, Schluchter, Aylor, Clark, & Graham, 1999), asthma, hyperlipidemia, numerous cancers, and cardiovascular risk factors (Freedman, Dietz, Srinivasan, & Berenson, 1999; Berkey, Gardner, & Colditz, 1998; Dwyer, Stone, Yang, Feldman, Webber, Must, Perry, Nader, & Parcel, 1998; Williams,

Going, Lohman, Harsha, Srinivasan, Webber, Bereson, 1992). Childhood obesity is also associated with increased psychosocial and economic burdens for the individual and society (Gortmaker, Must, Perrin, Sobol, & Dietz, 1993).

Parental obesity is strongly associated with child overweight and obesity (Trost, Sirard, Dowda, Pfeiffer, & Pate, 2003). Many parents provide the genes and the eating environment where early parent-child feeding practices shape children's later eating behaviors (Cutting, Fisher, Grimm-Thomas, & Birch, 1999). Mothers' child-feeding practices have been associated with the child's energy intake (Birch, & Fisher, 2000), ability to self-regulate food according to hunger and satiety cues (Birch, 1998), food preferences (Birch, 1998), and body weight (Birch et al., 2000). One study demonstrated that as mothers increased food monitoring for their daughters and food restriction, the daughters' body mass index increased (Birch et al., 2000). Another study demonstrated the opposite association (Lee, Mitchell, Smickilas-Wright, & Birch, 2001), and two other studies did not detect an association (Robinson, Kiernan, Matheson, & Haydel, 2001; Saelens, Ernst, & Epstein, 2000).

#### *Low Socioeconomic Groups*

Low socioeconomic status (SES) groups tend to be more sedentary and have higher BMIs than other SES groups (Crusey, Szeto, Lensing, Bogle, & Weber, 2001; Jones, Ainsworth, Croft, Macera, Lloyd, & Yusuf, 1998). Some propose that overweight among low SES groups is due to food insecurity issues (Cook, Frank, Berkowitz, Black, Casey, Cutts, Meyers, Zaldivar, Skalicky, Levenson, Heeren, & Nord, 2004). Others suggest that low-income neighborhoods contain more fast-food restaurants, often associated with high fat content and increased BMI (Massachusetts Medical Society

Committee on Nutrition, 1989; French, Harnack, & Jeffery, 2000; Jeffery, & French, 1998), per square mile than other neighborhoods (Block, Scribner, & DeSalvo, 2004). The literature supports that diets with high fat intake contribute to overweight and obesity (Nguyen, Larson, Johnson, & Goran, 1996; Gazzaniga, & Burns, 1993). In fact, from the 1970s to the 1990s, calories consumed from fast foods in the United States have increased from 3% to 12% (Lin, & Frazao, 1999), while the fast food economy has mushroomed from \$6 billion to \$110 billion (Schlosser, 2001). It is clear that Americans are eating more (Tippett, & Cleveland, 1999), portion sizes have considerably increased (Young, & Nestle, 2002), and inexpensive, high calorie foods are ever-present (Block, Scribner, & DeSalvo, 2004).

Although Americans are eating more, most Americans do not consume the recommended five servings of fruits and vegetables each day. However, it is consistently reported that low-income groups, especially women and children, consume fewer fruits and vegetables than other groups (Anderson, Bybee, Brown, McLean, Garcia, Breer, & Schillo, 2001; Omar, Coleman, & Hoerr, 2001; Feldman, Damrom, Anlinker, Ballesteros, Langenberg, DiCelemente, & Havas, 2000; Krebs-Smith, Cook, Subar, Cleveland, & Friday, 1995; Patterson, Block, Rosenberger, Pee, & Kahle, 1990; Patterson, & Block, 1988). One study found that 30% of women in the lowest income level (less than 130% of poverty) had consumed no fruits in four days, compared to 12% of high-income women (Patterson, & Block, 1992). Low fruit and vegetable consumption is highly associated with being female, 20-39 years old, having less than a high school education, and having an income less than \$30,000 per year (Krebs-Smith et al., 1995).

Furthermore, low SES groups report insufficient physical activities, especially to reap health benefits (Armstrong, Bauman, & Davies, 2000; Muller, Koertzing, Mast, Langnase, & Grund, 1999; Yen, & Kaplan, 1998; Droomers, Schrijvers, van de Mheen, & Mackenbach, 1998; Johnson-Down, O'Loughlin, Koski, & Gray-Donald, 1997; Bauman, Bellew, Booth, Hahn, Stoker, & Thomas, 1996; Cauley, Donfield, Laporte, & Warhaftig, 1991). Although only 22% of adults report engaging in regular physical activity, approximately 30 minutes of moderate-to-vigorous activity on most days of the week (US Department of Health and Human Services, 1996), those with low levels of income, education and occupational prestige engage in significantly less physical activity than other groups (Armstrong et al., 2000; Iribarren, Leupker, McGovern, Arnett, & Blackburn, 1997; US Department of Health and Human Services, 1996).

#### *Kansas*

As overweight and obesity are influenced by physical activity participation, habits started at a young age can have a life long impact. The Kansas Department of Health & Environment (KDHE), which contains the Division of Health, Bureau for Children, Youth and Families (BCYF), Nutrition and WIC Services (NWS), recognizes the importance of encouraging youth to engage in physical activities. NWS primarily provides educational programs, resources, and technical assistance to local health departments and citizens to encourage the consumption of healthy foods as NWS has oversight for the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). Approximately 61,229 women and children participate in Kansas WIC each month (Children's Defense Fund, 2004).

As Kansas NWS staff promote nutrition, they are faced with the need to encourage their WIC clients to participate in physical activities, especially while the prevalence of overweight increases. In 2001, the Centers of Disease Control and Prevention's Pediatric Nutrition Surveillance System (PedsNSS) collected 57,277 unduplicated cases of children in Kansas. The data indicated that the obesity rate has risen in children between 2 and 5 years of age from a low of 6.5% in 1993 to a level of 11.8% in 2001. Within the PedNSS, overweight or obesity is defined as equal to, or greater than, the 95<sup>th</sup> percentile of weight for height. In 2001 in Kansas, the prevalence of overweight in children over the age of two in the data collection sites for this study was: 12.8% in Barton County, 9.9% in Douglas County, 12.9% in Miami County, and 10.3% in Saline County (PedsNSS, 2002). Although these prevalences are slightly lower than that of the nation for the same age range (13.1%), the problem is significant and far above the 2010 objective of reducing obesity to less than 5% of the population (US Department of Health and Human Services, 2000).

According to the March 2003 Summary Statistics on Kansas WIC participants, approximately 8,365 children between the ages of 1 and 5 have been given a nutrition risk factor of overweight, indicating that their weight status is equal to or above the 95<sup>th</sup> percentile of weight for height. This number represents approximately 25% of the 33,305 children on the WIC Program in Kansas.

#### *Research Purpose*

WIC participants represent a low-income population, and low-income populations tend to experience more barriers to engaging in physical activities and consuming healthful diets than other populations. They consume fewer fruits and vegetables, and

they participate in significantly fewer physical activities than any other population. As the literature has identified a number of barriers to practicing and adopting these health behaviors, it was the design of this research to assess those barriers. The purpose of this research was to develop an instrument that would assess Kansas adult WIC participants' barriers to engaging in physical activities and eating healthful foods. Assessing barrier dimensions, through several iterations of instruments, would allow for better understanding of barrier dimensions, and better construction of interventions to address emerging barriers.

## METHODS

### *Instrument Development*

The instrument was developed with several influences after multiple iterations. Items reflected the amalgamation of findings from published literature and existing instruments. The literature served as a guide to determine survey content, length, and readability. Instruments from a different WIC nutrition and physical activity program, *Fit WIC*, were reviewed, and some components were adapted and adopted.

Additionally, preliminary studies greatly influenced the development of the instrument. Focus groups had previously been conducted (not by the researcher). From the results of the focus groups, an initial instrument was developed by the researcher to assess WIC participants' barriers to engaging in physical activities and eating healthy foods. The findings from the first survey allowed for improvements to the design of a second survey. Moreover, the results from the second survey assisted in the development of the final instrument. Finally, to measure concurrent validity for the final instrument, eight hypotheses were generated and tested. All of these instrument development steps are provided in detail below.

### *Focus Groups and Initial Instruments*

Focus groups were conducted during the fall of 2002 by the Kansas Nutrition Network and Kansas State University to examine parents' and childcare providers' general impressions of healthy eating and physical activity. The purpose of the focus groups was to identify methods for effectively providing nutrition and physical activity education to parents and childcare providers. However, data were collected to identify barriers that impede participants from eating healthy foods and participating in physical



activities. Four focus groups were conducted, three with childcare providers in Saline, Finney, and Ottawa counties, and one with parents of children enrolled in a childcare program in Saline County. Findings from these focus groups influenced the development of the first instrument for this study, the WIC Nutrition and Exercise Survey (WNES 1).

The first instrument (WNES 1) was a four-page survey developed by the researcher that consisted of 68 items designed to measure the barriers to healthy eating and exercise, participants' knowledge, attitudes, and behavior regarding nutrition and exercise, and participants' children's behaviors regarding nutrition and exercise (Appendix B). According to the people who administered the instruments, the WIC site coordinators, the WNES 1 was confusing for some participants to complete. In order to clarify questions, the WNES 1 was modified, and resulted in the development of WNES 2 (Appendix C).

An important modification was made to the second instrument developed by the researcher. A 15-item question was revised to address ambiguity. The question began with, "Do any of the following make it hard for you to exercise or eat healthy?" A five-point Likert scale was offered, from "Always" to "Never." Items then followed, such as "have enough money for healthy foods," and "have enough time to cook." If a participant responded "Always," to "have enough money for healthy foods," the respondent might have intended that not having enough money for healthy foods always made it difficult to eat healthy. However, the respondent might have intended that s/he always had enough money for healthy foods. The former example demonstrated the purpose of these survey items. As these items caused much confusion, they were slightly altered for the second instrument to read, "Think about your experiences with eating

healthy and exercise.” The fifteen items were also slightly altered in the WNES 2 to read, “Do you have enough money for healthy foods” and “Do you have enough time to cook.” This revision represented a change in emphasis from a tool where participants’ self-reported *perceived* barriers to a tool where participants’ barriers were assessed. For example, rather than participants reporting if money or time were barriers, participants reported if they had enough money or time.

### *Final Instrument*

Whereas the WNES 1 and 2 addressed barriers and other items related to physical activity and nutrition, the WNES 3 (Appendix D) solely assessed participants’ barriers to engaging in physical activities and eating healthy foods. In order to operationalize terminology, the term “healthy foods” was defined at the top of the WNES 3 as including “fruits, vegetables, and low-fat foods.” “Exercise” was defined as “having an increased heart rate for 20 minutes or longer due to physical activity (brisk walking, team sport, exercise class, lifting weights).”

The WNES 3 consisted of 43 items designed to measure barriers to engaging in physical activities and eating healthy foods. Of the 43 items, 42 were close-ended questions, and one was an open-ended item, “Other Things that Make it Difficult for You to Eat Healthier or Exercise More.” Barrier categories included: having enough money and time, health knowledge, family support, motivation, accessibility, transportation, and enjoyment, among other categories. See Table 1 for the complete list.

### *Procedure*

The surveys were distributed to nearly all WIC participants from January to June 2004 (the WNES 1) and from July to January 2005 (WNES 2) upon enrollment or re-

enrollment in the program at the WIC clinics in Barton, Douglas, Miami, and Saline counties in Kansas (Figure 2). Parents (usually mothers) who had children ages two to five enrolled in the WIC program were eligible to complete the instrument. Care was taken to protect and respect participants' confidentiality. Respondents were asked to answer honestly as responses would be confidential and would not influence their WIC eligibility. As surveys were completed, they were returned to the WIC site coordinators who then submitted the surveys to the Kansas Department of Health and Environment (KDHE) Nutrition and WIC Services Office, who then sent the surveys to the researcher.

The procedure was slightly modified for the WNES 3. From January to the beginning of February 2005, WIC participants in five Kansas counties (Kiowa, Reno, Harvey, Butler, and Sedgwick) upon arrival at their appointments were asked to complete the WNES 3. Participants' confidentiality was completely protected, as eligible individuals who agreed to complete the WNES 3 provided no identifying information, including demographics. Moreover, unlike the WNES 1 and WNES 2, the WNES 3 surveys were not sent to KDHE; the researcher collected surveys directly from the WIC clinics. The Human Subjects Committee at Wichita State University and the University of Kansas School of Medicine-Wichita approved all aspects of this research.

#### *Instrument Validity*

Two behavioral items were included on the WNES 3: "how often do you exercise," and "how often do you eat healthy foods?" Both items offered a six-point Likert scale including: once a day or more, four to six days per week, two to three days per week, once per week, two to three times per month, and never. However, additional validity measures were taken (Appendix E). Additional data were collected to assess the

concurrent validity of the final instrument (Appendix D). Hypotheses were developed to test if the final instrument was measuring what the researcher believed it was measuring. The hypotheses were based upon the six barrier factors (food selection, availability, exercise prompts, exercise knowledge, health knowledge, and intentional behaviors) underlying the study. However, the information gathered for validity addressed the barriers in a positive way, where items served as motivating factors to engage in physical activities and eating healthy foods.

The researcher developed eight hypotheses. Respondents with higher scores on the Food Selection/ Enjoyment factor would be more likely to have 1) favorite fruits and 2) have favorite vegetables. People with higher scores on the Availability/ Access factor would be more likely to 3) own a car, and 4) have a gym membership. Fifth, those with higher scores on the Exercise Prompts factor would be more likely to report that “feeling better after exercising” encourages them to exercise. Sixth, people with higher scores on the Exercise Knowledge factor would be more likely to report greater exercise experience. Seventh, respondents with higher scores on the Health Knowledge factor would be more likely to report knowing that exercise, adequate sleep, eating healthy foods, and drinking water can improve one’s health. Finally, those with higher scores on the Intentional Behaviors factor would be more likely to report exercising (rather than eating) when they are angry.

### *Procedure*

The additional items and the WNES 3 were collected from English-speaking WIC clients upon arrival at their appointments, from the end of February to the middle of March 2005 from one WIC clinic in Sedgwick County (Mainhouse). The purpose of this

sub-study was to validate the WNES 3 data. Participants' confidentiality was completely protected, as eligible individuals who agreed to complete the WNES 3 and the additional data provided no identifying information, including demographics, although WIC clinic staff reported on the validity instrument if respondents received food stamps. The additional data and the WNES 3 were collected from the Sedgwick County Mainhouse WIC clinic by the researcher.

## RESULTS

With a 99% return rate, 447 WNES 1 surveys were collected; 88 in Barton County, 139 in Douglas County, 97 in Miami County, and 123 in Saline County. Three eligible WIC participants did not complete the WNES 1 due to personal circumstances. With a 38% return rate, 171 WNES 2 surveys were collected; 38 in Barton County, 51 in Douglas County, 48 in Miami County, and 34 in Saline County (Figure 2). Although 1,645 WNES 3 surveys were completed and returned to WIC site coordinators, only 1,448 were in English. The WIC staff from the five counties reported distributing the surveys to nearly all of their WIC clients, and very few WIC clients refused to complete the survey, resulting in an approximate 98% return rate.

Of the third instrument's 42 items, 29 items were recoded so the lowest number on the scale (1) would represent the most negative response, and the highest number on the scale (6) would represent the most positive response. Each item's mean and standard deviation may be found in Table 3. The highest mean addressed whether respondents have the equipment they need to prepare healthy foods, such as utensils, stove, and refrigerator (mean of 5.69, where 1 is "never" and 6 is "always"). The lowest mean addressed whether respondents exercise when emotionally upset (mean of 2.46 where 1 is "never" and 6 is "always").

A number of barriers were identified through the focus groups and the first two surveys. Parent and provider focus group participants identified time and money as the greatest challenges to healthy eating. Parents reported they were too busy to be physically active with their children. Barriers to engaging in physical activities cited by

parents and providers included weather, safety of the neighborhood and/or little outdoor space, television and video games, and limited indoor space.

### *Factor Analysis*

Participants' barriers to engaging in exercise and healthy eating were assessed by a series of items. For the first two instruments, 13 and 14 items, respectively, were factor analyzed using SPSS Version 11.5. For the final instrument, 42 items were factor analyzed. The factors were extracted using iterative principal axis factoring with the objective of achieving simple structure (Thurstone, 1947). Two tests were conducted to determine the number of factors, the Kaiser-Guttman and Scree test (Catell, 1978). These factors were subjected to an orthogonal rotation, Varimax, and then an oblique rotation, Promax, for enhanced interpretation. Variables with weights greater than 0.34 were included in the interpretation of factor content (Tabachnick, & Fidell, 2001).

Four factors emerged from the 13 items on the first instrument (WNES 1): environmental, money, stigma of health foods, and time (Table 4). Five factors emerged from the 14 items on the second instrument (WNES 2): money and time, environmental resources, home resources, taste of healthy foods, and wanting to spend money for exercise (Table 5).

Six factors emerged from the third instrument's items. Considering that the Kaiser-Guttman test indicated 10 primary factors and the Scree test suggested seven, this research extracted six factors from the 42 items, as this solution yielded the most interpretable results. Thirty-eight (38) of the 42 items had salient pattern coefficients on at least one factor. Items that did not load above 0.34 on a factor included: 1) how many stores in your neighborhood sell healthy foods, 2) do you have the equipment needed to

prepare healthy foods, 3) do you believe you can change your lifestyle to exercise more often, and 4) does exercise make you tired? The six dimensions that emerged were: food selection, availability, exercise prompts, exercise knowledge, health knowledge, and intentional behaviors.

A summary of the pattern matrix and items loading on each factor and their associated factor loading may be found in Tables 6 and 7, respectively. Fourteen items loaded above 0.34 on the first factor, “food selection”: enjoyment of eating healthy foods, liking the taste of healthy foods, having enough time to buy and prepare healthy foods, wanting to spend money to buy healthy foods, convenience of eating healthy foods, knowing what foods to buy that are healthy, believing one can change one’s lifestyle to eat more healthy foods, knowing how to prepare healthy foods, frequency of eating healthy foods, encouragement from work and/or home environments to eat healthy foods, encouragement from family and/or friends to eat healthy foods, easy access to healthy foods, and motivation to eat healthy foods.

For the second factor, “Availability,” eight items loaded above 0.34, including: having enough money to exercise, having the equipment necessary to exercise, the quality of exercise paths available to them, the number of safe places indoors or outdoors in which they can exercise, easy access to places to exercise, having enough money for healthy foods, having enough time to exercise, and assessing the quality of available fresh foods and vegetables.

Eight items loaded above 0.34 on the third factor, “Exercise Prompts”: rewarding self with exercise, motivation to exercise, enjoying exercise, wanting to spend money to



exercise, frequency of exercise, exercising when emotionally upset, convenience of exercise, and encouragement from family and/or friends to exercise.

For the fourth factor, “Exercise Knowledge,” two items loaded above 0.34 on the including knowing how to use exercise equipment, and knowing how to exercise. Two items loaded on the fifth factor, “Health Knowledge,” including: believing that exercise can improve one’s health, and believing that eating healthy foods can improve one’s health.

Finally, four items loaded above 0.34 on the sixth factor, “Intentional Behaviors”: frequency of eating junk food rather than healthy foods, frequency of watching television rather than exercising, rewarding self with food, and eating when emotionally upset. All six factors accounted for 47% of the total variance before rotation.

Table 7

*Factors for Eating Healthy Foods and Engaging in Exercise Item Factor Loadings*

<b>Factor</b>	<b>Loadings</b>	<b>Item</b>
		Factor 1: Food Selection
	0.729	Do You Enjoy Eating Healthy Foods?
	0.730	Do You Have Enough Time to Buy Healthy Foods?
	0.685	Do You Like the Taste of Healthy Foods?
	0.624	Do You Have Enough Time to Prepare Healthy Foods?
	0.623	Is it Convenient for You to Eat Healthy Foods?
	0.594	Do You Want to Spend Your Money to Buy Healthy Foods?
	0.494	Do You Know What Foods to Buy that are Healthy?
	0.543	Do You Believe You Can Change Your Lifestyle to Eat More Healthy Foods?
	0.479	Can You Easily Get to Places Where You Can Get Healthy Foods?
	0.474	Are You Motivated to Eat Healthy Foods?
	0.473	Do You Know How to Prepare Healthy Foods?
	0.410	How Often Do You Eat Healthy Foods?
	0.364	Do Your Work/Home Environments Encourage You To Eat Healthy Foods?
	0.350	Do Your Family and/or Friends Encourage You to Eat Healthy Foods?
		Factor 2: Availability
	0.680	Do You Have Enough Money to Exercise (Equipment, Gym Membership, Clothes, Shoes)?
	0.579	Do You Have the Equipment (Shoes, Clothes, Machines, Music) Necessary for You to Exercise?
	0.521	Can You Easily Get to Places Where You Can Exercise?
	0.536	What is the Quality of Exercise Paths Available to You?
	0.519	How Many Places in Your Neighborhood (Inside or Outside) Are Safe

Enough to Exercise in?

- 0.493 Do You Have Enough Money for Healthy Foods?
- 0.400 Do You Have Enough Time to Exercise?
- 0.338 What is the Quality of Fresh Foods and Vegetables Available to You?

#### Factor 3: Exercise Prompts

- 0.624 Are You Motivated to Exercise?
- 0.581 Do You Enjoy Exercise?
- 0.579 Do You Reward Yourself with Exercise?
- 0.549 How Often Do You Exercise?
- 0.462 Do You Exercise When You Are Emotionally Upset?
- 0.421 Is it Convenient for You to Exercise?
- 0.353 Do Your Family and/or Friends Encourage You to Exercise?
- 0.338 Do You Want to Spend Your Money to Exercise?

#### Factor 4: Exercise Knowledge

- 0.692 Do You Know How to Use Exercise Equipment?
- 0.622 Do You Know How to Exercise?

#### Factor 5: Health Knowledge

- 0.854 Do You Think that Exercise Can Improve One's Health?
- 0.748 Do You Think that Eating Healthy Foods Can Improve One's Health?

#### Factor 6: Intentional Behaviors

- 0.560 How Often Do You Eat Junk Food Rather than Healthy Foods?
- 0.467 Do You Reward Yourself with Food?
- 0.446 How Often Do You Watch T.V. Rather than Exercise?
- 0.434 Do You Eat When You Are Emotionally Upset?

To determine whether reliable barrier scales could be developed from the survey, Cronbach's alpha coefficients were calculated for each scale. The alpha coefficient was 0.89 for the first factor; 0.78 for the second factor; 0.76 for the third factor, 0.78 for the fourth factor; 0.80 for the fifth factor; and -0.77 for the sixth factor. The alpha coefficients for all six factors were moderately high to high, suggesting relatively good internal consistency.

#### *Factor Correlations*

The highest factor correlation (0.46) was between food selection and exercise prompts, explaining 21% of the variance. Twenty percent of the variance (20%) was explained by the correlation between food selection and availability, another 18% of the variance was explained by the correlation between food selection and exercise knowledge, and another 14% of the variance was explained by the correlation between food selection and intentional behaviors (Table 8).

#### *Other Barriers*

One open-ended question, "Other Things that Make it Difficult for You to Eat Healthier or Exercise More?" was included at the end of the WNES 3. The space allotted for a response was often utilized as an opportunity to present feedback regarding the survey, or to emphasize outstanding barriers (Appendix F). This proved useful as three variables that had not been included on the WNES 3 were repeatedly addressed: physical inabilities due to illness or injury, the lack of childcare, and weather. (As four snow days occurred in the counties in which the WNES 3 surveys were distributed in January 2005, weather was a prominent issue.)

### *Instrument Validity*

WIC staff administering the surveys reported distributing the WNES 3 surveys and additional items to nearly all of their WIC clients, and very few WIC clients refused to complete the survey. As a result of the additional 179 WNES 3 surveys completed and returned to WIC site coordinators (all in English), a total of 1,624 WNES 3 surveys were collected (Table 2).

### *Hypotheses*

Eight hypotheses were developed and tested. Two hypotheses proposed that respondents with higher scores on the Food Selection/ Enjoyment factor would be more likely to have favorite fruits and have favorite vegetables. Indeed, there was a significant difference between those who had favorite vegetables (mean = 0.15) and those who did not (mean = -0.52) in their factor scores for Factor 1: Food Selection,  $t(125) = 2.60$ ,  $p = 0.01$ ,  $\eta^2 = 0.05$ . For this first hypothesis, the null hypothesis was rejected. However, there was not a significant difference between those who had favorite fruits and those who did not; the null hypothesis was not rejected.

Another two hypotheses proposed that people with higher scores on the Availability/ Access factor would be more likely to 3) own a car, and 4) have a gym membership. In fact, those with higher factor scores on the Access factor were more likely to own a car (mean = 0.28) than not (mean = -0.22),  $t(126) = 2.70$ ,  $p = 0.009$ ,  $\eta^2 = 0.05$ . For the third hypothesis, the null hypothesis was rejected. Similarly, those with higher factor scores on the Access factor were more likely to have a gym membership (mean = 0.79) than not (mean = 0.05),  $t(126) = 3.70$ ,  $p < 0.001$ ,  $\eta^2 = 0.10$ ; the null hypothesis was rejected.

Another hypothesis posed that those with higher scores on the Exercise Prompts factor would be more likely to report that “feeling better after exercising” encourages them to exercise. Indeed, those with higher factor scores on the Exercise Prompts factor were more likely to report that “feeling better after exercising” encourages them to exercise (mean = 0.39) than those who did not (mean = -0.42),  $t(126) = 5.90$ ,  $p < 0.001$ ,  $\eta^2 = 0.22$ . For the fifth hypothesis, the null hypothesis was rejected.

It was hypothesized that people with higher scores on the Exercise Knowledge factor would be more likely to report greater exercise experience. Indeed, there was a positive correlation between the factor scores for Factor 4: Exercise Knowledge and the number of exercises respondents do (including walking, running, stretches, aerobics, swimming, and other),  $r(126) = 0.39$ ,  $p < 0.001$ ,  $r^2 = 0.15$ . The null hypothesis for the sixth hypothesis was rejected.

It was also hypothesized that respondents with higher scores on the Health Knowledge factor would be more likely to report knowing that exercise, adequate sleep, eating healthy foods, and drinking water can improve one’s health. In fact, there was a positive correlation between the factor scores for Factor 5: Health Knowledge and knowledge of relevant activities that improve one’s health,  $r(127) = 0.36$ ,  $p < 0.001$ ,  $r^2 = 0.13$ . The null hypothesis for the seventh hypothesis was rejected.

Finally, it was hypothesized that those with higher scores on the Intentional Behaviors factor would be more likely to report exercising (rather than eating) when they are angry. Indeed, those with higher scores on the Intentional Behaviors factor were more likely to exercise (mean = 0.35) than eat (mean = -0.21) when angry,  $t(110) = 4.10$ ,  $p < 0.001$ ,  $\eta^2 = 0.13$ . The null hypothesis for the eighth hypothesis was rejected.

In effect, the data suggest that the null hypothesis was rejected for all hypotheses, save one (Food Selection factor and having favorite fruits). Generally, the correlations and relationships between factor scores and the additional items were positive and relatively large. It can be implied from these findings that the final instrument, the WNES 3, has relatively strong concurrent validity.

## DISCUSSION

This research produced an instrument that assesses barriers preventing adult WIC clients from engaging in physical activities and eating healthy foods. The preliminary studies conducted prior to the implementation of the final instrument provided a foundation upon which this research could develop. Emerging from the preliminary focus groups with WIC parents, barriers to eating healthy foods repeatedly included time and cost, and time was consistently cited as a significant barrier for WIC parents to be physically active. The factor analysis of the first instrument produced a combination of barriers to engaging in physical activities and eating healthy foods: 1) environmental, 2) money/cost, 3) stigma of healthy foods, and 4) time. The factor analysis of the second instrument indicated that barriers to engaging in physical activities and eating healthy foods included: 1) money and time, 2) environmental resources, 3) home resources, 4) taste of healthy foods, and 5) wanting to spend money for exercise.

Finally, the factor analysis of the final instrument allowed for six primary factors to emerge: food selection, access, positive prompts, exercise knowledge, health knowledge, and intentional behaviors (Table 9). Additional data were collected to test the concurrent validity of the final instrument. Eight hypotheses, at least one for each factor, were generated and tested. The findings suggest that the null hypothesis was rejected for seven of the eight hypotheses. This was demonstrated by positive and relatively large correlations; the concurrent validity of the final instrument was relatively strong.

The six dimensions, like the barriers, are complex and intertwined. This is demonstrated by the sizable factor correlations between food selection and availability,



food selection and exercise prompts, food selection and exercise knowledge, and food selection and intentional behaviors. In spite of, or perhaps as a result of, the complex and intertwined nature of this research, three primary themes surfaced throughout this research: environmental resources, time and cost, and food selection.

### *Emerging Themes*

#### *Environmental Resources*

Environmental resources emerged from the literature as a prominent barrier to engaging in physical activities, and to some extent, eating healthy foods. Access to recreational facilities and athletic clubs, serves as a motivating factor for low socioeconomic status groups to engage in physical activities, as does the lack of neighborhood crime (Brownson et al., 2001; Sherwood et al., 2000; Allison et al., 1999; Sallis, Johnson, Calfas, Caparosa, & Nichols, 1997; Aneshensel, & Sucoff, 1996).

Similarly, the WIC parents participating in the focus groups reported environmental barriers such as: limited indoor and outdoor space, environmental safety, and inclement weather. Likewise, the factor analyses from the WNES 1, 2, and 3 consistently demonstrated that having safe places (inside or outside) in one's neighborhood loads highly on an environmental resources or availability factor. Having a place to buy fresh foods in one's neighborhood, exercise paths in one's neighborhood, and transportation, or access, to the opportunities to buy healthy foods and participate in physical activities consistently emerged as items on an environmental resources or availability factor.

### *Time and Cost*

Numerous studies illustrate high cost (Eikenberry et al., 2004; Biloukha, & Utermohlen, 2001; Glanz, Basil, Maibach, Goldberg, & Snyder, 1998) and limited time (Andajani-Sutjahjo, et al., 2004; Eikenberry et al., 2004; O’Dea, 2003; Fahrenwald, & Walker, 2003; Biloukha et al., 2001; Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Sherwood, & Jeffery, 2000; Allison, Dwyer, & Makin, 1999) as barriers to engaging in physical activities and eating healthy foods. Similarly, the preliminary focus groups conducted with WIC parents consistently reported that time and cost were the primary barriers to eating healthy foods. The WNES 1 and 2 factor analyses resulted in entire factors (Factor 2: Money, and Factor 4: Time for the WNES 1; and Factor 1: Money and Time, Factor 3: Home Resources, and Factor 5: Wanting to Spend Money for Exercise for WNES 2) around cost and time. Correspondingly, the WNES 3’s Factor 1: Food Selection, and Factor 2: Availability, contained a number of items relevant to home resources, time, and cost. Having enough time to buy and prepare healthy foods, having enough time to exercise, having enough money for healthy foods, and wanting to spend money to buy healthy foods were items that loaded on these factors. Associated items included having enough money to exercise (to purchase equipment, a gym membership, clothes, or shoes), and having the equipment necessary for them to exercise (shoes, clothes, machines, or music).

Having financial or temporal access removes potential barriers to engaging in physical activities and consuming healthy foods. For instance, a number of respondents reported working odd hours and numerous, overwhelming home responsibilities. Many reasoned that fast food and physical inactivity were their only options. Having temporal

or financial access to a gym (that could offer free daycare) or a health food store (that could offer pre-packaged, low-cost healthy sandwiches) could alleviate this problem.

### *Food Selection*

The literature frequently cites “taste” or food preferences as a primary factor in food selection (Eikenberry et al., 2004; Henry et al., 2003; O’Dea, 2003; Glanz, Basil, Maibach, Goldberg, & Snyder, 1998). Similarly, researchers report that the lack of knowledge, education, or experience in preparing foods or in knowing how to exercise can serve as significant barriers for low-income families to consume healthy foods and engage in physical activities (Eikenberry et al., 2004; Patterson, Kristal, Lynch, & White, 1995).

Although this theme did not surface from the preliminary focus groups, it certainly emerged from the factor analyses of the WNES 1, 2, and 3. Two items loaded on Factor 3: Stigma of Health Foods from the WNES 1: “don’t like the taste of ‘healthy foods,’” and “don’t know what to cook that is healthy.” These two items loaded on two different factors in the WNES 2, Factor 2: Environmental Resources, and Factor 4: Taste of Healthy Foods. However, it was not until results of the WNES 3 factor analysis were complete when the first factor, Food Selection, emerged. The relevant items loading on this factor included: “do you enjoy eating healthy foods,” “do you like the taste of healthy foods,” “do you know what foods to buy that are healthy,” and “do you know how to prepare healthy foods?” It is reasonable to assume that the lack of knowledge around the content, preparation, and value of consuming healthy foods would lead to less consumption.

### *Additional Factors Emerging from the WNES 3*

The WNES 3's Factor 4: Exercise Knowledge, and Factor 5: Health Knowledge, correspond with the roadmap of knowledge barriers provided by the literature, although they emerged only from the WNES 3. The two items loading on Factor 4: Exercise Knowledge, included: "do you know how to use exercise equipment," and "do you know how to exercise?" Health knowledge items included: "do you think that exercise can improve one's health," and "do you think that eating healthy foods can improve one's health?" It seems reasonable to assume that one would be less likely to engage in a physical activity if one did not know how to perform, or did not understand its value.

Another factor emerged from the WNES 3 that had not surfaced in the preliminary studies, Factor 6: Intentional Behaviors. Although the literature contains references to motivation, convenience, and systematic factors contributing to eating healthy foods and engaging in physical activities, relatively few studies have addressed the nature of the complex psychosocial barriers associated with eating healthy foods and engaging in physical activities (Eikenberry et al., 2004; O'Dea, 2003; Gortmaker, Dietz, & Cheung, 1990). The WNES 3 factor, Intentional Behaviors, includes two items that address emotional eating (rewarding oneself with food, and eating when emotionally upset), and performing sedentary or unhealthy behaviors (watching television, eating junk food) as opposed to active or healthy behaviors (exercise, eating healthy food).

Although some respondents reported being aware of the challenges associated having "junk food" in the house and watching television for multiple hours a day, others were not as conscious of those challenges. Moreover, WIC staff administering the instrument reported that several WIC clients did not understand the concept of rewarding

oneself with food. The staff provided examples to the clients such as getting an ice cream cone or a candy bar after doing something well.

Along these same lines, early parent-child feeding practices seem to shape children's later eating behaviors (Cutting et al., 1999). A few respondents alluded to the style in which they were raised (eating healthy foods or not) influencing how they currently eat. "*I was raised to eat healthy and we usually do....*" As 61% reported that when they are angry, they are more likely to eat than exercise, it is clear that these psychosocial behavioral barriers to engaging in physical activities and eating healthy foods are essential components in the discourse.

#### *Comparison to Literature*

The emerging six factors parallel the studies in the published literature. Barriers cited in the literature include external and internal barriers. External barriers in this research and other studies include: lack of familial or relational support (O'Dea, 2003; Allison, Swyer, & Makin, 1999), limited access and resources (Eikenberry et al., 2004; Sherwood et al., 2000), and lack of time as a result of other responsibilities (Biloukha et al., 2001; Sherwood, & Jeffery, 2000; Allison, Swyer, & Makin, 1999). Internal barriers in this research and other studies include the lack of motivation (Eikenberry et al., 2004; Fahrenwald, & Walker, 2003) and the lack of knowledge about how to perform (Patterson et al., 1995), for instance preparing a meal.

However, this study's emerging knowledge factors (exercise knowledge and health knowledge) were relatively surprising, given the limited literature to corroborate these findings, especially in reference to the mechanics of engaging in physical activities. It is, however, reasonable to propose that limited knowledge about a behavior would

result in limited practice of that behavior. A study conducted by Collins, Lee, Albright, & King (2004) demonstrated that knowledge and minutes of walking increased after a preparatory course on physical activity for low-income multiethnic women. Exercise self-efficacy, however, has been a barrier identified by numerous researchers (Allison, Dwyer, & Makin, 1999; Hofstetter, Sallis, & Hovell, 1990; Stephens, & Craig, 1990; Dishman et al., 1985). Knowledge and self-efficacy are closely linked concepts, one perhaps leading to the other. If one has no knowledge or experience to rely upon, such as knowing how to swim or using exercise equipment, it is less likely one will engage in those physical activities (Allison et al., 1999).

This research differs from others in two respects. First, the population studied is under-researched, and it is an important population to understand. The WIC population tends to focus on surviving their daily lives (Chamberline, Sherman, Jain, Powers, & Whitaker, 2002). As low-income women tend to experience the largest number of barriers to engaging in physical activities and eating healthy foods, it is critical to understand and assess the barriers they experience.

Second, the WNES 3 is unique in that it assesses a wide variety of barriers, including psychosocial barriers not often included with more concrete external barriers such as having kitchen equipment or walking shoes. The sixth factor, intentional behaviors, emerged as a result of its relevance in this research. Going for a walk cannot be reduced to only having appropriate shoes and a walking path. Often, people watch television or participate in sedentary behaviors instead of being physically active (O'Dea, 2003). Similarly, it is not appropriate to attribute the lack of fruit and vegetable intake solely to lack of access or availability. People often eat chips and cookies instead of

eating carrots or an apple, when both are available. Some cite food preference (Glanz et al., 1998), while others cite will power (Eikenberry, 2004) and disinterest in changing eating habits (Biloukha et al., 2001). Similar to the concept of motivation, the intentional behaviors factor addresses the practice of deliberate actions such as not eating when emotionally upset or exercising rather than watching television.

### *Limitations*

It is possible that this research is limited to WIC participants in Kansas. This lends itself to the question of generalizability of the findings. However, the WIC respondents were from several counties across Kansas, including the following counties: Saline, Finney, Ottawa, Barton, Douglas, Miami, Butler, Harvey, Kiowa, Reno, and Sedgwick. There were no striking differences between these diverse counties. The literature emphasizes the low-income nature of WIC participants' vulnerability to numerous barriers (Anderson et al., 2001; Armstrong et al., 2000), not their geographic locations.

Another limitation of this study rests in its design, almost all items were dependent upon self-report. However, the WNES 1 and 2 included items that had been collected by the WIC clinic staff, as did the additional data collected to validate the final instrument. For example, the WIC staff supplemented the WNES 1 and WNES 2 with information about the client receiving food stamps or not. Moreover, there are numerous difficulties associated with dietary and physical activity recalls, including floor and ceiling effects and recall bias (Tudor-Locke, & Myers, 2001). Considering the low-literacy and low education levels of the population studied, in addition to high transient

nature of this population, it was not feasible to conduct such validity and reliability analyses.

Self-report measures lend themselves to social desirability bias. However, WIC staff and the surveys made it very clear to the participating WIC clients that their confidentiality would be respected. Self-report measures also can allow for inaccurate reporting, exaggerated reporting, and differences in interpretation of questions. For example, one respondent reported on the validity tool that she exercises “*24 hours each day chasing after my children.*” This exaggerated reporting is still useful, however, in demonstrating the respondent’s feeling of overwhelming responsibilities at home, and lack of time to dedicate to exercising or preparing healthy foods.

WIC clients tend to have low literacy skills and limited time. A limitation often reported by the WIC clinic staff administering surveys was that the instruments were too long and confusing. In terms of length, completing the final instrument and an additional 23-items (to validate the final instrument) was challenging for the WIC participants and the staff. Asking clients to complete a long instrument took time away from other tasks that WIC staff squeeze into an already short appointment. Additionally, clients often asked the staff to clarify some of the questions. For example, several respondents did not understand the concept of “rewards.” They did not understand why people would reward themselves with exercise, and some had not consciously been aware of how they reward themselves with food. Moreover, WIC clients and staff reported being frustrated with the repetition of the survey. One person wrote, “*This survey was too repetitive, the same questions 4 different ways & the questions are too broad....*” (This quotation was



reported as written.) However, when WIC staff explained to them the importance of the survey, they were happy to complete it.

Finally, this study examined barriers to two large and relatively complicated behaviors, engaging in physical activities and consuming healthy foods. The results from this study might have been clearer or less complicated had the research only included one of these behaviors. Both behaviors were included in this study as a result of the strong literature promoting their importance, as well as the WIC staff addressing both behaviors in their daily work.

#### *Future Research*

There is considerable need for further research to be conducted in this field. Some researchers have identified motivating factors to engaging in physical activities and eating healthy foods (Evans, & Nies, 1997; Jones, & Nies, 1996, Gillett, 1988). This body of literature might serve as an extremely important next step in the design and implementation of appropriate interventions for populations. These studies are limited in number, and few (if any) have been conducted among a WIC population. Future researchers would benefit from assessing motivating factors in addition to barriers.

Researchers interested in replicating this study would be wise to rephrase some of the items on the instrument to lower the reading level and provide more clarity. A significantly shorter instrument would be greatly appreciated by WIC staff and clients. Additionally, this instrument may be useful to other populations in addition to adult WIC clients. The findings from this research are encouraging enough for the instrument to be tested among similar and non-similar socioeconomic status groups.

## CONCLUSIONS

The purpose of this research was to develop an instrument that would assess Kansas WIC participants' barriers to engaging in physical activities and eating healthful foods. Assessing barriers can be extremely useful. Assessing barrier dimensions, through several iterations of instruments, allows for better understanding of barrier dimensions, and better construction of interventions to address emerging barriers.

This research produced an instrument that assesses adult WIC participants' barriers to engaging in physical activities and eating healthy foods, contributing to the literature in several ways. First, there is a paucity of research addressing barriers to engaging in physical activity and eating healthy foods, especially among low-income women. Second, the factor analyses conducted in this study allowed for the development of poorly understood, in addition to well-understood barrier dimensions. Third, the findings from this study provide a foundation for the production of a validated instrument constructed of barrier dimensions which can be utilized in WIC clinics as a tool to quickly assess WIC clients' barriers to engaging in physical activities and eating healthy foods. To become more responsive to their low-income clients' physical activity and nutritional needs, WIC needs to consider providing such a tool as a quick assessment upon enrollment into the program. Consequentially, WIC staff would be able to design appropriate interventions to address the surfacing barriers. An intervention could include client-centered counseling and the development of behavioral change goals to address change that could occur at an individual-level.

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## APPENDICES

Appendix A: Figures and Tables

Figure 1. Prevalence of Overweight and Obesity among US Low-Income Children, Ages 0 to 59 Months

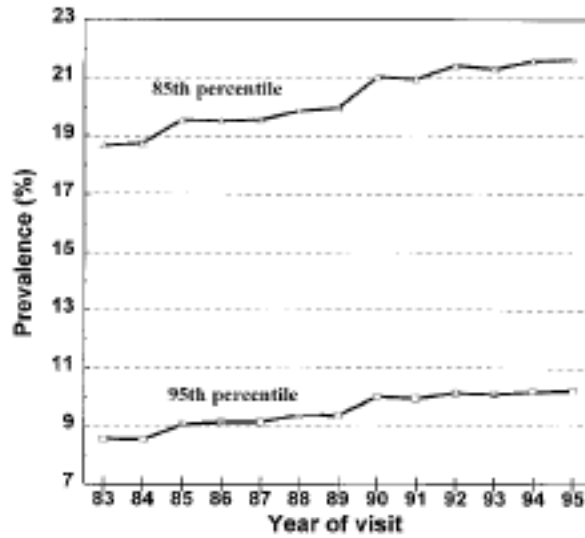


Figure 2. Percent of WNES 1 and WNES 2 Respondents by County at Baseline and Six-Months Post

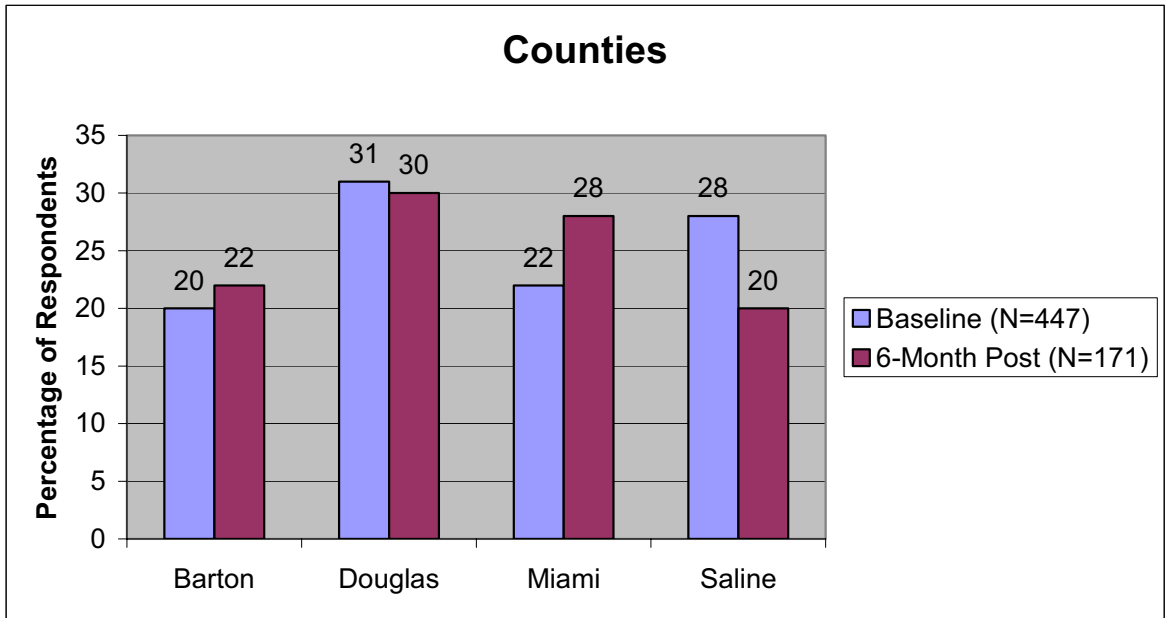




Table 1

*WNES 3 Items by Barrier Category*

<u>BARRIER</u>	<u>HEALTHY FOOD ITEMS</u>	<u>EXERCISE ITEMS</u>
<b>Have enough money</b>	Do You Have Enough Money to Buy Healthy Foods?	Do You Have Enough Money to Exercise (Equipment, Gym Membership, Clothes, Shoes)?
<b>Want to spend your money</b>	Do You Want to Spend Your Money to Buy Healthy Foods?	Do You Want to Spend Your Money to Exercise?
<b>Have enough time</b>	Do You Have Enough Time to Prepare Healthy Foods?	Do You Have Enough Time to Exercise?
<b>Response when emotionally upset</b>	Do You Have Enough Time to Buy Healthy Foods?	
	Do You Eat When You Are Emotionally Upset?	Do You Exercise When You Are Emotionally Upset?
	Do Your Family and/or Friends Encourage You to Eat Healthy Foods?	Do Your Family and/or Friends Encourage You to Exercise?
<b>Family and friend support</b>		
	Do Your Work/Home Environments Encourage You To Eat Healthy Foods?	
<b>Health knowledge</b>	Do You Think that Eating Healthy Foods Can Improve One's Health?	Do You Think that Exercise Can Improve One's Health?

	Do You Know How to Prepare Healthy Foods?	Do You Know How to Use Exercise Equipment?
<b>Activity-specific knowledge and experience</b>	Do You Know What Foods to Buy that are Healthy?	Do You Know How to Exercise?
		Does Exercise Make You Feel Tired?
<b>Motivation</b>	Are You Motivated to Eat Healthy Foods?	Are You Motivated to Exercise?
<b>Accessibility</b>	How Many Stores in Your Neighborhood Sell Healthy Foods?	How Many Places in Your Neighborhood (Inside or Outside) Are Safe Enough to Exercise in?
<b>Quality of accessible resources</b>	What is the Quality of Fresh Foods and Vegetables Available to You?	What is the Quality of Exercise Paths Available to You?
<b>Convenience</b>	Is it Convenient for You to Eat Healthy Foods?	Is it Convenient for You to Exercise?
<b>Health beliefs</b>	Do You Believe You Can Change Your Lifestyle to Eat More Healthy Foods?	Do You Believe You Can Change Your Lifestyle to Exercise More Often?
<b>Have equipment needed</b>	Do You Have the Equipment (i.e. Utensils, Stove, Refrigerator) Needed to Prepare Healthy Foods?	Do You Have the Equipment (Shoes, Clothes, Machines, Music) Necessary for You to Exercise?
<b>Transportation, accessibility</b>	Can You Easily Get to Places Where You Can Get Healthy Foods?	Can You Easily Get to Places Where You Can Exercise?

	Do You Enjoy Eating Healthy Foods?	Do You Enjoy Exercise?
<b>Enjoyment</b>		
	Do You Like the Taste of Healthy Foods?	
<b>Diversion activities</b>	How Often Do You Eat Junk Food Rather than Healthy Foods?	How Often Do You Watch T.V. Rather than Exercise?
<b>Rewards</b>	Do You Reward Yourself with Food?	Do You Reward Yourself with Exercise?
<b>Frequency (not barrier)</b>	How Often Do You Eat Healthy Foods?	How Often Do You Exercise?
<b>Total Number of Items, Including Frequency</b>	<b>22 Items</b>	<b>20 Items</b>

Table 2

*Instrument's Collection Periods and Number of Participants from Kansas Counties*

*(English only)*

<b>Instrument</b>	<b>Collection Period</b>	<b>N</b>	<b>Response Rate</b>	<b>Counties</b>
WNES 1	6 months	447	99%	Barton, Douglas, Miami, Saline
WNES 2	6 months	171	38%	Barton, Douglas, Miami, Saline
WNES 3	1 month	1,624	98%	Butler, Harvey, Kiowa, Reno, Sedgwick
Additional Items plus WNES 3	2 weeks	176	95%	Sedgwick

Table 3

*Means and Standard Deviations of Items*

<b>Survey Items</b>	<b>M</b>	<b>SD</b>
Do You Have Enough Money for Healthy Foods?	4.09	1.161
Do You Have Enough Time to Exercise?	3.33	1.143
Are You Motivated to Eat Healthy Foods?	4.25	1.049
Do Your Family and/or Friends Encourage You to Exercise?	3.43	1.329
Do You Want to Spend Your Money to Buy Healthy Foods?	4.47	1.061
How Many Places in Your Neighborhood (Inside or Outside) Are Safe Enough to Exercise in?	3.91	1.496
Do You Like the Taste of Healthy Foods?	4.65	1.066
Do You Have Enough Money to Exercise (Equipment, Gym Membership, Clothes, Shoes)?	2.68	1.381
How Many Stores in Your Neighborhood Sell Healthy Foods?	4.45	1.423
Do You Exercise When You Are Emotionally Upset?	2.46	1.279
Do You Have Enough Time to Prepare Healthy Foods?	4.04	1.117
Do You Believe You Can Change Your Lifestyle to Eat More Healthy Foods?	4.78	0.987
Do You Have Enough Time to Buy Healthy Foods?	4.41	1.099
Do You Have the Equipment (i.e. Utensils, Stove, Refrigerator) Needed to Prepare Healthy Foods?	5.69	0.851
Do You Think that Exercise Can Improve One's Health?	5.42	0.969
Is it Convenient for You to Exercise?	3.45	1.160

How Often Do You Watch T.V. Rather than Exercise?	3.39	1.126
Do You Think that Eating Healthy Foods Can Improve One's Health?	5.44	0.814
Do You Want to Spend Your Money to Exercise?	3.03	1.417
Do You Eat When You Are Emotionally Upset?	3.98	1.325
Do You Believe You Can Change Your Lifestyle to Exercise More Often?	4.32	1.094
Do You Know What Foods to Buy that are Healthy?	4.68	1.127
Do Your Family and/or Friends Encourage You to Eat Healthy Foods?	3.95	1.345
Are You Motivated to Exercise?	3.68	1.184
Do You Enjoy Eating Healthy Foods?	4.35	1.095
Does Exercise Make You Feel Tired?	3.11	1.129
How Often Do You Exercise?	3.03	1.354
Is it Convenient for You to Eat Healthy Foods?	3.99	1.130
Can You Easily Get to Places Where You Can Exercise?	3.60	1.381
Do You Know How to Exercise?	4.50	1.116
Do You Know How to Use Exercise Equipment?	4.19	1.274
Do You Reward Yourself with Exercise?	2.57	1.172
Do You Have the Equipment (Shoes, Clothes, Machines, Music) Necessary for You to Exercise?	3.36	1.573
Do You Enjoy Exercise?	3.88	1.289
How Often Do You Eat Junk Food Rather than Healthy Foods?	3.66	0.910
Do You Reward Yourself with Food?	4.36	1.069
How Often Do You Eat Healthy Foods?	4.63	1.157
Can You Easily Get to Places Where You Can Get Healthy Foods?	4.56	1.168

Do Your Work/Home Environments Encourage You To Eat Healthy Foods?	3.75	1.356
Do You Know How to Prepare Healthy Foods?	4.39	1.177
What is the Quality of Fresh Foods and Vegetables Available to You?	4.68	0.862
What is the Quality of Exercise Paths Available to You?	4.04	1.004

Table 4

*Factors and Emerging from WNES 1 Items*

WNES 1 Barriers Factor Analysis

Hard for Me To:

**1. Factor 1: Environmental**

Have utensils, stove, or microwave to cook (0.981)

Have transportation to get places (0.888)

Have a place to buy fresh foods in your neighborhood (0.782)

Have enough support from family and/or friends (0.754)

Have enough safe places for children to play outside (0.669)

Have enough exercise paths, recreational centers and playgrounds in your neighborhood (0.584)

Want to spend money for healthy foods (0.565)

Have enough time to cook (0.483)

**2. Factor 2: Money**

Have enough money for exercise (0.653)

Have enough money for healthy foods (0.442)

Want to spend money for exercise (0.408)

**3. Factor 3: Stigma of Health Foods**

Don't like the taste of "healthy foods" (0.821)

Don't know what to cook that is healthy (0.443)



#### **4. Factor 4: Time**

Have enough time to exercise (0.630)

Have enough time to cook (0.555)

Table 5

*Factors and Emerging from WNES 2 Items*

WNES 2 Barriers Factor Analysis

**1. Factor 1: Money and Time**

Have enough time to exercise (1.044)

Have enough time to cook (0.439)

Have enough money for exercise (0.428)

**2. Factor 2: Environmental Resources**

Have a place to buy fresh foods in your neighborhood (0.674)

Have enough exercise paths, recreational centers, and playgrounds in  
your neighborhood (0.624)

Have enough safe places for children to play outside (0.495)

Don't know what to cook that is healthy (0.343)

**3. Factor 3: Home Resources**

Have transportation to get places (0.714)

Have enough money for healthy foods (0.423)

Have utensils, stove, or microwave to cook (0.415)

Have enough support from family and/or friends (0.336)

**4. Factor 4: Taste of Healthy Foods**

Don't like the taste of "healthy foods" (0.943)

**5. Factor 5: Wanting to Spend Money for Exercise**

Want to spend money for exercise (0.837)

Table 6

*Pattern Matrix from Principal Axis Factoring with Promax Rotation with Kaiser*

*Normalization*

<b>Item</b>	<b>Factor</b>					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Do You Have Enough Money for Healthy Foods?	.304	.518	.094	.095	-.077	.227
Do You Have Enough Time to Exercise?	.306	.493	.456	.024	-.002	.182
Are You Motivated to Eat Healthy Foods?	.600	.256	.500	.259	.080	.343
Do Your Family and/or Friends Encourage You to Exercise?	.300	.313	.423	.124	.108	.050
Do You Want to Spend Your Money to Buy Healthy Foods?	.585	.181	.328	.214	.200	.199
How Many Places in Your Neighborhood (Inside or Outside) Are Safe Enough to Exercise in?	.218	.500	.177	.179	.116	.095
Do You Like the Taste of Healthy Foods?	.655	.144	.345	.317	.156	.258
Do You Have Enough Money to Exercise (Equipment, Gym Membership, Clothes, Shoes)?	.279	.692	.357	.221	-.013	.140
How Many Stores in Your Neighborhood Sell Healthy Foods?	.338	.354	.088	.138	.115	.068
Do You Exercise When You Are Emotionally Upset?	.197	.239	.478	.204	.004	.215

Do You Have Enough Time to Prepare Healthy Foods?	.633	.419	.238	.103	.027	.237
Do You Believe You Can Change Your Lifestyle to Eat More Healthy Foods?	.524	.170	.341	.231	.298	.003
Do You Have Enough Time to Buy Healthy Foods?	.691	.460	.269	.149	.107	.155
Do You Have the Equipment (i.e. Utensils, Stove, Refrigerator) Needed to Prepare Healthy Foods?	.203	.179	.008	.103	.101	.103
Do You Think that Exercise Can Improve One's Health?	.187	.060	.182	.171	.811	-.057
Is it Convenient for You to Exercise?	.391	.380	.504	.077	.104	.097
How Often Do You Watch T.V. Rather than Exercise?	.189	.055	.345	.163	-.019	.458
Do You Think that Eating Healthy Foods Can Improve One's Health?	.316	.151	.184	.201	.730	-.007
Do You Want to Spend Your Money to Exercise?	.159	.034	.321	.227	.199	.002
Do You Eat When You Are Emotionally Upset?	.146	.146	.103	.101	-.031	.404
Do You Believe You Can Change Your Lifestyle to Exercise More Often?	.409	.167	.404	.223	.359	-.089
Do You Know What Foods to Buy that are Healthy?	.590	.285	.210	.483	.109	.288

Do Your Family and/or Friends Encourage You to Eat Healthy Foods?	.457	.333	.386	.237	.089	.124
Are You Motivated to Exercise?	.443	.219	.712	.393	.207	.190
Do You Enjoy Eating Healthy Foods?	.713	.132	.441	.361	.165	.284
Does Exercise Make You Feel Tired?	-.131	-.105	-.223	-.250	-.130	-.140
How Often Do You Exercise?	.353	.338	.608	.219	-.042	.360
Is it Convenient for You to Eat Healthy Foods?	.644	.370	.297	.211	.081	.257
Can You Easily Get to Places Where You Can Exercise?	.342	.583	.336	.303	.116	.057
Do You Know How to Exercise?	.354	.344	.393	.689	.116	.173
Do You Know How to Use Exercise Equipment?	.323	.301	.362	.725	.146	.117
Do You Reward Yourself with Exercise?	.311	.285	.614	.306	-.008	.209
Do You Have the Equipment (Shoes, Clothes, Machines, Music) Necessary for You to Exercise?	.260	.607	.359	.345	.059	.098
Do You Enjoy Exercise?	.399	.172	.684	.547	.217	.170
How Often Do You Eat Junk Food Rather than Healthy Foods?	.393	.151	.348	.182	-.042	.621
Do You Reward Yourself with Food?	.160	.089	.050	.078	.011	.414
How Often Do You Eat Healthy Foods?	.566	.322	.289	.301	-.030	.494

Can You Easily Get to Places Where You Can Get Healthy Foods?	.599	.532	.205	.351	.107	.176
Do Your Work/Home Environments Encourage You To Eat Healthy Foods?	.563	.450	.411	.301	-.011	.325
Do You Know How to Prepare Healthy Foods?	.627	.322	.255	.579	-.026	.420
What is the Quality of Fresh Foods and Vegetables Available to You?	.466	.490	.175	.313	-.027	.227
What is the Quality of Exercise Paths Available to You?	.334	.594	.343	.246	.053	.165

Table 8

*Factor Correlation Matrix for Six Factors from 42 Items (Two Decimals Assumed)*

I					
II	45				
III	46	32			
IV	42	24	34		
V	18	0	18	16	
VI	37	19	23	24	-23



Table 9

*WNES Instruments, Number of Factors, and Factor Types*

<b>Instrument</b>	<b>Number of Factors</b>	<b>Which Factors</b>
WNES 1	4	<ol style="list-style-type: none"> <li>1. Environmental</li> <li>2. Money</li> <li>3. Stigma of Healthy Foods</li> <li>4. Time</li> </ol>
WNES 2	5	<ol style="list-style-type: none"> <li>1. Money and Time</li> <li>2. Environmental Resources</li> <li>3. Home Resources</li> <li>4. Taste of Healthy Foods</li> <li>5. Wanting to Spend Money for Exercise</li> </ol>
WNES 3	6	<ol style="list-style-type: none"> <li>1. Food Selection</li> <li>2. Availability</li> <li>3. Exercise Prompts</li> <li>4. Exercise Knowledge</li> <li>5. Health Knowledge</li> <li>6. Intentional Behaviors</li> </ol>

### WIC Nutrition and Exercise Survey

*The purpose of this survey is to explore the thoughts and behaviors you and your child have about nutrition and exercise. Please answer honestly. Your responses will be confidential and will not influence your WIC eligibility.*

**Please circle the response that best describes YOUR experience or opinion.**

*1 = Always    2 = Almost Always    3 = Sometimes    4 = Almost Never    5 = Never*

**1. Do any of the following make it hard for you to exercise or eat healthy:**

	<u>Always</u>	<u>Sometimes</u>			<u>Never</u>
a. <b>Have enough money for healthy foods</b>	1	2	3	4	5
b. <b>Want to spent money for healthy foods</b>	1	2	3	4	5
c. <b>Have enough money for exercise</b>	1	2	3	4	5
d. <b>Want to spent money for exercise</b>	1	2	3	4	5
e. <b>Don't like the taste of "healthy foods"</b> <b>(such as fruits, vegetables, low-fat foods)</b>	1	2	3	4	5
f. <b>Have enough safe places for children to play outside</b>	1	2	3	4	5
g. <b>Have a place to buy fresh foods in your neighborhood</b>	1	2	3	4	5
h. <b>Have enough exercise paths, recreational centers, and playgrounds in your neighborhood</b>	1	2	3	4	5
i. <b>Have enough time to exercise</b>	1	2	3	4	5
j. <b>Have enough time to cook</b>	1	2	3	4	5
k. <b>Don't know what to cook that is healthy</b>	1	2	3	4	5
l. <b>Have transportation to get places</b>	1	2	3	4	5
m. <b>Have enough support from family and/or friends</b>	1	2	3	4	5
n. <b>Other things that make it difficult for me to eat healthy or exercise:</b>					

**2. How would you rate your general physical health?**

*Very poor*      *Poor*      *Good*      *Very good*

**3. Do you believe that good nutrition and regular physical activity is good for your health?**

*Disagree*      *Somewhat agree*      *Agree*

**4. Do you worry about running out of food during the month?**

*Always*      *Sometimes*      *Never*

**5. Would you like to start eating healthier?**

*Very much*      *Somewhat*      *Not really*

**6. Would you like to start exercising more?**

*Very much*      *Somewhat*      *Not really*

**7. How likely is it that you will eat healthier in the next 6 months?**

*Very likely*      *Don't know*      *Not likely*

**8. How likely is it that you will exercise more in the next 6 months?**

*Very likely*      *Don't know*      *Not likely*

**9. In the last 6 months, have you been eating healthier?**

*Much*      *A little*      *No*      *Less*

**10. In the last 6 months, have you been exercising more?**

*Much*      *A little*      *No*      *Less*

**11. On average, how many vegetables do you eat a day?**

*0*      *1*      *2*      *3*      *4*      *5 or more*

**12. How many fruits do you eat a day (not including juice)?**

*0*      *1*      *2*      *3*      *4*      *5 or more*

**13. How many adults (age 18 and older), including you, live in your household?**

*0*      *1*      *2*      *3*      *4*      *5 or more*

**14. How many children (younger than age 18) live in your household?**

*0*      *1*      *2*      *3*      *4*      *5 or more*

**15. What is your race/ethnicity? (Circle all that apply.)**

African American      Caucasian      Native American  
Asian American      Hispanic      Other

**16. What is your highest level of education?**

No formal schooling      Elementary school      Junior high  
Some high school      High school/GED      Graduate degree

Certification program  
Bachelor's degree

Associate's degree  
Other

Some college

**17. How old are you?**

19 or younger

20 to 24

25 to 29

30 to 34

35 to 39

40 to 44

45 to 49

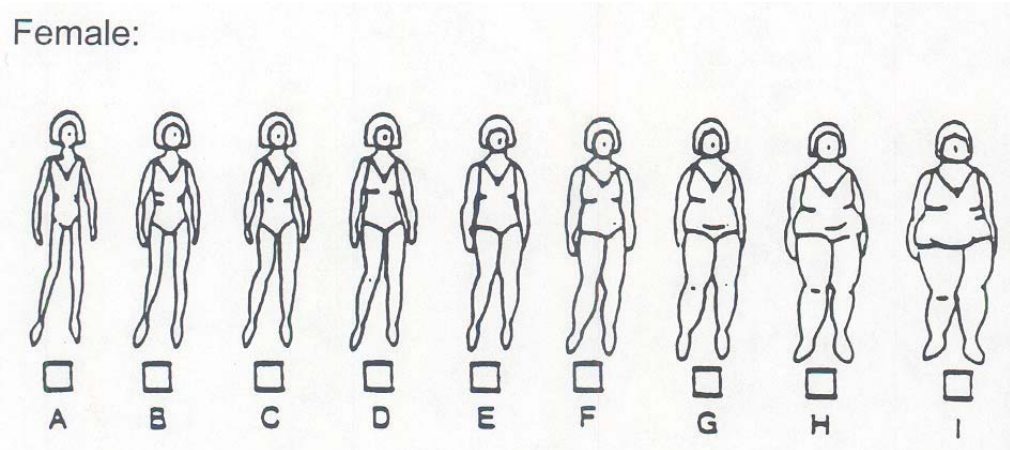
50 to 54

55 or older

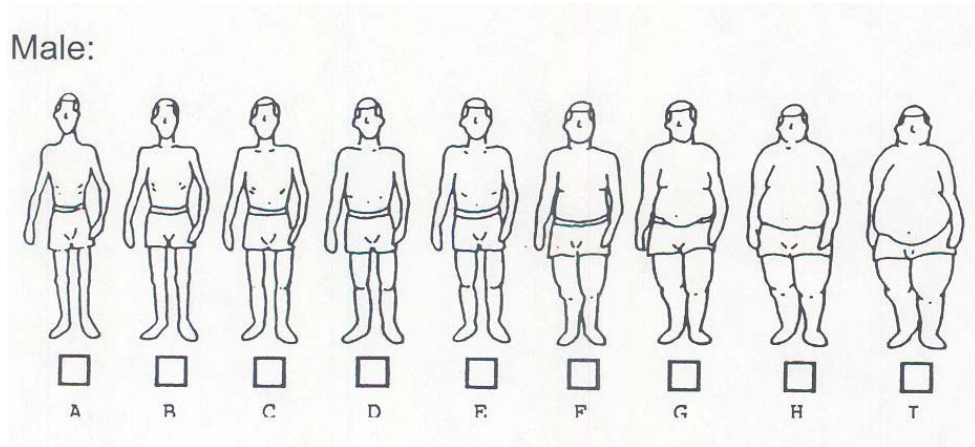
**18. What would you like to gain from participating in this WIC nutrition and exercise program?**

**19. Please check the box of the picture you think is most like your current body shape.**

Female:



Male:



**The following questions have to do with your oldest child under 5 years old:**

**20. What is your relationship to this child:**

Mother  
Grandparent

Father  
Other

Foster Parent

*1 = Always      2 = Almost Always      3 = Sometimes      4 = Almost Never      5 = Never*

**21. Do you try to get your child to eat all of the food on his/her plate?**

*1      2      3      4      5*

**22. Do you let your child decide how much s/he eats?**

*1      2      3      4      5*

**23. If your child won't eat the family meal, do you prepare something else for her/him?**

*1      2      3      4      5*

**24. Do you feel like you have "control" over what your child eats**

*1      2      3      4      5*

**25. In general, do you think your child needs to be more or less physically active?**

*More              Less              No change necessary*

**26. Do you think WIC can help you find ways to be more active with your child?**

*No              Not sure              Yes*

**27. How tall is your oldest child (under 5 years old)? \_\_\_\_\_ (in feet & inches)**

**28. How much does your oldest child (under 5 years old) weigh? \_\_\_\_\_ (in pounds)**

**29. In the past seven days, how many meals (breakfast, lunch, dinner) did your family eat together?**

*0-2      3-5      6-7      8-14      15 or more*

**30. In the past seven days, how many meals has your child eaten food from a fast food restaurant (for example: McDonald's, Taco Bell, Burger King)?**

*0      1      2      3      4      5 or more*

**31. At what age did your child start eating from fast food restaurants?**

*0      1      2      3      4      5 or older*

**32. How many hours per day does your child spend sitting, watching television or videos, playing video games, or using a computer?**

*0      1      2      3      4      5 or older*

**33. What physical activities do you and your child do together (walking, playing in a park)?**

**THANK YOU FOR SHARING YOUR EXPERIENCE! YOU ARE VERY APPRECIATED!**

For Office Use Only: C _____ or K _____ MC: Level _____
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## WIC Nutrition and Exercise Survey

*The purpose of this survey is to explore the thoughts and behaviors you and your child have about nutrition and exercise. Please answer honestly. Your responses will be confidential and will not influence your WIC eligibility.*

*Please circle the response that best describes YOUR experience or opinion.*

1 = Always    2 = Almost Always    3 = Sometimes    4 = Almost Never    5 = Never

<b>1. Think about your experiences with eating healthy and exercise:</b>					
	<i>Always</i>	<i>Sometimes</i>	<i>Never</i>		
<b>a. Do you have enough money for healthy foods</b>	1	2	3	4	5
<b>b. Do you want to spend money for healthy foods</b>	1	2	3	4	5
<b>c. Do you have enough money for exercise</b>	1	2	3	4	5
<b>d. Do you want to spend money for exercise</b>	1	2	3	4	5
<b>e. Do you like the taste of “healthy foods” (such as fruits, vegetables, low-fat foods)</b>	1	2	3	4	5
<b>f. Do you have enough safe places for children to play outside</b>	1	2	3	4	5
<b>g. Do you have a place to buy fresh foods in your neighborhood</b>	1	2	3	4	5
<b>h. Do you have enough exercise paths, recreational centers and playgrounds in your neighborhood</b>	1	2	3	4	5
<b>i. Do you have enough time to exercise</b>	1	2	3	4	5
<b>j. Do you have enough time to cook</b>	1	2	3	4	5
<b>k. Do you have utensils, stove or microwave to cook</b>	1	2	3	4	5
<b>l. Do you know what to cook that is healthy</b>	1	2	3	4	5
<b>m. Do you have transportation to get places</b>	1	2	3	4	5

n. Do you have enough support from family and/or friends 1 2 3 4 5

o. Things that make it difficult for me to eat healthy or exercise:  
\_\_\_\_\_

34. Would you say that in general your health is:

*Very poor Poor Good Very good*

35. Do you believe that good nutrition and regular physical activity is good for your health?

*Disagree Somewhat agree Agree*

36. Do you worry about running out of food during the month?

*Always Sometimes Never*

37. Would you like to start eating healthier?

*Very much Somewhat Not really*

38. Would you like to start exercising more?

*Very much Somewhat Not really*

39. How likely is it that you will eat healthier in the next 6 months?

*Very likely Don't know Not likely*

40. How likely is it that you will exercise more in the next 6 months?

*Very likely Don't know Not likely*

41. In the last 6 months, have you been eating healthier?

*Much A little No Less*

42. In the last 6 months, have you been exercising more?

*Much A little No Less*

43. On average, how many vegetables do you eat a day?

*0 1 2 3 4 5 or more*

44. How many fruits do you eat a day (not including juice)?

*0 1 2 3 4 5 or more*

45. How many adults (age 18 and older), including you, live in your household?

*0 1 2 3 4 5 or more*

46. How many children (younger than age 18), live in your household?



0    1        2        3        4        5 or more

**47. What is your race/ethnicity? (Circle all that apply.)**

African American    Caucasian    Native American  
Asian American    Hispanic    Other

**48. What county do you live in?**

*Barton        Douglas        Miami        Saline*

**49. What is your highest level of education?**

No formal schooling    Some high school    Bachelor's degree  
Elementary school    High school/GED    Graduate degree  
Junior high    Some college    Certification program  
Associate's degree    Other

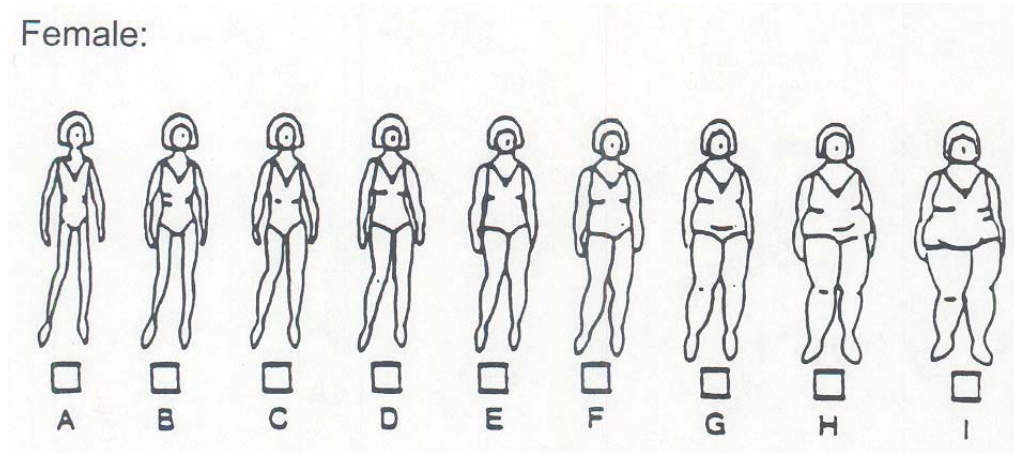
**50. How old are you?**

19 or younger    30 to 34    45 to 49  
20 to 24    35 to 39    50 to 54  
25 to 29    40 to 44    55 or older

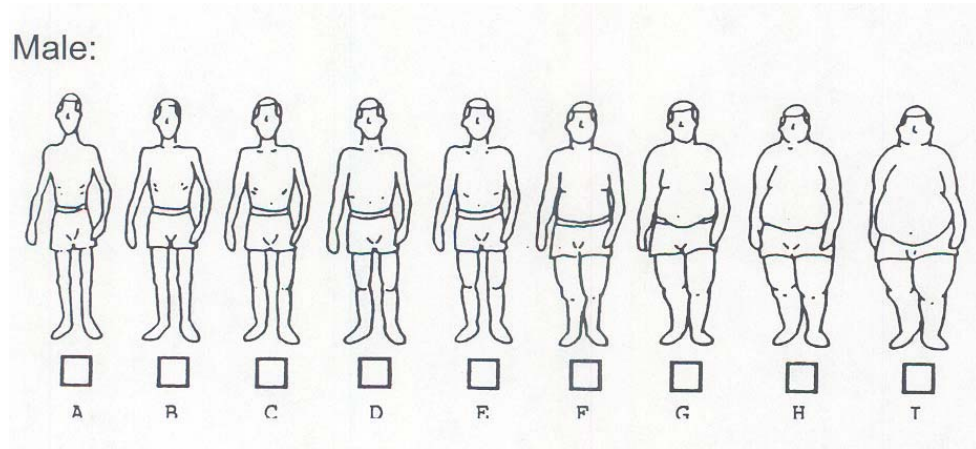
**51. What would you like to gain from participating in this WIC nutrition and exercise program?**

52. Please check the box of the picture you think is most like your current body shape (if you are pregnant, select the figure which most resembles your shape PRIOR to pregnancy).

Female:



Male:



**The following questions have to do with your oldest child under 5 years old:**

**53. What is your relationship to this child:**

Mother                  Father                  Foster Parent                  Grandparent                  Other

*1 = Always    2 = Almost Always    3 = Sometimes    4 = Almost Never    5 = Never*

**54. Do you try to get your child to eat all of the food on his/her plate?**

*1                  2                  3                  4                  5*

**55. Do you let your child decide how much s/he eats?**

*1                  2                  3                  4                  5*

**56. If your child won't eat the family meal, do you prepare something else for her/him?**

*1                  2                  3                  4                  5*

**57. Do you feel like you have "control" over what your child eats?**

*1                  2                  3                  4                  5*

**58. In general, do you think your child needs to be more or less physically active?**

*More                  Less                  No change necessary*

**59. Do you think WIC can help you find ways to be more active with your child?**

*No                  Not sure                  Yes*

**60. How tall is your oldest child (under 5 years old)? \_\_\_\_\_ (in feet & inches)**

**61. How much does your oldest child (under 5 years old) weigh? \_\_\_\_\_ (in pounds)**

**62. In the past seven days, how many meals (breakfast, lunch, dinner) did your family eat together?**

*0-2                  3-5                  6-7                  8-14                  15 or more*

**63. In the past seven days, how many meals has your child eaten food from a fast food restaurant (for example: McDonald's, Taco Bell, Burger King)?**

*0                  1                  2                  3                  4                  5 or more*

**64. At what age did your child start eating from fast food restaurants?**

*0                  1                  2                  3                  4                  5 or more*

**65. How many hours per day does your child spend sitting, watching television or videos, playing video games, or using a computer?**

*0            1            2            3            4            5 or more*

**66. What physical activities do you and your child do together (walking, playing in a park)?**

**THANK YOU FOR SHARING YOUR EXPERIENCE!  
YOU ARE VERY APPRECIATED!**

### WIC Nutrition and Exercise Barriers Survey

*The purpose of this survey is to understand your thoughts and behaviors regarding nutrition and exercise. Please answer honestly. **Your responses will be confidential and will not influence your WIC eligibility.** Please circle the response that best describes your experience or opinion. It will take approximately 10 minutes to complete this survey.*

*“Healthy foods” include fruits, vegetables, low-fat foods. “Exercise” is defined as having an increased heart rate for 20 minutes or more due to physical activity (brisk walking, team sport, exercise class, lifting weights).*

- 1. Do you have enough money for healthy foods?**  
*Always      Almost Always      Usually      Sometimes      Almost Never      Never*
- 2. Do you have enough time to exercise?**  
*Always      Almost Always      Usually      Sometimes      Almost Never      Never*
- 3. Are you motivated to eat healthy foods?**  
*Extremely      Very      Fairly      Somewhat      Slightly      Not at All*
- 4. Do your family and/or friends encourage you to exercise?**  
*Never      Almost Never      Sometimes      Usually      Almost Always      Always*
- 5. Do you want to spend your money to buy healthy foods?**  
*Never      Almost Never      Sometimes      Usually      Almost Always      Always*
- 6. How many places in your neighborhood (inside or outside) are safe enough to exercise in?**  
*Many      Several      A Few      A Couple      One      None*
- 7. Do you like the taste of healthy foods?**  
*Always      Almost Always      Usually      Sometimes      Almost Never      Never*
- 8. Do you have enough money to exercise (equipment, gym membership, clothes, shoes)?**  
*Always      Almost Always      Usually      Sometimes      Almost Never      Never*
- 9. How many stores in your neighborhood sell healthy foods?**  
*Many      Several      A Few      A Couple      One      None*
- 10. Do you exercise when you are emotionally upset?**  
*Never      Almost Never      Sometimes      Usually      Almost Always      Always*

**11. Do you have enough time to prepare healthy foods?**  
*Never Almost Never Sometimes Usually Almost Always Always*

**12. Do you believe you can change your lifestyle to eat more healthy foods?**  
*Definitely Most Likely Possibly Perhaps Don't Think So Definitely Not*

**13. Do you have enough time to buy healthy foods?**  
*Always Almost Always Usually Sometimes Almost Never Never*

**14. Do you have the equipment (i.e. utensils, stove, refrigerator) needed to prepare healthy foods?**  
*Always Almost Always Usually Sometimes Almost Never Never*

**15. Do you think that exercise can improve one's health?**  
*Strongly Disagree Disagree Somewhat Disagree Somewhat Agree Agree Strongly Agree*

**16. Is it convenient for you to exercise?**  
*Never Almost Never Sometimes Usually Almost Always Always*

**17. How often do you watch t.v. rather than exercise?**  
*Never Almost Never Sometimes Usually Almost Always Always*

**18. Do you think that eating healthy foods can improve one's health?**  
*Strongly Disagree Disagree Somewhat Disagree Somewhat Agree Agree Strongly Agree*

**19. Do you want to spend your money to exercise?**  
*Always Almost Always Usually Sometimes Almost Never Never*

**20. Do you eat when you are emotionally upset?**  
*Always Almost Always Usually Sometimes Almost Never Never*

**21. Do you believe you can you change your lifestyle to exercise more often?**  
*Definitely Most Likely Possibly Perhaps Don't Think So Definitely Not*

**22. Do you know *what* foods to buy that are healthy?**  
*Never Almost Never Sometimes Usually Almost Always Always*

**23. Do your family and/or friends encourage you to eat healthy foods?**  
*Never Almost Never Sometimes Usually Almost Always Always*

**24. Are you motivated to exercise?**  
*Extremely Very Fairly Somewhat Slightly Not at All*

**25. Do you enjoy eating healthy foods?**  
*Always Almost Always Usually Sometimes Almost Never Never*

- 26. Does exercise make you feel tired?**  
*Always Almost Always Usually Sometimes Almost Never Never*
- 27. How often do you exercise?**  
*Once a day or more 4-6 days/week 2-3 days/week 1/week 2-3/month Never*
- 28. Is it convenient for you to eat healthy foods?**  
*Never Almost Never Sometimes Usually Almost Always Always*
- 29. Can you easily get to places where you can exercise?**  
*Never Almost Never Sometimes Usually Almost Always Always*
- 30. Do you know how to exercise?**  
*Not at All Slightly Somewhat Fairly Very Extremely*
- 31. Do you know how to use exercise equipment?**  
*Extremely Very Fairly Somewhat Slightly Not at All*
- 32. Do you reward yourself with exercise?**  
*Always Almost Always Usually Sometimes Almost Never Never*
- 33. Do you have the equipment (shoes, clothes, machines, music) necessary for you to exercise?**  
*Always Almost Always Usually Sometimes Almost Never Never*
- 34. Do you enjoy exercise?**  
*Extremely Very Fairly Somewhat Slightly Not at All*
- 35. How often do you eat junk food rather than healthy foods?**  
*Never Almost Never Sometimes Usually Almost Always Always*
- 36. Do you reward yourself with food?**  
*Never Almost Never Sometimes Usually Almost Always Always*
- 37. How often do you eat healthy foods?**  
*Once a day or more 4-6 days/week 2-3 days/week 1/week 2-3/month Never*
- 38. Can you easily get to places where you can get healthy foods?**  
*Always Almost Always Usually Sometimes Almost Never Never*
- 39. Do your work/home environment encourage you to eat healthy foods?**  
*Always Almost Always Usually Sometimes Almost Never Never*
- 40. Do you know how to prepare healthy foods?**

*Extremely Well    Very Well    Fairly Well    Somewhat    Slightly    Not at All*

**41. What is the quality of fresh fruits and vegetables available to you?**

*Excellent    Very Good    Good    Poor    Very Poor    Awful*

**42. What is the quality of exercise paths available to you?**

*Excellent    Very Good    Good    Poor    Very Poor    Awful*

**43. Other things that make it difficult for you to eat healthier or exercise more:**

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**THANK YOU FOR SHARING YOUR EXPERIENCE! YOU ARE VERY APPRECIATED!**



Appendix E: Additional Items Collected to Assess Concurrent Validity

Office Use Only

FS?

*The purpose of this survey is to understand your thoughts and behaviors regarding nutrition and exercise. Please answer honestly. **Your responses will be confidential and will not influence your WIC eligibility.** It will take approximately 5 minutes to complete this survey. Thank you!*

*“Exercise” is defined as having an increased heart rate for 20 minutes or more due to physical activity (brisk walking, team sport, exercise class, lifting weights).*

**1. What can a person do to improve one’s health? Circle all that apply.**

Exercise      Adequate Sleep      Eat Healthy Foods      Drink Water

**2. When you are angry, are you more likely to exercise or eat?**

Exercise      Eat

**3. In the past, what kinds of exercise equipment do/have you used? Circle all that apply.**

Treadmill      Elliptical Trainer      Row Machine      Other      None

**4. What kinds of exercises do you do? Circle all that apply.**

Walk      Run      Stretches      Aerobics      Swimming      Other      None

**5. How did you get here today?**

My car      Someone else’s car      Bus      Other \_\_\_\_\_

.....

**6. Are there walking paths within a mile from your home?**      Yes      No

**7. Is there a grocery store or health food store within a mile from your home?**      Yes      No

**8. Do you own exercise clothes (including tennis shoes)?**      Yes      No

**9. Do you have space in your home where you exercise?**      Yes      No

**10. Do you have a gym membership?**      Yes      No

**11. Do you own a car?**      Yes      No

**12. Are you motivated to exercise?**      Yes      No

**13. Do you have favorite fruits?**      Yes      No

14. Do you have favorite vegetables? Yes No

15. Does the lack of childcare prevent you from exercising? Yes No

16. Does the weather prevent you from exercising? Yes No

17. Does physical illness or injury prevent you for exercising? Yes No

18. What encourages you to exercise? Check all that apply.

- Friends/ Family
- I exercise when I'm angry or emotionally upset
- I know it is good for me
- I enjoy exercising
- I feel better after I exercise
- I exercise anytime it is convenient
- Nothing encourages me to exercise
- Other \_\_\_\_\_

19. What encourages you to eat healthy foods? Check all that apply.

- Friends/ Family
- There are several places near me where I can buy/eat healthy foods
- I have enough money to buy and prepare healthy foods
- I know what foods are healthy, and I know how to prepare them
- I know it is good for me
- I enjoy eating healthy foods
- I feel better after I eat healthy foods
- I eat healthy foods anytime it is convenient
- Nothing encourages me to eat healthy foods
- Other \_\_\_\_\_

20. On average, how many fruits do you eat per day? \_\_\_\_ fruits

21. On average, how many vegetables do you eat per day? \_\_\_\_ vegetables

22. On average, how much time per day do you spend watching tv?  
\_\_\_\_ hours \_\_\_\_ minutes

23. On average, how much time per day do you spend exercising?  
\_\_\_\_ hours \_\_\_\_ minutes

**Thank you for taking your time to complete this survey!  
Your experience is very important! Thank you!**

## Appendix F: Other Barriers, in Alphabetical Order (Reported as Written)

- "Time" is my issue
- \$
- (#26 - not that I'm pregnant)
- (time)
- (time) sometimes I find it easier to get chicken nuggets instead of cooking while I am out.
- .
- ? (n=27)
- [# 17: same time]; [# 35: about the same]; working & lack of time
- [#1: food stamps]; [#8: cash assistance]; money, transportation.
- [#1: for my son]; I'm very busy finding time is difficult
- [#1: vision card], [#17: almost never watch tv], just discipline & motivation :)
- [#1: whole wheat, fruit, organic foods are too expensive]; healthy food costs, more money, meat without steroids, organic food, whole wheat
- [#1: with the food asst.]
- [#14: have access]; {19: exercise at home}
- [#15 two stars]; [#33: almost always shoes, clothes, music; sometimes machines]; This is the perfect idea to view about people laziness, diet and lifestyle. I liked it. I also enjoyed filling out this form. My name is \_\_\_\_\_. Thank you.
- [#19: can't afford to]; Money - not enough of it!
- [#19: Don't have to]
- [#19: If I had it]; Not having to money to go to a club or class to exercise properly.
- [#19: If I have it]; No money
- [#19: not a gym]; [#27: walk]; Busy with small children, live in 2 story house
- [#19: There is none, but if I had a membership my family & I would use it.]; [#27: but, I volunteer at a shelter & a library 15 hrs week each, serve on the school board & raise 7 kids]; [#29: could if had the means]
- [#2: but never do]; [3(: small town)]; [#16: I just don't]; [24: I just don't]; #26: I don't know I don't think so]; I'm all ready to big so I find that discouraging when it comes to exercising. But I REALLY want to.
- [#2: If I had transportation & daycare], [#19: what money?], [#40: depends];
- lack of money @ present time. Transportation.
- [#20: I used to all the time]; holidays & family events, lack of sleep, cranky babies
- [#21: time]; time! I don't have time unless I don't want to see my son to exercise like I want to.
- [#27: I have 2 small children & their my exercise.]; [#37: at least]; I am constantly on the go & always run out of time & energy.
- [#27: I try to any way]; Trying to find time to myself to exercise.
- [#27: I'm going to start]; nothing to eat healthy, to exercise the time, I have 2 daughters and sometimes can't find time to do so
- [#27: just starting], Stress- trying to figure out how to live & survive & support my children.

- [#3: But I believe kids should.] [#5: "sometimes" for me, "always" for Xavier] [#10: walking around the block alone]
- [#3: Just had his tonsils/abnoids and tubes put in ears]
- [#32 walking]; can't afford work out epa.
- [#32: I am starting to]
- [#32: umm..cheesecake]
- [#37: when available]; cost.
- [#42: ?]
- [#42: don't know]
- [#42: none]; A new baby & a 3 year old demand all my time.
- [#42: none]; Live in the country - takes extra effort, family doesn't like "healthy" things
- [#42: unknown]
- [#5: for the kids]; to much stuff to do at home & dont ever have time
- [#6: Because none are available]; I have very little free time since I have 4 children of my own and watch several other children throughout the week. It is sometimes hard to take the 20 min. needed to exe4rcise to actually do that when I would rather
- [#6: I don't know]
- [#6: my house only]
- [#6: unknown]; [#9: w/in a few miles from home]; #39: usually at home, almost never at work]; [42: no paths]; single parenting two boys. A 7 yr old with homeowrk and an over active 13 month old that keeps me Busy, Busy, Busy!! :)
- [#8: Don't need money to exercise]; I had kidney surgery 6 mths ago I always eat healthy and exercise.
- [#8: military]; having 2 small children who require & need most of my time, and a husband who doesn't really know how to handle them
- [#8: working in a gym, free membership]; [#14: yes, stove has been broken]; It is a lot more expensive to buy healthy foods junk food is cheaper and much more available. It takes more time and money to buy & prepare halthy meals. Maybe WIC could offer
- [#9: Don't Know]
- [#9: gas station] working at Subway makes it easier a little.
- [Age:80]
- [exercise more: having three children and no babysitter]
- {I don't have enough money} I really like to do (exercise) exercise.
- 0/
- I feel like I'm in shape. 2) I feel 2 or 3 fruit a day is enough. 3) I eat plenty salad. 4) I love milk so I feel thats healthy.
- 2 jobs and twins
- 2 mo. old baby, 2 mo. old puppy, don't have a lot of extra time
- 2 very young kids - weather
- 3 children and and afull time job sometimes make it hard to exercisce.
- 4 children at various ages and no transportation.

- 5 children
- 5 children/ poor weather
- 5 kids keep me going
- 6 month old baby. I have time to do things when he sleeps.
- 9 month old and 2 year old, plenty of exercise
- A partner.
- A two year old and 17 month old children, rocky roads, and time, dishes & laundry
- Accessibility to organically grown food. prices of gym membership.
- All my kids
- Always busy.
- Always on the go with 4 kids, activities, girl scouts, etc.
- Always working
- An Arby's on every corner, time to go exercise without my son.
- Asthma
- Asthma, chronic back pain, tendonitis, arthritis
- At the grocery store, healthy foods like fresh fruits & veggies and children are more expensive than hamburger and "junk" food
- At work sometime.
- Attending college and having to care for three small children before myself.
- Baby demanding attention
- Baby, schooling.
- Baby, work, schedule, weather, \$, knowledge of cooking limited
- Babysitter so I can go exercise & \$ for gym memberships & a friend to go with. Some of these questions are repetitive.
- Baby-sitter while I work out
- Back injury/ knee injury
- Bad health
- Bad hip, makes it difficult to walk and lift.
- Bad knees & back
- Because I have four kids, 16, 8, 1, 5 month, and I work, so it is hard to find the time to exercise.
- Being a busy mom of 4 and working. Not having enough time in the day
- Being a single mom of three kids its hard to find time to exercise and take care of kids and work but try to get kids involved with me. And the money is hard to stretch for the healthy foods we really like but I try my best.
- Being a single mom w/ limited income and child care
- Being a single mother of "3" with bad diabetes and not having the time to take care of myself. It's hard.
- Being a single parent & having to work @ different times every day of the week.
- Being a single parent of 2 kids. No time/money

- Being busy- 4 kids (2 in hospital). I still usually take about 30 minutes every other morning to exercise.
- Being on shedule
- Being pregnant right now.
- Being so tired.
- Being tired a lot cuases me not to want to exercise much. Other than fruit and vegetables I'm no sure what else is considered healthy other than the ways foods are prepared.
- Biggest issue is time
- Broke. can't afford to take better care of self.
- Busy
- Busy lifestyle always on the go w/ 3 kids & 2 dogs.
- Busy lifestyle but I try to find the time
- Busy sched. trying to clean & laundry & arrands make it hard.
- Busy schedule. Colder weather - I like to go for walks
- Busy schedule-> work, conflicting schedules w/ wife
- Busy watching kids
- Busy with kids and home, picking up borthers from school everyday. do not know how to prepare variaty of helthy foods.
- By doing everyday
- Cannot find time to do it
- Can't afford a membership to a gym. Sometimes its hard to stay motivated at home.
- Can't exercise very high, pergnancy
- Chasing after kids & working all the time
- Child care, lack of funds
- Childcare
- Childcare to exercise
- Children
- Children and work
- Children- work hours- money.
- Children, school
- Children, school. things that you rush instead of taking time to prepare a healthy meal.
- Children, spouse
- Children, time
- Cold outside - work 3rd shift sleep in days 6 hrs - 10 month old child
- Compliations with pregnancy make it hard to exercise everyday.
- Cost of items
- Cost/taste/keep it fresh
- Day care/ and sleepy sometimes and Transportation/ Money
- Depending on money for groceries, also tools for me to exercise

- Do not have time to exercise that often
- Doing it by yourself
- Don't have much time.
- Don't have time
- Don't have time for anything like that
- Don't like to exercise, lot of "healthy" food taste terrible!
- Don't really have much time to myself to exercise.
- Drive 1 hour to work, work 8 hours, drive 1 hour home
- Dr's order not to exercise due to complications with pregnancy and post back surgery.
- Eating healthier just cost too much because of the cost of fresh fruits and veggis. And exercise is hard becuae I have two young children.
- Eating healthy is not a problem for me but eating too much and not having time to exercise along with my daily chores.
- Exercise- Baby since she is newborn
- Exercise- because I have a nbewborn. No gym with a nursery will take him.
- Exercise because I'm at school all day then have to study
- Exercise- I'm almost 8 mon. pregnant
- Exercise is the time with 3 kids is hard to get to the gym, but do enough running around at home.
- Exercise no enough time schedule very complacated.
- Expense
- Extremely busy schedule prevents exercise as often as desired.
- Family - single more of 3.
- Family in the home not willing to change their eating habits
- Finances
- Finances
- Finances make it difficult to exercise regularly even though I would do it daily if I could.
- Financial problems
- Finding sitters to watch baby so I can go excersise in winter, usually go on walks in spring summer fall
- Finding the time between school, home, and baby, and soon new job (hopefully)... It's more convieint to eat less healthy and exercise less.
- Finding the time right now.
- Finding the time without my children. I am a stay home mom and my children are everything to me so getting time for me is hard for me to do.
- Finding time for myself.
- Finding time, getting motivated to work out
- Food being their.
- For me to eat healthier it has to be cheap, quick, and easy. Physical limitations keep me from exercising more.
- For the exercise to busy with house and kids after that I'm out of energy.

The food kids refuse to eat a lot of healthy food so I don't waste money on it.

- Friends & family
- Funding
- Get side tracked w/ kids, run out of time, grab whats quick
- Getting in shape
- Getting up and making repapa to do it. I be so tired where I can't do it.
- Going alone makes exercise harder/less frequent.
- Gym memberships are EXPENSIVE!
- Gym memberships are too expensive for me to afford.
- Gym memberships too high expenses
- Hard to get babysitter so I can go work out at the gym- but exercising at home is good too. Lean meat is a little more expensive & can sometimes get it.
- Hard to get out to exercise due demands of 3 kids and husband's schedule.
- Have been having issues w/ iron and my heart. Have been on bed rest for most of December because of.
- Having 3 children makes it a little difficult to get away to exercise.
- Having 3 kids under the age of 6
- Having 6 children & a part-time job!
- Having a 3 yr. old w/seizures make it kind of
- Having a baby & not making enough money...making just enough money to by to
- Having a baby and very little time
- Having a baby usually doesn't give me time to do things for myself.
- Having a child.
- Having a new baby when its cold outside makes it hard to go walk or run because he is ALWAYS w/ me/. we do stretching & situps @ home when he allows it.
- Having a newborn and a 19 1/2 month old makes it difficult to have time to exercise.
- Having a small baby
- Having children adds to the chaos of exercise. It's hard to exercise with children but daycare adds to the expense.
- Having day care of my little one. Also have right shoes
- Having kids takes all my time, but they are my exercise!!!
- Having money for gas to get to the store, or to go exercise
- Having someone to watch children while I exercise. Often have to pay child care in addition to gym fees or try to exercise w/ children present.
- Having sweets around the house
- Having the groceries to cook at home rather than just grabbing a hamburger
- Having twins!
- Having two kids & a full time job can make it difficult to exercise
- Having two young kids and nobody to watch them
- Having twins trying to make the time.



- Healthier foods are just more expensive & take longer to prepare. My husband is not into eating healthy @ all. I just need more motivation to exercise.
- Healthier foods are more expensive.
- Healthy & fresh foods are expensive
- Hectick work scheduel & new infant
- Higher cost of healthy foods for size of family. High daycare costs. High costs of membership fees, etc.
- Husband
- Husbands bring in candy bars.
- I am a busy mom w/ 4 kids that works part time, my husband works full time. We eat pretty healthy. But I don't have time to exercise, like I want to. Sometimes I only eat once a day because
- I am a full time student, the bill payer, and parent of four kids. It is hard to find the time to cook or exercise.
- I am a monther of a 3 yr old, work full time, go to school 3/4 time and four months pregnant, so my life style is pretty much a big exercise plan.
- I am a single parent who does not receive child support. My time is always filled with work or parenting.
- I am always busy with kids and work
- I am griped at all the time about the how the kids are cared for so I just grab what is close to eat.
- I am lazy and like to sleep but I am skinny so I can eat what I want and not gain weight.
- I am on my feet 8 hrs per day at a fairly strenuous job and by the time I get home I have very little energy left
- I am tired from school, the baby, and keeping the house together.
- I am very tired taking care of a 23 mo old and a 7 mo old. I have almost no time to myself. And when I do I take a hot bath
- I can't afford the products that are thealthy; I don't much at all healthy or not!
- I do not have much a lone time. I prefer to exercise alone. I do have a treadmill & hand weights, however.
- I don't feel I have the time to exercise.
- I don't have a lot of time to exercicse
- I don't have money to buy equipment or food.
- I don't know
- I don't know how to cook; I work; I don't have witme 2/ 3 childrin
- I don't really exercise much unless you call waitressing for 5 hrs. is exercise
- I eat healthier because of my kids but they make it harder to exercise because they are so young.
- I eat healthly I just don't exercise because I don't want to or have the time to.
- I eat healthy but exercise is almost impossible w/ my health , ills, cost and bad back
- I feel as if I get exercise everyday because I have to keep up with 2 children who are both 2 yrs of age I spend all day everyday keeping up with them that is a lot of exercise.

- I hate to exercise alone
- I have 2 kids that is a fulltime job itself
- I have 3 kids I tend to eat what they eat which does not consist of Broccoli & cauliflower & I am a stay at home mom with little or no time for myself.
- I have 4 children and trying to find the time between housework, meals, helping w/homework, reading baths etc. I normally don't get the chance to do anything for me until after 10:30 p.m.,
- I have 5 kids under 2 years of age- NO TIME
- I have a lower back problem with lots of pain, and don't have a car.
- I have a new baby & when I'm home alone w/ himn it's hard to get exercise in... especially leaving the house isn't an option.
- I have asthma & I live in a small town.
- I have health problems where I an constantly tired. I don't have the energy to exercise.
- I have hearth problems and back problem
- I have lupus and with this disease I have bad arthritis. So sometimes my knees and ankles hurt and ache.
- I have stomach problems, sometimes it's dificult to retain food
- I have three small children
- I have to take care of my children. They still little.
- I have to take care of my mother & grandmother and one 3 yr old daughter that has ADHD.
- I just don't have the time with my son & I usually feel to tired to do anything after he goes to bed.
- I just don't have time for exercise.
- I just don't like things like veggies.
- I just want to read & rest a lot right now.
- I live in Augusta, work in Wichita. I tried going to the YMCA in Wichita, then going home, but that took time away from my family. I wish there was a Y in Augusta.
- I need better sidewalks and paths.
- I need daycare so I'll have time
- I rather spend time playing with my grandkids
- I really don't have time to exercise with one kid at home and another in school.
- I was raised to eat healthy and we usualy do but exercise is difficult because of time (sitter) and I'm pregnant & tired.
- I wish I can have a walker
- I word 2nd shift
- I work & am out of the house 10 hrs a day, then come home to 3 kids ages 2-7, cooking meals, laundry & bedtime takes most of my evening
- I work 2:30 p.m. to 11:00 p.m. & don't get home until about 12 a.m.
- I work a lot and get up early to be at work.
- I work a lot of hours-
- I work a lot of the time, time I just don't have it.
- I work all the time and don't have the money for all of these things.

- I work at a pizza place. Between work & family & house chores I just don't have time to exercise.
- I work at McDonalds
- I work from 3 p.m. - 11 p.m. and have to leave for work at 2 p.m., so I don't get home till 12 a.m. usually. I also have to get kids up and out to school in the afternoon class.
- I work full time and I'm a full time student. Healthy food is hard to come by when I'm so busy.
- I work, or I'm always running around to get things done.
- If I just don't exercise or eat healthy it was just that I didn't do what it took.
- If the kids or sleep
- I'm a single mother of 4. I do everything on the go.
- I'm busy w/ school & work to exercise or have time to prepare a meal rather than something faster.
- I'm lazy
- I'm rather busy being a parent, going to school & working. I do what I can when I can.
- I'm taking care of my sick dad.
- It cost more and I don't have the money to buy it.
- It costs a lot of money and time!
- It costs so much to buy healthy food compared to less healthy food. I'd do better if I got more food stamp benefits.
- It is more difficult to exercise now that I am a single parent
- It makes it difficult to exercise cause I don't have anyone to watch my kids.
- It's cheaper to not eat healthy, bad foods are easier & more convenient than good foods, it's very easy not to exercise with working & taking care of kids – don't have a lot of time to exercise.
- It's hard finding time with 3 kids
- It's hard to exercise because I run out of breath easily.
- It's harder to exercise when you got kids to take care of.
- It's really nothing stopping me from eating healthy food or exercise.
- Job- other activities - school
- Just don't have enough time to exercise work too much and when I get off of work I'm tired.
- Just exercising because I have a 1 month old
- Just getting started and making a decision to change my life style in eating and exercising on a daily basis.
- Just money- that's all!
- Just not doing it!
- Just not enough time with kids & everything else in the way of it
- Just not taking the time to do so.
- Just the cost of food & the gym. too much \$
- Just working all the time.
- Kids (n=3)

- Kids, household duties
- Kids, job, family, friends
- Kids, money
- Kids, Running around all day fast food is easier
- Kids, time
- Knowing what to eat and how to prepare.
- Lack of energy
- Lack of energy due to anemia.
- Lack of money & time
- Lack of money and time.
- Lack of money to buy food & being noxious. No energy to exercise...
- Lack of money to do so. Freezing temperatures- can't get out (to go shopping or to exercise)
- Lack of money to eat healthier having an infant makes it hard to have time to exercise!
- Lack of money, lack of proper shoes
- Lack of motivation
- Lack of sufficient time
- Lack of time
- Lack of time
- Lack of time
- Lack of time & convenience
- Lack of time to exercise
- Lack of time with work and kids. not enough money to buy a lot of fresh fruits and veggies.
- Lack of time!!!
- Laziness
- Lazy
- Liking junk food
- Limited income, don't live close to town, have a family to care for
- Lost of taste, physical situation
- Lupus (exercise)
- Mainly I don't have the time.
- Mainly money & time & child care.
- Mainly money for the food, equipment for exercise...
- Mainly time & money
- Me.
- Medical- back problems, migranes
- Military-strict on work schedules/ timed lunches; fatigue
- Money & time.
- Money (lack of) makes it difficult to eat healthier. baby sitters & money makes it difficult to exercise

- Money (n=6)
- Money and someone to watch my son.
- Money is my reason for the poor eating habits I have taken on.
- Money is the only thing that makes it difficult for me to eat healthy; motivation is the only thing that makes it difficult for me to exercise more.
- Money mainly, can't afford what we need to eat healthy.
- Money runs me low to get healthy foods toward the end of the month. Healthier, more pure foods cost more.
- Money situation
- Money- time
- Money to exercise
- Money to get a gym membership or exercise equipment.
- Money to go to health club, no transportation
- Money wise, financial
- Money, cost of gas for transportation, membership fees, finding time to do it, kids have a major problem with t.v.!!! [exercise more]
- Money, no babysitter
- Money, transportation, knowledge
- Money, weather
- More money, time
- Morning sickness & income
- Most of the time, I'm on the go.
- Most often the only real obstacle is available time due to unusual + constantly changing work schedule.
- Mostley allways i do.
- Mostly money and work schedule.
- Mostly none.
- Mostly time
- Motivation
- Motivation
- Motivation
- My 4 month old
- My area does not have safe good walking paths or the weather does not permit or I just don't feel like it.
- My baby is very needy still and she has been ill exercise is what I really don't get done.
- My children.
- My climbing toddled getting into everything
- My family
- My husband works long hours he is not home to watch the kids when I exercise
- My kids and my unborn child

- My own children & my schedule
- My son & his father. A very demanding schedule. I'm tired
- My son makes it difficult because it's hard to find time to exercise and eat healthy. The location of our apartment makes it very difficult because we live off the Kellogg and can't afford a YMCA membership.
- My work schedule - I work 50+ hrs a week, am the manager so I'm on call as well.
- N/A (n=8)
- Need 2 get motivated to do so
- Need more sport clothing
- Newborn baby, lack of sleep
- No (n=6)
- No babysitter for my kids so I can go exercise. Too tired after work.
- No babysitter for my kids, no money
- No babysitter to watch children & not enough money to go to a gym or buy equipment.
- No car or license to use during the day.
- No child care for young children
- No comment
- No daycare.
- No gym or membership money. No transportation.
- No money
- No money and single mom of 3 and a newborn no help at home. Husband just recently left us
- No money for exercise equipment or money for membership
- No money, and no time
- No motivation
- No source of transportation
- No time
- No time or money
- No time to exercise
- No time to formally exercise
- No time- work & kids
- No time!
- No time!
- No time! Work single one child who is very ill.
- No transportation, plus no childcare
- No vehicle its broke down
- No. why are you asking these questions are you going to give us a membership to the YMCA. I will take then I will be fit.
- None (n=9)
- Not at all I can do as I please.

- Not eating enough protein.
- Not enough daylight.
- Not enough money to get all the things I need but would enjoy losing weight
- Not enough money
- Not enough money to buy healthy food.
- Not enough money to buy healthy foods at stores.
- Not enough money to get a gym membership. We eat well, and exercise at home. So that's all.
- Not enough money to get exercise equipment or gym membership
- Not enough money.
- Not enough time (n=3)
- Not enough time I work full time & go to school 10 hrs a wk
- Not enough time in the day chasing kids and working or preparing meals while doing laundry dishes and trying to keep the kids from fighting.  
To embarrassed to exercise in public at facilities and my kids are always running around.
- Not enough time in the day. I'm always tired & never have enough energy.
- Not enough time in the day. (n=3)
- Not enough time sometimes.
- Not enough time to cook and exercise. When I do get to cook it's always healthy, but it depends on our schedule.
- Not enough time to myself.
- Not enough time, no car to get there, no motivation, no friends
- Not having the money to do so or no way to get around to go some where to exercise when I need it.
- Not having any time, having a babysitter
- Not having enough time
- Not having my mom here
- Not having someone to watch my children so I can exercise.
- Not having the time, because at home w/ children.
- Not enough time in one day to do the exercise that I love to do. The baby is VERY demanding.
- Not motivated to exercise and when I have enough money we do eat healthy foods.  
The money is just not always available.
- Not motivated, & if I had a membership no babysitter available somewhat cheap.
- Not much I have a treadmill at my mom's & we get food stamps for food.
- Not thing
- Not thinking about what's good for my body, just what I like to eat that's bad for my body
- Nothing (n=9)
- Nothing really besides money
- One I have a job that has odd hours 11 p.m. - 7 a.m., gym's are not open at night, I sleep during the day
- Only money, depression. I suppose, but that is greatly affected by the struggles

caused by lacking money

- Only when short on \$
- Our income right now is real tight. So what is bought often varies. Although healthy food's important to us, fresh fruit & vegetables are less apt.
- Peers who are unhealthy more information about healthy in place and stores
- Personal lacking of drivers licence
- Picky eaters, time consuming preparation of healthy meals, cost of healthy foods like fresh fruits & veggies, time and money to exercise, finding a baby sitter, etc.
- Pork, fish
- Really never have time working and going to school.
- Right now I'm living with other people and can't always prepare meals the way I would like to prepare them
- Schedules- work school picking up & dropping off kids - sleep
- School, work, parents
- Scoliosis, rods from neck to tailbone; would love to know exercises I can do.
- Single mom I work a lot do household chores. pay bills, sleep
- Single mom, don't have a vehicle to get to the gym & childcare
- Smoking, finding time, peer pressure to do other things (i.e. play video games, watch t.v.), no one being a supporter, not enough self confidence, too tired most of the time.
- Somebody to watch my son so that we can exercise properly.
- Sometimes I don't have know excuse not too.
- Sometimes it depends how well I'm doing economically & how busy I am to have the time to exercise. It's difficult when I work full time & got to school full time to make the time to exercise.
- Sometimes it's hard to get motivated
- Spend most of the time with the kids.
- Still extremely sick to my stomach
- Stress
- Stress
- Sweets, lazy
- Taking care of 3 children, Getting to apts on time
- Taking care of 3 kids - preschool - 6 mos.
- Taking care of 4 kids while having a job and going to school
- Taking care of an ill child makes it hard to care for myself
- Taking care of baby hard to get out! cold weather
- Taking care of my 3 kids all day makes exercising hard
- Taking care of my baby.
- Taking care of the baby
- Taking care of the baby & have a bulge-disc in my back from work I've had it for 7 mos.
- That sometimes I don't have the enough courage or the initiative to start exercise



- The fact that I have 3 children 3 and under I am always moving doing laundry/ up and down stairs, cauming house wor ext... most of th etime I am grabbing something on the run or not eating when its a certain time I eat when I can. My kids come first!
- The hardest thing about eating healthier is running out of money. The hardest thing about exercise is finding time. I have 4 young children.
- The little time that I have do not make it easier for me to exercise and eat healthy food but I would like to.
- The money is what holds me down
- The only obstacle is bad weather. My favorite exerisce is walking. I don't have equipment or a gym membership so we walk outside always when it's nice weather.
- The only problem I have w/ eating healthy is I have to crave the food before I can eat it. I love fruits & veggies and my son is the same way. but as far as exercising my son keeps me on the move and I don't have the time because I'm doing a home course
- The only thing stopping me from excersice is my daughter. She needs someone to take care of her while I exercise. Eating healthy wouldn't be a problem if I had money to buy food.
- The only thing that makes it difficult is finding the time
- The price of fresh fruit or whole grain breads low-carb a/o fat foods.
- The time to do so!
- The time with two small children! I've just given birth and was just stating how I need to exercise. I had planned to go to the "Y" to update my membership!
- The weather makes it difficult to exercise.
- The weather. I walk a lot and I take my son with me, and when it's too cold, I just stay at home and lounge around.
- The wellness center has no daycare available -so it makes it very hard for a single parent to go workout. I think that for \$25/month this should be available.
- The whole pregnancy (9 mo)
- There is no free place to exercise with the kids; kids don't like healthy foods
- This survey was too repeatative, the same questions 4 different ways & the questions are too broad, some of us are in different
- Time & knowledge
- Time & money
- Time & money to exercise
- Time & money.
- Time (n=8)
- Time and children.
- Time and money
- Time and money, and toono the food is realy healthy
- Time but nothning make it possible for me to exercise beside working & taking care of a child.
- Time- don't have enough time during a day.
- Time for myself only.
- Time is the main issue for both eating healthier & exercise. It is also cold &

- icy outside which makes it hard to walk (exercise)
- Time is usually my only problem.
  - Time management is key to finding time to exercise with all of life's other demands.
  - Time of preparation! and money to buy food and to go to the YMCA is too expensive!  
I can't afford to purchase the equipment I like to use!
  - Time or the lack of
  - Time restraints - work, family, home
  - Time that I have available.
  - Time throughout the day-
  - Time to do it!
  - Time! I work full time & attend college PT. And am a full-time mom! :)
  - Time, babysitter while exercising
  - Time, convenience, and patience
  - Time, energy
  - Time, energy
  - Time, money.
  - Time, motivation
  - Time, school, schedule, place
  - Time.
  - Time. The number 1 reason why I don't get to work out like I used to.  
I am a single parent and I don't have a lot of family support to help me with things that require more of my time.
  - Time/ Finances
  - Time; Babysitters
  - Time? (Time for myself), work
  - Timing, family
  - Too busy with work and three children.
  - To exercise money is needed for daycare but I'm a single mom.
  - To exercise more I need more time or a babysitter.
  - Too much work, not enough money. A busy schedule.
  - Too tired maybe that's all
  - Too busy & lazy to exercise rigorously
  - Too busy, going to school or doing homework.
  - Too costly, and time consuming.
  - Too hard & expensive to exercise. Time to cook healthy healthy foods.
  - Too many kids. not enough time.
  - Too much housework with two little kids.
  - Too time consuming. not motivated enough
  - Transportation

- Transportation/ or money
- Trying to balance my house work, caring for 3 kids, & working.
- Trying to make the whole family with diner or snacks finding the time to exercise w/out kids.
- Trying to work or go to school. I always try to eat healthier anyway.
- Until my doctor gets me off restrictions then I'll exercise more
- Usually I'm spending all my time taking care of my 2 children.
- Usually it's just the babysittin but that's better.
- Usually not enough time w/ kids & school
- Usually only difficult when I'm on the go a lot.
- Very busy- large family
- Very busy schedule.
- Very little time w/o daughter
- Watching kids
- We only have one car & my husband has to work various hours.
- Weather
- Weather, cost of home equipment - I can walk for free
- Weather, kids toddler twins
- Weather. I might now want to get home to late so my daughter can rest. ect...
- Well I'm pregnant & I crave mostly chocalate, so that is a hassle sometimes, but most of the thing I force myself to eat healthy at least once a day.
- With 4 kids it is hard to find time to look eat healthy meals & find extra time to exercise
- With three children babystiiting is sometimes difficult.
- Work all the time
- Working the time into my schedule to exercise.
- Work
- Work & school
- Work 9 hr days- no exercize equipment @ home- no membership to gym
- Work and my infant son, harder to get time to exercise
- Work environment
- Work schedule
- Work schedule
- Work schedule, money, tired often
- Work schedule. school schedule.
- Work schedule/ Daycare for kids
- Work, school
- Work, school, weather
- Working all the time & taking care of my daughter
- Working around food all day.
- Working full time trying to find daycare

- Working full time, cleaning house, taking care of kids.
- Working odd hours & two kids
- Working too much to have time to exercise other than playing w/ the kids.
- Working two jobs and a 2 year old.
- Working, 6 children with active schedules.
- Working, not always having time to eat at home
- Working, sleeping
- Works 3rd shift; days; sleep; appointments; spend time with my daughter
- Would be easier if I had a friend or someone to exercise with me.
- Why is healthy food more expensive than the junk?
- You must find most of the difficult to eat healthier or exercise more.
- Young children in the home.
- Young children
- Your state of mind