

UNDERSTANDING HEALTH RISKS IN LIMITED  
INCOME WOMEN

By

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Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
in partial fulfillment of  
the requirements for  
the Degree of  
DOCTOR OF PHILOSOPHY  
August, 2002

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## ACKNOWLEDGEMENTS

I would like to thank the women who participated in this study for sharing their experiences and insights and graciously allowing me into their homes and lives. Their sharing not only helped me in the attainment of a higher degree, but also raised my consciousness of the importance of working to improve the lives of others.

Thanks to my doctoral committee members Drs. Gail Gates, Janice Hermann, and Jean Van Delinder for their assistance with this research. I would also like to extend my sincere appreciation to Dr. Kathryn Keim, committee chair, for providing me with opportunities that allowed me to grow intellectually and professionally.

My husband Josh was also particularly helpful during the research process. Having a “fellow anthropologist” to bounce ideas off of was especially valuable and helped me formulate ideas. Our conversations on the plight of poor women were inspiring as we plotted ways to improve their lives. I also want to thank Josh for his formatting abilities which prevented me from going insane trying to get the spacing correct. My new son Joshua is due credit as well, for coming into this world and providing me with added motivation for completing the writing of results. One last thanks is due to my husband Josh for providing Joshua with the care he needed while I pecked away at the keyboard.

I would also like to thank my mother, Mary Jane Beck, and my father, John David Parker, for instilling the value of education early in my life. Their support and encouragement through my many years of schooling are appreciated.

Finally, thanks to my colleague and mentor, Dr. Glenna Williams. I always felt she was looking out for my best interests throughout the course of this research both professionally and academically. Her words of encouragement and open ear were an invaluable part of the research process. When she came into my office inquiring if the “Doctor was in”, completion of the degree felt more in sight.

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## CHAPTER I

### INTRODUCTION

Although the overall U.S. population has experienced reductions in mortality from heart disease since 1950, certain subgroups of the population have not experienced a decline in mortality (NCHS 1999). Heart disease has claimed the lives of more females than males since 1984 and the gap continues to widen (AHA 1999a). Years of heart disease research have focused predominantly on males and helped fabricate an impression that heart disease is basically a male affliction even though it is the leading cause of death for women in all ethnic groups (Preuss 1993).

Only 31% of women surveyed in the 1997 American Heart Association Telephone Survey were able to identify heart disease as the leading cause of death for females (AHA 1999b). Interestingly, although few women report that they are at risk for developing heart disease, many women report that they are concerned about the cardiovascular health of their spouse (Preuss 1993). Women may attach less value to her heart health than that of her male family members. As a consequence, she may make unfavorable food decisions regarding the health of her heart.

Despite notable progress in the overall health of the nation, there are continuing disparities in the burden of death and illness experienced by low income individuals (Healthy People 2010, Satcher 2001, Kumanyika 1995, Shi 1998). Heart disease mortality is reportedly highest among lower income groups (Brenner 1997, Colhoun et al. 1998, Kawachi & Kennedy 1997). The prevalence of cardiovascular risk factors among

low income women is substantial, while knowledge of heart disease risk factors is poor (Poduri and Grisso 1998, Wamala et al. 1997). Such disparity in heart disease prevalence among poor women may be due to the fact that people with limited income are less able to alter their environment than those with more resources (Kingston and Smith 1997).

In industrial countries such as the United States and Canada, there appears to be an inverse relationship between social class and heart disease rates (Terris 1996). Income differences in smoking, dietary and exercise behaviors may be a result of cultural patterns that are associated with socioeconomic strain (Mcisaac and Wilkinson 1997). As such, low income individuals may be unaware of factors that prevent heart disease because of lack of education, limited access to and use of health services, lack of social support, or hostile environments (Iribarren et al. 1997).

Those with low socioeconomic status are more likely to adopt a constellation of unhealthy lifestyle behaviors that are associated with illness and premature death (Shi 1998, Johansson et al. 1999, Singleton 1994). Few studies examining heart disease risk factors have taken into account the fact that such behaviors are most likely a function of the environment as influenced by social and cultural factors. Crooks (Crooks 1999) has observed that people in poor communities may be making the most appropriate choices given their circumstances and warns of educating about “appropriate choices” without considering what is appropriate for the population.

Oklahoma presents an exceptional need for the examination of heart disease risk factors in low income women. The death rate from heart disease and stroke is among the highest in the United States with only one state reporting a higher death rate (OSDH 1999). Additionally, data released by the U.S. Census Bureau in February of 1999

indicate that the state of poverty in Oklahoma is grim (US Census Bureau 1999). Only five states report poverty levels greater than Oklahoma. The Oklahoma State Department of Health reports that heart disease affects one in three women (OSDH 1999). As such, the health of women in Oklahoma is in great need of improvement.

Correlational data continue to link low socioeconomic status to health inequities. However, in order to reduce health disparities, qualitative research dedicated to a better understanding of the relations between health status and income, education, race, ethnicity, cultural influences, environment, and access to quality medical services is needed (Health People 2010). The purpose of this research is to identify social and cultural processes that might contribute to the etiology of increased heart disease risk in low income women 19 to 44 years of age. This research focuses on two of the currently accepted behavioral risk factors for heart disease, poor nutrition and obesity (American Heart Association 1999a, Pomerleau et al. 1997, Frazao 1999).

### Objectives

The following objectives guided this research:

- 1) Characterize the social and cultural structure of heart disease awareness.
- 2) Characterize cultural definitions of obesity.

## Assumptions

This study was based on the following assumptions:

- 1) The fifty most commonly consumed foods identified from a previous study population (Cook 2000) are appropriate for use in this population.
- 2) The Contour Drawing Scale (Thompson and Gray 1995) validated with women of higher socioeconomic status is appropriate for use with low income women.
- 3) Participants accurately recorded their food intake.
- 4) Participants gave honest responses to interview questions.

## Limitations

The following limitations apply to this study:

- 1) This study was limited to women 19 to 44 years of age living in one rural county in Oklahoma who are eligible for Food Stamp assistance because their incomes were 130% or less than the 1999 Federal Poverty Guidelines.
- 2) The sample population for this study was a purposive convenience sample rather than a random sample.
- 3) This study was limited in ethnic representation.

## Definition of Terms

**Atherosclerosis:** “A type of hardening of the arteries in which cholesterol and other substances in the blood are deposited in the walls of arteries, including the coronary arteries that supply blood to the heart. In time, narrowing of the coronary arteries by atherosclerosis may reduce the flow of oxygen-rich blood to the heart” (Healthy People 2010, p. 12-31).

**Behaviors:** “Individual responses or reactions to internal stimuli and external conditions. Behaviors can have a reciprocal relationship to biology; in other words, each can react to the other. For example, a family history that includes heart disease (biology) may motivate an individual to develop good eating habits, avoid tobacco, and maintain an active lifestyle (behaviors), which may prevent his or her own development of heart disease (biology)” (Healthy People 2010, p. 19).

**Body image:** “A multidimensional self-attitude toward one’s body, particularly its size, shape, and aesthetics. A person’s evaluations and affective experiences regarding their physical attributes, as well as their investments in appearance as a domain” (Cash et al. 1997, p. 433).

**Body mass index (BMI):** “Weight (in kilograms) divided by the square of height (in meters), or weight (in pounds) divided by the square of height (in inches) times 704.5. Because it is readily calculated, BMI is the measurement of choice as an indicator of healthy weight, overweight, and obesity” (Healthy People 2010, p. 12-31).

**Community:** “A specific group of people, often living in a defined geographical area, who share a common culture, values, and norms and who are arranged in a social

structure according to relationships the community has developed over a period of time” (Healthy People 2010, p. 7-27).

**Constructionist orientation:** Viewing social problems as the products of collective definitions rather than objective facts. From a constructionist orientation, social problems have no independent ontological status, but depend on public definition (Sobal 1999).

**Coronary heart disease (CHD):** “The type of heart disease due to narrowing of the coronary arteries” (Healthy People 2010, p. 12-32).

**Culturally appropriate:** “Refers to an unbiased attitude and organizational policy that values cultural diversity in the population served. Reflects an understanding of diverse attitudes, beliefs, behaviors, practices, and communication patterns that could be attributed to race, ethnicity, religion, socioeconomic status, historical and social context, physical or mental ability, age, gender, sexual orientation, or generational and acculturation status. Includes an awareness that cultural differences may affect health and the effectiveness of health care delivery” (Healthy People 2010, p. 7-28).

**Culture:** “The ideas, beliefs, and knowledge that characterize a particular group of people” (Fetterman 1998, p. 17).

**Depression:** “A state of low mood that is described differently by people who experience it. Commonly described are feelings of sadness, despair, emptiness, or loss of interest or pleasure in nearly all things” (Healthy People 2010, p. 18-26).

**Emic perspective:** The insider’s or native’s perspective of reality (Fetterman 1998, p.20).



**Energy expenditure:** “The energy cost to the body of physical activity, usually measured in kilocalories” (Healthy People 2010, p. 22-35).

**Etic perspective:** The outsider’s, “external, social scientific perspective on reality” (Fetterman 1998, p. 23).

**Ethnography:** Collecting data from the insider’s perspective which is then made sense of from a scientific perspective. “The ethnography attempts to be holistic, covering as much territory about a culture, subculture, or program” (Fetterman 1998, p. 11).

**Food insecurity:** “Limited or uncertain availability of nutritionally adequate and safe foods or limited and uncertain ability to acquire acceptable foods in socially acceptable ways” (Healthy People 2010, p. 19-48).

**Food security:** “Access by all people at all times to enough food for an active, healthy life. It includes at a minimum (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways” (Healthy People 2010, p. 19-48).

**Heart disease:** “The leading cause of death and a common cause of illness and disability in the United States. Coronary heart disease and ischemic heart disease are specific names for the principal form of heart disease, which is the result of atherosclerosis, or the buildup of cholesterol deposits in the coronary arteries that feed the heart”(Healthy People 2010, p.12-32).

**Health promotion activity:** “Broadly defined to include any activity that is part of a planned health promotion program, such as implementing a policy to create a smoke-free

workplace, developing walking trails in communities, or teaching the skills needed to prepare healthy meals and snacks” (Healthy People 2010, p.11-20).

**Ischemic heart disease:** “Includes heart attack and related heart problems caused by narrowing of the coronary arteries and therefore a decreased supply of blood and oxygen to the heart. Also called coronary artery disease and coronary heart disease” (Healthy People 2010, p.12-32):

**Modifiable risk factor:** Risk factors that can be can be modified, treated or controlled (AHA 2002).

**Obesity:** “A condition characterized by excessive body fat”; usually defined by a BMI  $\geq$  30 (Healthy People 2010, p. 19-49).

**Overweight:** “Excess body weight”; usually defined by a BMI between 25 and 29.9 (Healthy People 2010 p. 19-49).

**Physical activity:** “Bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure” (Healthy People 2010 p. 19-49).

**Quality of life:** “A general sense of happiness and satisfaction with our lives and environment. General quality of life encompasses all aspects of life, including health, recreation, culture, rights, values, beliefs, aspirations, and the conditions that support a life containing these elements. *Health-related quality of life* reflects a personal sense of physical and mental health and the ability to react to factors in the physical and social environments” (Healthy People 2010, p.7-28).

**Sedentary behavior:** “A pattern of behavior that is relatively inactive, such as a lifestyle characterized by a lot of sitting” (Healthy People 2010, p. 19-49).

**Social capital:** “The process and conditions among people and organizations that lead to accomplishing a goal of mutual social benefit, usually characterized by four interrelated constructs: trust, cooperation, civic engagement, and reciprocity” (Healthy People 2010, p. 7-29).

**Social environment:** “Includes interactions with family, friends, coworkers, and others in the community. It also encompasses social institutions, such as law enforcement, the workplace, places of worship, and schools. Housing, public transportation, and the presence or absence of violence in the community are among other components of the social environment. The social environment has a profound effect on individual health, as well as on the health of the larger community, and is unique because of cultural customs; language; and personal, religious, or spiritual beliefs. At the same time, individuals and their behaviors contribute to the quality of the social environment” (Healthy People 2010, p. 19).

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Heart Disease

Heart disease has been the leading cause of death in the United States since 1921 (Morbidity and Mortality Weekly Report (MMWR) 1999). The term “heart disease” is often used interchangeably with the term “cardiovascular disease” and refers to a variety of diseases and conditions that damage the heart and blood vessels. The process of atherosclerosis begins with endothelial injury in the artery (Gould 1997). Lipids are transported and accumulate in the intima of the artery and in the media layer, and smooth muscle cells accumulate as a result of the injury. The progression of arterial damage leads to coronary heart disease including angina pectoris, temporary cardiac ischemia, and myocardial infarction. Ultimately, death can ensue from heart failure, cardiac arrhythmia, or sudden death (Gould 1997).

Health behaviors contribute markedly to the development and progression of heart disease. Epidemiologic evidence indicates that there are a number of risk factors for heart disease and that it is a multifactorial disease with no one factor being sufficient to produce the disease (Pollock.& Schmidt 1995). The Framingham Heart Study established major modifiable risk factors for coronary heart disease including high blood cholesterol, high blood pressure, smoking, and dietary factors such as high dietary cholesterol, fat and sodium (MMWR 1999). Additional risk factors have been identified and include lack of exercise, obesity, and low socioeconomic status. (MMWR 1999,

Healthy People 2010, Polluck & Schmidt 1995). The Public Health Service, the National High Blood Pressure Education Program and the National Cholesterol Education Program have worked collaboratively on initiatives to reduce risk factors, and to improve the identification and treatment for heart disease (Healthy People 2000).

Lifestyle interventions that promote heart-healthy behaviors are effective means of reducing the development of heart disease. Over the past 20 years, initiatives appear to have had a positive impact on high blood cholesterol, high blood pressure, and cigarette smoking in the overall population, but lower socioeconomic segments have not fared as well (MMWR 1999). The risk factors of overweight and physical inactivity have both increased in all socioeconomic segments (Healthy People 2010).

#### Poverty and Heart Disease Correlates in Oklahoma

Economic health relates to overall health and Oklahoma fares poorly when compared to the rest of the nation. The percent of persons in poverty in Oklahoma is greater than the national average. U.S. Census Bureau (1997-1999) reports indicate that 13.5% of Oklahomans were in poverty as compared to the U.S. average of 12.6%. Oklahoma ranks 44<sup>th</sup> out of the 50 states and the District of Columbia for personal income levels (State of the State's Health 2001).

Additional poverty indicators reveal that the economy of Oklahoma is in need of improvement. The percent of persons receiving Food Stamps in Oklahoma is 21% higher than the U.S. rate (State of the State's Health 2001). Additionally, Oklahoma consistently reports higher rates of uninsured persons than the rest of the nation. Women in Oklahoma are approximately 7% less likely to have insurance than the national

average (State of the State's Health 2001). Lack of health insurance makes access to adequate health care more difficult and results in a higher burden of diseases that could have been prevented if access to services was available (State of the State's Health 2001).

The age-adjusted heart disease death rates for Oklahoma continue to be significantly higher than the rest of the nation (State of the State's Health 2001). The leading cause of death in Oklahoma is heart disease and the rate is 15% higher than the national rate (State of the State's Health 2001). Differences in the prevalence of modifiable risk factors are likely reasons for the disparity.

It has been estimated that 30 to 40% of heart disease deaths are attributable to obesity and high blood cholesterol (CDC 1999). Obesity is a risk factor for heart disease that is of concern for Oklahomans. In 1999, 21.1% of Oklahomans were classified as being morbidly obese (BRFSS 1999). The obesity rate of women in Oklahoma for that same year was 3.6% higher than the rest of the nation (BRFSS 1999). Those with lower incomes in Oklahoma are at greater risk for health related problems because of obesity. When categorized according to household income, 15.7% more of those with incomes less than \$25,000 were categorized as being at risk for health problems related to obesity than those with higher income levels. The situation was worse for those with household incomes \$15,000 or less, with health risks being 26.1% higher than those with higher incomes.

Oklahoma's obesity problem may be due in part to a lack of physical activity. Oklahomans on average exercise less than the rest of the nation. Physical inactivity rates are higher for Oklahoma than for the rest of the nation with Oklahoma women being 6.9% more likely to be at risk for health problems related to a lack of exercise (BRFSS

1999). When categorized by level of income, those with household incomes \$25,000 or higher are approximately 2.5% more likely to exercise than those with lower household incomes (BRFSS 1999).

Cigarette smoking in Oklahoma is increasing and is considered a risk factor for heart disease. In 1999, Oklahoma's adult smoking rate increased to 25.2% compared to a national median of 22.7% (BRFSS 1999). In the same year the smoking rate for women in Oklahoma was 17% higher than the national rate for women. In Oklahoma, the percentage of persons smoking with household incomes less than \$25,000 is approximately 59.7% higher than those with higher household incomes (BRFSS 1999).

#### Women and Heart Disease

Despite perceptions that cardiovascular disease is primarily a male disease, it is the leading cause of death for women 35 years of age and older (CDC 1999). Each year more than half a million women die in the United States as a result of heart disease (CDC 1999). More than 1 in 5 women has some form of heart disease (AHA 1999a). It is estimated that 19,457 females under age 65 die of heart disease annually with more than 33% being less than 55 years of age (AHA 1999a).

Interestingly, heart disease deaths are declining less rapidly in women than in men (CDC 1999). Since 1984 the number of heart disease deaths for women has exceeded those for men (AHA 1999a). Mortality data indicate that 505,440 women died of heart disease as compare to 455,152 deaths for men and 44% of women who had heart attacks died within a year as compared to only 27% of men (CDC 1999). Gender differences in heart disease mortality may be a result of biases that have dominated medical and

scientific communities (Preuss 1993). Over the years much of scientific evidence and recommendations about risk factors for heart disease have been based upon research with males and may not be applicable for females.

Cultural and socioeconomic factors are important in understanding how heart disease affects women (Preuss 1993). Heart disease is often not diagnosed in women until its advanced stages, when treatment is less effective (AHA 1999a). In recognition of research and treatment biases, CDC has funded the Womens' Cardiovascular Health Network to disseminate information about successful programs that promote cardiovascular health among women and to design culturally appropriate physical activity programs (CDC 2001).

#### Poverty and Heart Disease in Women

In general, population groups that suffer the worst health status also are those that have the highest poverty rates and the least education (Healthy People 2010). Disparities in income and education levels are associated with differences in the occurrence of illness and death related to heart disease. Higher incomes permit increased access to medical care, enable people to afford better housing and live in safer neighborhoods, and increase the opportunity to engage in health-promoting behaviors (Healthy People 2010, Williams et al. 1997, Pena & Bacallao 2000). Low socioeconomic status may also be associated with higher levels of stress and accelerated development of heart disease in those with higher levels of stress (Kingston & Smith 1997). Even after adjusting for the more traditional risk factors for heart disease including obesity, smoking, and hypertension, the association of education and income to heart disease risk remains strong (Terris 1996).



Data from the 1971-1984 National Health and Nutrition Examination Survey indicated that among white women 65-74 years of age, the least educated were 1.5 times more likely to die from heart disease than the most educated and the risk for those aged 45-64 years was 2.5 times greater for those with the least education (Terris 1996). Cigarette smoking, hypertension, and overweight were more prevalent among less educated women, but even after adjusting for these risk factors, the relative risk of death for heart disease for the least educated women was 1.97 times greater for women 45-64 and 1.48 times greater for women 65-74 years of age as compared to the most educated women. Clearly, it is evident that the increased prevalence of known risk factors among poor women does not explain the increased risk of heart disease and there is a need to examine social factors more closely.

Iribarren et al. (1997) examined twelve year trends in cardiovascular disease risk factors in the Minnesota Heart Survey using mixed regression models. The purpose of this study was to examine the association of educational attainment and income level with the prevalence of elevated heart disease risk factors from three surveys of a population based sample in the Minneapolis-St. Paul metropolitan area. The results indicated an inverse association of education with serum cholesterol, systolic blood pressure, smoking prevalence, and body mass index and positively associated with leisure time physical activity and health knowledge in both genders. For women, there was a stronger association ( $p < .001$ ) of education level with serum cholesterol than the association for men ( $p < .02$ ) and there was no effect of income for either men or women. The association with education on mean systolic blood pressure was also stronger in women ( $p < .001$ ) as compared to men ( $p = .004$ ). Income had no effect on blood pressure

for either men or women, but there was a stronger association in women ( $p=.03$ ) than men ( $p=.44$ ). Smoking prevalence by education and income was similar in women and men with  $p<.001$  for education and  $p<.001$  for income in both genders. The association of education with body mass index was somewhat stronger in women ( $p<.001$ ) than in men ( $p=.002$ ), but the association with income was similar ( $p<.001$  for both genders). Leisure time physical activity was also affected by education and income level. There was a significant association of income and education ( $p<.001$  for both) for both genders. Findings from this study corroborate those of others and indicate a need for further examination of the effect of social factors on heart disease risk.

Pappas et al. (1993) compared mortality rates from 1960 to 1986 for persons 25 to 64 years of age according to race, gender, income and family status to determine if socioeconomic groups experienced equal rates of decline in heart disease mortality. Data from the Matched Record Study of 1960 was compared to the National Mortality Followback Survey and the National Health Interview Study, both conducted in 1986. In this study, socioeconomic class was defined by educational attainment and income. The results indicated that the disparity in death rates among adults 25 to 64 years of age widened in relation to income and education level. The plotted age-adjusted data for 1986 indicated an inverse relation between educational class and mortality for each race, sex and family status subgroup analyzed. For white women, the education differential was 86%, ranging from a mortality ratio of 1.3 for women with 11 years or less of education to a ratio of 0.7 for women with at least 4 years of college. The index of inequality for education indicated that from 1960 to 1986 inequality for white women

increased 23 percent. The results from this study confirmed the inverse relation between socioeconomic class and mortality.

Kingston and Smith (1997) analyzed data from Wave I (1992) of the Health and Retirement Survey, funded by the National Institute on Aging to examine the role of socioeconomic status (SES) and ethnicity in explaining health differences. Results of multivariate analyses indicated that wealth and income disparities associated with the presence of chronic conditions were much larger among women than men. The results also showed that the effects of SES on health were much stronger for those at the bottom of the economic strata. They found that the effect of \$1.00 of income on functional status was 40 times greater for the poorest than for the richest. And, although there were significant differences ( $p < .05$  for all chronic disease rates and functional status scores) in the chronic disease prevalence rates and functional status scores by ethnicity, controlling for socioeconomic status eliminated significant differences in functional status.

Disparate knowledge and awareness of heart disease risk factors has been postulated by some researchers to be part of the reason that low SES groups experience poorer health. Poduri and Grisso (1998) examined the prevalence of cardiovascular disease risk factors among limited income women and assessed the level of awareness and attitudes about these risk factors in limited income communities. The results indicated that the prevalence of cardiovascular disease risk factors was substantial with a mean number of  $2.6 \pm 1.4$  risk factors per participant. Although the prevalence of cardiovascular risk factors was high, participant knowledge and understanding of cardiovascular risk factors was poor with a range of only 0% to 44% of participants

reporting that they were at increased risk for heart disease because of the presence of the identified risk factor.

The widening social class gradient in the pattern of heart disease and variations in risk factors is not confined to the United States. Gabhainn et al. (1999) examined sociodemographic variations in perspectives on heart disease and associated risk factors in United Kingdom government and hospital personnel from various income groups. Focus group data from 74 individuals indicated that knowledge of most risk factors was similar across income groups. However, blue collar workers were more likely to mention stress and alcohol consumption as risk factors while lack of exercise was mentioned more frequently by white collar workers. Analyses also indicated that white older blue collar women identified the widest variety of barriers to change. Another notable difference was the fact that blue collar workers were less likely to internalize lifestyle changes associated with heart disease prevention. Despite similar levels of knowledge, more barriers were identified by limited SES groups making it more difficult to undertake lifestyle changes conducive to reducing heart disease risk.

Canadian data also indicate a social class difference in heart disease mortality. Wilkins (1995) examined mortality differences in urban Canada from 1986 to 1991 by neighborhood income. Overall, heart disease mortality rates declined in Canada by 53% in the years from 1971 to 1991. However, the mortality rates for those from poor neighborhoods did not fare as well. Mortality rates for poor men rose from 1.45 in 1971 to 1.7 in 1991. Women fared even worse with the relative risk for the poorest women rising from 1.3 in 1971 to 1.67 in 1991.

As is evident from this discussion, no single cause for social class difference in health has been identified. Health disparities are believed to be the result of the complex interaction among biological factors, the environment, and specific health behaviors (Satcher 2001, Shi 1998 ). Inequalities in income and education underlie many health disparities in the United States. Disparities in income and education levels have been associated with differences in the occurrence of illness and death, including heart disease, diabetes, obesity, elevated blood lead level, and low birth weight (Satcher 2001, Shi 1998, Kawachi et al. 1997a).

Whatever the cause for disparate occurrences of heart disease in those of low socioeconomic status, many major organizations now recognize the need to ameliorate such differences. The United States Department of Health and Human Services has recognized that health disparities exist with respect to race and income. In order to address this difference, Healthy People 2010, a National health promotion agenda, set the goal to “eliminate health disparities among segments of the population, including differences that occur by gender, race or ethnicity, education or income, disability, geographic location, or sexual orientation” (Healthy People 2010, p. 11).

Research to advance our understanding of the development and progression of diseases and disabilities that contribute to health disparities is central to eliminating health disparities. This review will be directed at delineating the role of the environment and socioeconomic status in understanding modifiable heart disease risk factors in limited income women.

## Modifiable Risk Factors for Heart Disease

Lifestyle changes are the most cost-effective means to reduce risk for heart disease (NCEP 2001, CDC 2000). Physical inactivity, obesity and atherogenic diets are major lifestyle factors having an influence on heart disease risk. The Public Health Service, the National High Blood Pressure Education Program and the National Cholesterol Education Program have worked collaboratively on initiatives to reduce risk factors, and to improve the identification and treatment for heart disease (Healthy People 2000 ). Over the past 20 years, these initiatives have had a positive impact on high blood cholesterol, high blood pressure, and cigarette smoking, but the risk factors of overweight and physical inactivity have both increased (Healthy People 2000).

People with excess body fat are more likely to develop heart disease and stroke even if they have no other risk factors (MMWR 1998). Although physiologic mechanisms have not been determined as yet, excess weight is associated with high blood pressure, and blood cholesterol and triglyceride levels, and lower HDL cholesterol levels (AHA 2002, AACVPR 1999). The role of obesity may have an indirect role in the progression of heart disease by increasing the risk of Type 2 diabetes, another risk factor for heart disease. Weight loss of 10 to 20 pounds can decrease heart disease risk (AHA 2002).

A Surgeon General's Report on Physical Activity and Health (1996) concluded that moderate physical activity can substantially reduce the risk of developing or dying from heart disease, diabetes, colon cancer, and high blood pressure. Physically inactive people are almost twice as likely to develop heart disease as persons who engage in regular physical activity (Healthy People 2010). The risk posed by physical inactivity is

almost as high as several well-known CHD risk factors, such as cigarette smoking, high blood pressure, and high blood cholesterol (Healthy People 2010). For some people, exercise affects blood cholesterol level by increasing HDL cholesterol (AHA 2002). A higher HDL cholesterol is linked with decreased risk of heart disease. Exercise can also help control weight, diabetes and high blood pressure (AHA 2002).

Cigarette smoking is one of the major modifiable risk factors of heart disease. Nicotine, a by-product of smoking, has been shown to lower HDL levels and increase oxidation of LDL promoting platelet adhesion and clot formation as well as vasoconstriction (Gould 1997, AACVPR 1999). Nicotine, a by-product of smoking, causes catecholamine release thereby increasing heart rate and blood pressure causing an increased workload on the heart (AACVPR, 1999).

This study will focus on two risk factors which have not resulted in improvement and have been identified by Healthy People 2010 as the nation's most pressing health concerns, namely obesity and physical inactivity. Food habits will also be examined since obesity and heart disease are both influenced by food habits.

#### Obesity, a Risk Factor for Heart Disease

Recent evidence indicates that America is experiencing an obesity epidemic (Nestle & Jacobson 2000). Obesity is now so common within the world's population that it is beginning to replace undernutrition and infectious diseases as the most significant contributor to ill health (Nestle & Jacobson 2000). The Centers for Disease Control and Prevention reports that obesity accounts for more than 300,000 premature deaths annually and leads to numerous chronic health conditions such as heart disease (CDC 2000). Total

costs (medical cost and lost productivity) attributable to obesity alone are estimated at \$99 billion per year (Healthy People 2010, Thompson 1998 et al.).

The prevalence of obesity has grown from 25% of the adult population in NHANES II survey conducted in 1976-1980, to approximately 35% of the adult population in NHANES III survey conducted in 1988 to 1991 (Ernst et al. 1997, Rippe et al. 1998). Overweight and obesity are growing public health problems, affecting adults, adolescents, and children. Overweight and obesity affect around 55% of adults in the U.S. (Nestle & Jacobson 2000). Obese persons are at increased risk of illness from high blood pressure, high blood cholesterol and other lipid disorders, Type 2 diabetes, heart disease, stroke, and other diseases (Rippe et al. 1998, Polluck & Schmidt 1995, Healthy People 2010).

Scientific evidence supports the role of obesity and weight gain in inducing atherogenic risk factors. Established atherogenic risk factors include blood lipids, blood pressure, glucose intolerance, and fibrinogen (Pollock & Schmidt 1995). Observational data indicate that overweight and obesity are strong independent risk factors for heart disease (MMWR 1998, Itallie 1985).

Risks associated with obesity depend upon the degree of excess body weight (Bray & Gray 1988, NIH 1998). Interpreting the degree to which overweight and obesity are associated with cardiovascular risk is unclear since criteria for these terms have varied over time, from study to study, and from one part of the world to another (Bray & Gray 1988). Body Mass Index (BMI) is the ratio of weight in kilograms divided by height in meters squared:  $BMI = \text{kg}/\text{m}^2$ . National and international organizations now support the use of a BMI as an indicator of obesity (Healthy People 2010).



In 1997, a Consultation on Obesity convened by the World Health Organization recommended standardizing the classification of overweight and obesity. Currently, the World Health Organization and National Institute of Health have endorsed a BMI of 30 kg/m<sup>2</sup> or greater as indicative of obesity and overweight as a BMI of equal to or greater than 25 kg/m<sup>2</sup> and less than 30 (Healthy People 2010). A BMI equal to or greater than 18.5 and less than 25 has been accepted by numerous groups as the upper limit of the healthy weight range, since chronic disease risk increases in most populations at or above this cut-point (Rippe et al. 1998). Individuals with a BMI between 30 and 39.9 kg/m<sup>2</sup> are considered at moderate risk for heart disease and other chronic diseases while those with a BMI of 40 kg/m<sup>2</sup> or greater are at high risk from their obesity (Bray and Gray 1988, Rippe et al. 1998). These BMI cut-points are intended to be used only as a guide for the identification and treatment of overweight and obese individuals. However, the health risks associated with overweight and obesity are part of a continuum and do not conform to rigid cut-points (Kushner 1993).

Distribution of fat is an important factor to consider when determining risk associated with heart disease (Itallie 1985, Bray and Gray 1988, Dietary Guidelines 2000, Healthy People 2010). Excess body fat located in the abdominal region carries with it an increased risk for the development of heart disease (Bray and Gray 1988, Dietary Guidelines 2000). The waist-to-hip ratio is the ratio of the circumference of the abdomen to the hips region and is considered a good assessment tool for the determination of heart disease risk (Bray & Gray 1988, NIH 1998). At any given BMI, waist-to-hip ratio has been positively associated with blood pressure and lipid profiles and as such, may be a biologically relevant predictor of heart disease (Martikainen and Marmot 1999).

More recent research suggests that waist circumference alone correlates better with excess fat in the abdominal region than waist-to-hip ratio. As waist circumference increases, the risk for heart disease increases. For women, as waist measures increase above 35 inches, health risks increase even if BMI is within a desirable range (Dietary Guidelines 2000).

Ernst et al. (1997) examined National Health and Nutrition Examination Survey III, Phase 1 (1988-1991) data to identify the degree to which overweight is associated with cardiovascular health risks. Data from this study indicated that high blood pressure and high cholesterol values were more prevalent in overweight individuals. In this study women were classified as overweight if BMI was 27.3 or higher. Interestingly, the highest prevalence of overweight (50%) was found among low income women. For women, the difference in mean diastolic blood pressure was approximately 6 mm Hg (75 mm HG vs 69 mm HG) between the highest and lowest BMI quintile categories. They also found the greatest prevalence of high blood pressure in overweight white women compared with non-overweight people. The prevalence of high blood pressure was 75% higher in white overweight women as compared to non-overweight white women. An increased prevalence of high blood cholesterol with overweight was also reported in this study. In women, the mean cholesterol level increased by about 19 mg/dL from the lowest to highest BMI with white women having higher mean values than black women.

Data from the Whitehall II study, a prospective cohort study of men and women 35-55 years of age living in London, indicated similar results (Martikainen & Marmot 1999). For both men and women in this study, socioeconomic status was negatively associated with waist-to-hip ratio and BMI. Age adjusted odds for women in the lowest

income group being above the 80<sup>th</sup> percentile of BMI and waist-to hip ratio were 1.72 and 2.21, respectively. Over the course of 25 years, lower income women gained considerably more weight than higher income women and were also more likely to have higher diastolic and systolic blood pressure as well as lower plasma HDL-cholesterol and higher triacylglycerol concentrations. Furthermore, an increase in BMI was a strong predictor of all four risk factors. Approximately 50-75% of blood pressure differences between socioeconomic groups could be accounted for by BMI.

#### The Effects of Social Stratification on Obesity

The etiology of obesity is complex and characterized by an array of genetic, environmental, social and behavioral factors contributing to its development and progression (Rippe et al. 1998). Obesity has evolved into a medicalized condition with social and cultural roots. Not only has obesity become medicalized as a disease, but it has also become a social condition of with negative consequences (Cahnman 1968).

Although there has been an abundance of research examining eating disorders such as anorexia nervosa and bulimia nervosa in middle and upper classes, scant research exists examining causal relationships of obesity and poverty in limited income women. Demographic studies have reported an inverse relation between socioeconomic status and obesity that is not as prominent among men and children as it is among women (Stunkard 2000, Aguirre 2000).

Interestingly, over the past century there has been a class shift in the prevalence of obesity (Stunkard 1968). Upper class segments, once desirous of corpulent, voluptuous bodies now favor thin, less shapely bodies (Garner et al. 1980). The fact that

upper income females have greater access to food and resources, yet are thinner than their lower income counterparts is paradoxical and may be due to status differences. It has been suggested by some researchers that food insecurity can affect health, quality of life, and weight status (Olson 1999, Townsend et al. 2001, Kendall et al. 1996).

Olson (1999) essentially launched the still scant research examining the relation between food insecurity and obesity. Data from 193 women of childbearing age living in a rural county of upstate New York indicated that BMI was significantly higher ( $p < 0.05$ ) in those classified as food insecure as compared with those classified as food secure (28.2 and 25.6 kg/m<sup>2</sup>, respectively). In addition, the food insecure group had a greater percentage of participants classified as obese as compared with the food secure group (37% and 26%, respectively). Further examination of the effects of food insecurity using multiple linear regression and controlling for height, income level, educational level, single parent status, and employment status indicated that household food insecurity remained significantly associated with BMI ( $p = 0.06$ ). On average, women classified as food insecure were 2 BMI units heavier than food secure women. From these findings, Olson hypothesized that food deprivation has an influence on eating patterns and may result in overeating.

Townsend et al. (2001) examined the existence and prevalence of overweight among the food insecure in the United States using data from the 1994, 1995, and 1996 Continuing Survey of Food Intakes by Individuals (CSFII). The research was theory informed and assumed that being food insecure directly and indirectly influenced overweightness through lifestyle factors such as physical activity patterns and food choices. The results of this study corroborate those of Olson (1999). Food insecurity

was significantly related to overweight status for women ( $p < .0001$ ), but there was not a significant relationship observed for men ( $p = .44$ ). Significant differences in the prevalence of overweight were also noted according to degree of food insecurity with only 34% of the food secure women being overweight as compared to 52% of the moderate food security women ( $p < .05$ ). Income and education were also associated with the prevalence of overweight. The highest prevalence of overweight was detected in the lowest income category with 43.8% being overweight and nearly 50% of those with less than and eleventh grade education being overweight. The majority of food stamp recipients (51.8%) were also overweight and those who received food stamps and were moderately food insecure were more likely to be overweight than those who were mildly insecure or food secure. The authors postulated that the “food stamp cycle” may affect food acquisition. That is, when food is more plentiful around the time of food stamp distribution, recipients may overeat in an attempt to compensate for periods of food deprivation.

Fitchen's (2000) research with a population of women participating in the Expanded Food and Nutrition Education Program builds upon the concept of food acquisition. Observations indicated an uneven distribution among family members of the quality and amount of food in poor families. She also noted that women tend to the needs of other family members before their own needs and they themselves develop eating habits such as eating leftovers from the pot, licking spoons, and eating children's leftovers. In Fitchen's observations of women participating in the Expanded Food and Nutrition Programs, she noted that women often eat only starchy foods and leave the meat and vegetables for other family members. From field observations with hundreds of

women, Fitchen theorized that poverty generates anxiety about food and that such anxiety centered around food can lead to abnormal eating patterns. She also observed that both the purchase and consumption of foods peaked immediately after the pay check, welfare check, or food stamps. From Fitchen's perspective, women tended overcompensate during times when funds were more available. Such overcompensation and the sacrificing of nutrient dense food for the sake of children contribute to the high incidence of obesity and poor health of limited income women.

Anderson et al. (1992) developed a "Food Security" hypothesis to explain the disparate occurrence of obesity among women of different strata in Western societies. Their hypothesis assumed that the biological function of fat is to store calories and that attitudes toward fatness are a response to food supply. To test this hypothesis, the researchers correlated indicators of reliability of food supply and availability of food storage mechanisms cross culturally to determine if a plump standard of beauty is associated with unreliable food supplies and inadequate food storage. Analyses of data indicated a positive relationship ( $p < .025$ ) between food and perception of beauty. Data from this study indicated that in societies where food scarcity was an issue, there was a greater preference for plump body types.

Although studies examining the role of food security are scant, it is evident from the findings of those discussed that the eating patterns of those in poverty may be related to obesity. Furthermore, limited income households have been identified as a group at greater risk for developing nutrition-related health disorders (Lutz et al. 1996).

## Food Patterns, a Risk Factor for Heart Disease

Current nutrition knowledge indicates that dietary factors contribute substantially to the burden of preventable illnesses and premature deaths in the United States (Healthy People 2010, Nestle et al. 1998). A primary concern is consuming too much fat and saturated fat; too few vegetables, fruits, and grain products that are high in vitamins and minerals; and too little carbohydrate, dietary fiber, and other substances important to good health. The development of the Dietary Guidelines and USDA Food Guide Pyramid was based on scientific evidence associated with health promotion and disease prevention. Current national guidelines promote the consumption of largely plant based diets and limited consumption of fats, saturated fats and cholesterol as a means of protecting against heart disease and other chronic diseases (Dietary Guideline 2000, Nestle et al. 1998).

Strong evidence links dietary intake to socioeconomic status. Income is a key factor influencing the amount of money spent on food, the types of food purchased, as well as the availability and consumption of foods (Lutz et al. 1996, Kendall et al. 1996). The eating patterns of limited income people generally include cheap sources of energy and are low in nutrient density, and high in fats and sugars (James et al. 1997). Current knowledge indicates that diets rich in whole grains, fruits and vegetables can decrease the risk of obesity and several chronic diseases, including heart disease (James et al. 1997, Dietary Guidelines 2000). However, limited income people are not likely to consume diets rich in these food groups (Johansson et al. 1999, Knol and Haughton 1998, Healthy People 2010).

Reports from analyses of USDA's 1987-1988 Nationwide Food Consumption Survey indicate that the nutritional quality of limited income households is poorer than higher income households (Lutz et al. 1996). Lower income households consumed 21 percent less fresh fruits and 13 percent less fresh vegetables other than potatoes than the national average. Limited income households consumed approximately 3% more red meat and 12% more sugars and sweets than the population as a whole. Another finding of concern was the 10% lower consumption of dairy products by limited income households. Diets rich in fruits and vegetables are generally higher in antioxidants, folate, fiber, phytochemicals, potassium and other nutrients associated with decreased risk of chronic diseases such as heart disease (NRC 1989, James et al. 1997). However, limited income households do not reap these benefits since their consumption of fruits and vegetables is less than the national average.

Kendall et al. (1996) examined food group consumption and nutrient intake in a sample of 193 women of childbearing age. Their findings indicated that fruit and vegetable intake declined as the level of food insecurity status increased, with the exception of fruit juice and potatoes which did not decline. Nutrient intake was also lower in the food insecure group for all nutrients examined except for vitamin A and saturated fat. In addition, disordered eating habits increased significantly as the level of food insecurity increased. Bingeing behaviors were more likely in the food insecure group. The authors speculate that episodic bingeing in times of food abundance may impinge upon their ability to lose weight due to repeated cycles of weight loss and weight gain. It is evident from these findings that the food intake of limited income



people is of lesser quality than their higher income counterparts and that such differences may predispose them to increased risks for obesity and chronic diseases.

Beretta et al. (2001) examined the quality of diet, nutrition knowledge, and food security status of primary caregivers and preschool aged children. Findings from this study indicated that despite participation in food assistance programs, 46.7% of caregivers reported not having enough money for food. Knowledge of high fat and high sugar foods was high with 81% of caregivers being able to identify foods appropriately. However, knowledge of high fiber foods was not as high with only 44% of participants being able to identify foods correctly. Overall, the diet quality of preschoolers was better than that of their caregivers. Around 25% of caregivers had less than adequate intakes of calcium, iron, kilocalories, vitamin A, vitamin C, and zinc.

#### Physical Inactivity, a Risk Factor for Heart Disease

The proportion of the population reporting no leisure-time physical activity is higher among women than men and higher among those with limited incomes than more affluent (Healthy People 2010). It has been proposed that the wealthy are able to assert their status by having leisure time to spend in physical activities (Stunkard 2000).

Current dietary guidelines recommend 30 to 45 minutes of daily activity to reduce chronic disease risk (Dietary Guidelines 2000, Surgeon General's Report on Physical Activity 1996). Physical activity reduces the risk of dying from heart disease and of developing high blood pressure and diabetes (Surgeon General's Report on Physical Activity 1996). However, more than 60% of women do not engage in the recommended

level of physical activity and lower income groups are reportedly less active (Surgeon General's Report on Physical Activity 1996, HP 2010).

Yeager et al. (1995) assessed the extent to which variation in the state-to-state prevalence of sedentary lifestyle contributed to variation in heart disease mortality. Mortality data from the National Underlying Cause of Death files for 1988 and data from the 1988 Behavioral Risk Factor Surveillance System (BRFSS) were used to examine mortality data for men and women between ages 20 and 74. Data from 37 states that conducted the surveys were used to determine the prevalence of heart disease risk factors including sedentary behavior, hypertension, current smoking, and overweight. Regression analyses was used to examine the effect of risk factors on heart disease mortality rate. The results of analyses indicated a significant association between heart disease mortality and the prevalence of sedentary lifestyle ( $p=.0002$ ) in both genders. When data was stratified for age, regression analyses indicated that sedentary lifestyle was associated with heart disease mortality in all age groups, but the strongest associations were in the 35-49 and 50-64 age groups. To address the effect of confounding variables, multiple regression analysis was used and included prevalence estimates of hypertension, current smoking, and overweight. Although smoking had the strongest effect on the model ( $p=.01$ ), sedentary lifestyle remained significantly associated with heart disease mortality ( $p=.03$ ).

Wister (1996) examined the effects of socioeconomic status on patterns of exercise and smoking for three age groups: 25 to 44, 45 to 64, and 65 and over. The 1990 Canadian Health Promotion Survey which provides extensive information on health-promoting activities among Canadians was used for analyses. Health behaviors,

knowledge, beliefs, attitudes, and intentions are all addressed by this survey. Logistic regression was used to examine associations of independent and dependent variables. Exercise and smoking were the dependent variables used for analyses. Both dependent variables were dichotomized into those who reportedly do and do not do the behaviors. Three measures of socioeconomic status were explored and included education, income and labor force participation. Additional independent variables included gender, social support, and health status. Results for exercise level indicated that persons in the 25-44 age group who completed high school were 1.51 times as likely to be active than those with some high school or less'. Weaker, but significant associations between education and activity level were also found for the 45-64 and 64-and over age groups (odds ratios 1.33 and 1.54, respectively). Although no statistically significant gender differences were found for the 25-44 and 45-64 age groups, the odds ratio indicated that women 25-44 were less likely to be active than men in the 25-44 age group (odds ratio =.9) while women aged 45-64 were slightly more active than men (odds ratio=1.05). Women 64-and over were significantly less likely to exercise than men (odds ratio=.7). The authors concluded that socioeconomic status has a substantial effect on health behaviors such as physical activity, however, the relationship depends on the socioeconomic measure being used.

Scant research exists examining the effects of socioeconomic status on physical activity in women. More research is needed on the prevalence and correlates of physical activity in limited income women. Additionally, qualitative studies are needed to understand why limited income women are less likely to engage in regular physical activity.

## Theoretical Perspectives of Obesity in Limited Income Women

Some anthropologists and sociologists have contended that obesity is neither a condition caused by an imbalance between energy intake and expenditure nor a condition represented by genetic predisposition. Obesity from a sociocultural perspective is considered a social phenomenon influenced by cultural values, social norms, gender based activities, and social status (Cahnman 1968). As such, from a sociocultural perspective obesity and overweight are considered synonymous, even though, from a biomedical position, the terms are used to classify separate weight categories (Cahnman 1968).

Although the simultaneous existence of poverty and obesity may seem paradoxical at first glance, substantial research has sought to delineate reasons for its widespread occurrence. Cultural relativism with respect to obesity offers an explanation for the particularistic nature of differences between preferences for body type depending upon the cultural system (Brown & Konner 1987).

Brown and Konner (1987) examined obesity using an anthropological perspective which involved an examination of the evolutionary background and cross cultural variations in obesity. Comparisons of ethnographic data indicated that fatness is symbolically linked to self-worth and sexuality in most societies. However, an incongruity between the values of fatness in Western societies and less developed countries was apparent. Despite obvious differences, the preference for a certain body type was rooted in an outward display of wealth for both societies. Given the rarity of obesity and the constant threat of food shortages, those from less developed countries tended to value large body size as a symbol of health, prestige, prosperity, or fertility,

while in Western societies where it is easy to become fat, the more affluent assert their status by staying thin because even the poor can become fat. For all societies, cultural standards of beauty were relative to the characteristics of the dominant, most wealthy group. However, ethnic variations within societies were evident and relative to cultural conceptions of normality, beauty, and health.

Ritenbaugh (1982) also referred to thinness a valued commodity that can only be afforded by those with adequate resources. Ritenbaugh (1982) used the concept of culture bound syndrome to describe obesity. Using an historical perspective, Ritenbaugh developed a basis for describing obesity as a disease rooted in cultural and societal events. From examination of Metropolitan Life Insurance Tables developed from 1943 to 1980, Ritenbaugh surmised that the increased prevalence of obesity has been contrived by the lowering of ideal body weights over time and she also noted that the lowering of body weights has been more consistent for women than for men. Ritenbaugh questioned the relationship of obesity with heart disease. She suggested that obesity as a disease was born after a very weak association between heart disease and extreme overweight was found in the Framingham longitudinal prospective study on heart disease. From her subjective analyses, she suggested that data support the notion that heavier is more healthy since several countries report no excess heart disease mortality associated with those of average or above average weight. From this evidence, Ritenbaugh suggested that changes in obesity classification are due to changing cultural values instead of a result of sufficient biomedical knowledge to support changing standards of ideal body weight.

From Ritenbaugh's (1982) examinations of the association of height and weight with social class and gender, it was evident that women in higher social classes were thinner and taller while men of higher social classes were taller and heavier. She offered a plausible explanation of material wealth differences as being causal for the disparate occurrence of obesity and ascribes thinness to a valued commodity only to be afforded by those with material wealth. She suggests that being poor leads to periodic episodes of food shortage and as a consequence, the poor are forced to seek out foods that are inexpensive and are also low in nutrient density while those who are more affluent have more money to spend on higher quality foods, treatments and drugs to solve the problem of obesity, and they also have more leisure time to engage in physical activities.

Cassidy (1991) examined Western values placed on bigness using an historical and anthropological approach. Cassidy defined bigness based on body size which is composed of height and bulk. Bulkiness entailed boniness, muscularity and fattiness. Reviews of previous studies indicated that bigness is advantageous biologically and socially. Biologically bigness, manifested as fatness, served as a reserve in times of unpredictable food supplies. Socially, the body has been used as a signaling device. Cassidy found that bigness, as portrayed by either fatness, tallness, or both, signals abundance, health, and fertility, all of which are power symbols. Bigness over time has represented the ability to capture a greater share of resources and thus, the ability to overcome life's obstacles. Cassidy suggested that although fatness is not currently revered by Western cultures, bigness is. Her analyses indicated that Western cultures tended to value tallness and muscularity and that evidence of these preferences support the theory that bigness signals message of power and success.

Cassidy (1991) noted that the Western cultures' desire to be thin is a relatively recent value that evolved from Puritanical notions that disvalued the body and demanded the repression of appetites for food as well as sex. Her examination of studies indicated that such notions have affected women more than men since Western religions have attempted to repress female sexuality and keep women in a preadolescent condition to minimize their ability to become more powerful than men. As such, she suggests that Western cultures have come to value thinness as a means of self control, a highly valued trait among the upper class. Interestingly, this value has not affected all socioeconomic strata equally since lower class groups appear to operate according to norms which value body massiveness. Cassidy explained the socioeconomic reversal in thinness as being relative to a stable food supply and asserted that those immersed in abundance can signal their power by ignoring obstacles which normally threaten survival.

Garner et al. (1980) set out to document and quantify society's shift in standards for the ideal female figure by examining popular media images. In this study, the researchers documented the cultural shift in body preference through comparisons of Playboy centerfolds and Miss America pageant winners over a span of 20 years. Data from playboy centerfolds indicated that the yearly mean weight for centerfolds was significantly less ( $p < .001$ ) than population means each year. Additionally, from 1959 to 1978, the percent of average weight for height among playmates also decreased significantly ( $p < .01$ ) over the 20 year period. Data from Miss America pageant contestants indicated similar results. The average decline in weight per year for pageant contestants was 0.13 kg and for pageant winners, the yearly decline was 0.17 kg per year.

However, population norms indicated an increase in weight in all height categories for women under 30 years of age over the same time span.

At the same time that the average population increased in body weight, the number of diet articles in popular magazines increased significantly over the same 20 year period (Garner et al. 1980). Garner et al. (1980) compared the shift towards thinness to the increased population body size and posited that popular images and media have lead women to chronic dieting behaviors that are often fruitless efforts because the weight which is ideal is in opposition to biological reproductivity. The researchers also noted that lower class women generally indicate a greater proclivity for obesity than upperclass women. They postulated that upperclass women feel more social pressures to be thin because they relate weight control to self-control which leads to success. However, females in lower socioeconomic classes may not feel such pressure to succeed and as a consequence, they are less driven to be thin.

Rodin et al. (1984) explored the nature of women's preoccupation with weight and developed possible reasons for this preoccupation. Reviews of previous literature indicated that women who were obese were of lower socioeconomic status and had lower educational attainment, the authors surmised that the obesity is met with psychological, social and economic punishment and that such punishment appears to be more severe for women than men.

Cassell (1995) reviewed the historical progress of the cultural obsession with thinness in the United States with the purpose of determining how that obsession has influenced the health profession and whether cultural and societal attitudes have interfered with professional judgments. In her review of the medical treatment towards



obese people she found that overweight clients often experienced discrimination and were thought to be weak in character. In her review, she acknowledged that discrimination toward the obese had not always been true. It was not until the early 20<sup>th</sup> century, that a social opprobrium was attached to excess weight. And, from her historical review, it was apparent that the stigma associated with obesity increased substantially following the 1912 study of insurance policy holders that provided height, weight and mortality data. For the most part, the development of actuarial tables launched obesity research and promulgated the idea that fat was a health liability. Commercialism quickly jumped onto the band wagon and began making billions of dollars on diet schemes. Cassell (1995) noted that although the schemes have been met with very limited success, failure to shed excess fat has been associated with moral and psychological failings, and those with excess body fat have become labeled as unhealthy no matter what their health behaviors.

Cossrow et al. (2001) conducted focus groups with men and women 18 to 54 years of age to examine the origins and impact of weight stigmatization. Their findings indicated more intolerance for overweight women than for men. Data from the focus groups also indicated a strong belief that overweight people are negatively stereotyped and discriminated against. It is also interesting that women in this study reported that they had experienced poorer treatment from family members, their social environments, work environments and from service providers than men in the study. Both genders reported an overall feeling that being obese made it difficult for them to get jobs, date, or to go out socially. Of even greater concern was the finding that female participants reported discrimination from health care providers. Women in this study had a general

feeling that physicians tended to focus more on their weight than on what was actually ailing them. And, participants reported that even when they attempted to undertake health behaviors such as exercising, harassment and discrimination impeded their maintenance of these behaviors. It is clearly evident from this study that the obese face challenges that affect their ability to function in society.

### Social Hardship and the Development of Obesity

Social cohesion has been related to health status. In general, societies with less cohesiveness generally experience poorer health as compared to those that are more cohesive (Kawachi et al. 1997b). In societies characterized by residential concentrations of poverty, the health effects of income inequalities are magnanimous (Kawachi et al. 1997b). The effects of income inequality may have serious and harmful psychosocial effects which result in poor eating behaviors and health (Kawachi et al. 1999).

Social research has documented the effects of relative deprivation on levels of frustration in limited income populations (Kawachi et al. 1999). Reports of women welfare recipients indicate that they are much more likely to meet diagnostic screening for a major depressive episode and/or Generalized Anxiety Disorder, have a child with a health problem, and have recent experience with severe domestic violence as compared to national samples of women (Danziger 2001). Research has shown that obese women have a tendency to eat in response to negative emotions (Carpenter et al. 2000). As a consequence, those who experience periodic stress may also experience episodic bouts of weight loss or weight gain (Lennon et al. 2001).

It has been suggested that eating may reduce anxiety for some people and that stressful life events may precipitate binge episodes (Herman et al. 1987, Crowther 2001). Polivy and Herman (1987) describe eating as being under the control of social, environmental and cognitive factors. Crowther et al. (2001) investigated the frequency and intensity of daily hassles, conceptualized as the repetitive, chronic strains of everyday life, among a sample of normal weight college women who binged and did not binge. They also examined the relationship between daily hassles and the frequency and energy intake of eating episodes. Binge eaters did not experience more daily hassles than non-bingers, but they perceived the hassles as significantly more stressful ( $p < .01$ ). Additionally, binge eaters, consumed significantly more energy on high hassle days as compared to low hassle days ( $p < .05$ ). From these findings, the researchers suggested that the severity of daily stressors may increase the amount of food consumed during a binge.

Thompson (1993) examined the lives of 18 women of various ethnicity to explore disordered eating behaviors. From the results, Thompson proposed that women used food as a coping mechanism. Women in this study indicated a compulsion to overeat in an attempt to numb the pain and frustrations resulting from societal injustices that they had experienced including racism, sexism, poverty, or sexual abuse. Thompson rejected theoretical notions that women pursue thinness in an attempt to conform to social expectations of beauty and instead posited that women's consumption patterns develop as logical solutions to a variety of traumas.

In Thompson's study, sexual abuse was the most common trauma associated with dysfunctional eating (Thompson 1993). She reported that food was used by women to numb negative feelings associated with victimization. For victims of sexual abuse, food

was trustworthy and eating excessively was a means of coping with the pain associated with sexual abuse.

Other women in Thompson's study reported extensive dieting and bulimia. For these women, they associated their weight with the abuse. They felt that if they had not been overweight, then they would not have been sexually abused. For many women restricting food or overeating has been used as survival tactic. They see their size as causal for the sexual abuse experienced and they attempt to protect themselves by being a size and shape that makes them less vulnerable (Thompson 1993). Binging, dieting or restricting was also used as a means of detaching themselves from the memory. Women chose to focus on food restriction or overconsumption in an attempt to forget about abuse.

#### Gestational Weight Gain and Obesity

Some researchers have suggested that higher prevalence of obesity in limited income women may be due to the amount of weight gained during pregnancy or parity (Olson 2002, Wolfe et al. 1997, Scholl et al. 1996). Wolfe et al. (1997) examined data from the 1971-1975 National Health and Nutrition Examination Survey (NHANES I) and its ten year Follow-up Survey (NHEFS). Weight change and the likelihood of substantial weight gain were the dependent variables examined in this study. Interactions between sociodemographic covariates and parity change in relation to weight gain were examined. Results of analyses revealed that being employed lessened the effect of parity increase of two or more on weight gain among white women. Data indicated that unemployed white women gained an additional 3.2 kg with parity increase of two or more when compared

to those with no parity increase. Employed white women only gained an additional 0.2 kg. The probability of substantial weight gain (more than 11.4 kg between baseline and follow-up) increased with greater parity. Being unemployed, unmarried, and having lower educational attainment increased the probability of gaining more than 11.4 kg at a parity increase of  $\geq 2$  children ( $p < .05$  for all).

It has also been suggested that the amount of weight gained during pregnancy is a stronger influence on weight retention than the effect of parity. Scholl et al. (1996) used data from the Cambden Study of Nutrition and Growth to examine the influence of weight gain on postpartum weight retention and fat deposition in 118 low income women. Three weight categories were used to categorize gestational weight gain based on the 1990 Institute of Medicine recommendations: low, 11.3 kg or less; recommended, 11.4-18.0 kg; and high, 18.1 kg or more. Results of covariate analyses indicated a significant dose-response relationship between gestational weight gain during pregnancy and weight retention. At 4-6 weeks postpartum, women in the low category retained about 1.5 kg, women within the recommended weight gain category retained 3 kg and those with high weight gains retained about 8 kg. Additionally, women who exceeded the recommended weight gain were 6 times more likely to be obese than those in the low weight gain category. An increase in subcutaneous fat was also associated with weight gain. Women with the highest weight gain increased fat at every site as compared with women in the low or recommended categories. Triceps, subscapular and suprailiac skinfold measures were all significantly lower ( $p < .05$  for all) in the recommended and low weight gain categories than the high weight gain categories. Those with high weight gains also accumulated a disproportionate amount of fat at central body sites as compared

with peripheral body sites. For the high weight gain group, there was a 48% increase in fat at the abdominal site. From these findings the authors posit that young women who begin childbearing early may be more at risk for overweight and obesity later on and that the sites of fat deposition may increase heart disease risk.

### Summary

From this review of literature, it is evident that the reasons for the disparate prevalence of heart disease and obesity in limited income women is multifaceted and depends on physiological and sociocultural factors. Correlational data establishing the association between sociodemographic variables and poor health is not lacking. However, an understanding of heart disease risk and obesity from the perspective of limited income women is lacking. The aim of this research project is to gain an emic understanding of heart disease risk factors and obesity so that prevention efforts can more realistically meet the needs of limited income audiences.

## CHAPTER III

### PERSPECTIVES ON FRUIT, VEGETABLE AND GRAIN INTAKE

#### IN LIMITED INCOME WOMEN

Stephany Parker, MS, M. Christy Haggard, MS, RD/LD and Gail Gates, PhD, RD/LD

#### ABSTRACT

The purpose of this study was to provide a conceptual framework for understanding factors that influence limited income women's perceptions of fruits, vegetables, and grains for the development of nutrition interventions aimed at increasing the consumption of these food groups. Limited income women of childbearing age were recruited from a homeless shelter, soup kitchen and a county health department. Semi-structured group and individual interviews were conducted with 30 women to ascertain factors that influence consumption of fruits, vegetables and grains. Interview questions were developed using the Social Cognitive Theory and ethnographic inquiry. Transcripts were analyzed by means of inductive inference. Participants perceived consumption of fruits and vegetables as less adequate than grains. Grains were perceived as the mainstay of the diet. Cost and family preference were identified as barriers to increased fruit and vegetable consumption. Women considered it impractical and wasteful to purchase and prepare food that the entire family would not consume. Foods were chosen because they were filling and acceptable for the entire family; fruits and vegetables were not perceived as either. The results of this research point to the need for education that focuses on the needs of the household rather than just the woman's needs. Funding for this project was provided by the Oklahoma Center for the Advancement of Science and Technology.

## INTRODUCTION

In the United States, health promotion and disease prevention agendas have recognized that income inequalities contribute to the health disparities that exist (U.S. Department of Health and Human Services 2000). Improvements in the health of the U.S. population tend to reflect achievements among the higher socioeconomic groups with the health of lower socioeconomic groups lagging behind (U.S. Department of Health and Human Services 2000). Nutritional inequalities have been cited as possible reasons for health disparities that exist because of income (Travers 1996, James et al. 1997, Olson 1999).

Current research indicates that there is a potential for significant health gains if a diet rich in whole grains, fruits and vegetables could be more accessible to limited income families (Johansson et al. 1999, James et al. 1999, Knol and Haughton 1998). Plant based diets are generally higher in antioxidants, folate, fiber, phytochemicals and other nutrients associated with decreased risk of chronic diseases (NRC 1989, James 1997 et al. , Nestle 1998). However, the food choices of limited income groups generally provide cheap sources of energy; are low in nutrient density; and include few whole grains, fruits, and vegetables (James et al. 1997, Anderson et al. 2001, Quan et al. 2000, Feldman et al. 2000).

To promote healthy dietary change among limited income women, it is important to understand factors that influence their food choices such as attitudes and perceptions of dietary behavior. With a clearer understanding of women's behaviors and of environmental factors that affect their food choices, nutrition educators can more



effectively promote change and provide strategies that will lead to long-term compliance (Nestle et al. 1998).

Effective nutrition education requires an understanding of participants' perspectives related to their food intake. Although research has quantified that the nutrient intake of limited income women is less desirable than that of their more affluent counterparts, scant qualitative research exists examining why the disparity exists. The aim of this research is to identify and understand factors that influence the consumption of grains, fruits and vegetables in limited income women so that more effective educational programs can be developed.

#### STUDY DESCRIPTION AND CHARACTERISTICS OF PARTICIPANTS

Five discussion groups and fifteen individual interviews were conducted with 30 women 18 to 44 years of age. Women were recruited (Appendix A) from a homeless shelter, soup kitchen, and a health department in a rural county in the Midwest. Participants were excluded if they were on a diet or had a disease that affected their eating habits. Informed consent (Appendix B) was obtained in accordance with the University Institutional Review Board (Appendix C).

Participants were verbally administered a demographic questionnaire (Appendix D). Most of the participants (59%) in this study had the equivalent of a high school education or less, and 24% of participants classified themselves as unemployed. There was little ethnic diversity in this study with 90% of participants being Caucasian. The mean household size was  $2.7 \pm 1.6$  and 83% of participants characterized their annual household income as being less than \$15,000.00.

## STUDY DESIGN

Conversational interviews were conducted to create an atmosphere of sharing and one in which women would feel comfortable disclosing information about their situation and eating habits. During the discussion groups, a female moderator trained in ethnographic methods led discussions and an assistant moderator took notes of responses and operated the audio equipment. In the individual interviews, only the interviewer was present for most interviews since it was considered unnecessary and intrusive to involve another individual in this process. Both the assistant moderator and the moderator conducted individual interviews.

Interview questions were semi-structured (Table 1) and developed using the Social Cognitive Theory and ethnographic inquiry. The use of the Social Cognitive Theory (SCT) is one approach that can be used to identify and understand factors that influence dietary behavior (Baranowski et al. 1997). The SCT concept of reciprocal determinism postulates that environmental factors, personal characteristics, and behavior simultaneously and continually interact to shape individual action (Baranowski et al. 1997). These three factors guided the formation of the interview questions.

For both types of interviews, semi-structured scripts were used as a guide to ensure that the objective of the research was maintained and to elicit women's perceptions. Script questions were developed to identify environmental, personal and behavioral factors. Additional questions in the interviews were interviewee guided to lead to a greater understanding of the interviewee's situation (Reinharz 1992).

All interviews were audio-taped and subsequently transcribed. One individual interview was excluded because of audio-equipment failure. Two researchers analyzed

all discussion groups and two individual interviews by means of content analysis. Major themes were identified and compared between researchers. Since no major discrepancies existed between researchers, the remaining individual interviews (n=13) were analyzed by a single researcher. Typologies were developed to identify perceptions of fruit, vegetable, and grain intake among economically disadvantaged women. An inductive and interpretive framework was used to elucidate meaning.

Decision tree modeling was used to determine how women decide to purchase foods and is considered a good method for the elucidation of decision processes (Gladwin 1989). Decision criteria for food purchasing behaviors were based on emic categories drawn from the women in this study. The model was developed based on participants' phrasing of their decision criteria for purchasing foods.

## DISCUSSION OF FINDINGS

### *Perspectives on general food choices*

Figure 1 shows the conceptual model of the relationship of poverty to general food choices and health risks using constructs from the Social Cognitive Theory. Key environmental, personal, and behavioral factors from the interviews are identified. This model assumes that a reciprocal relationship exists between food choices, income situation, and personal health (Figure 1).

### **Financial constraints**

Lack of money was the dominant theme that emerged from interviews about influences on general purchasing and consumption behaviors. Lack of funds caused

women's purchasing decisions to be based on how much items cost and whether or not the item was on sale. For those women interviewed in the homeless shelter and soup kitchen, lack of money lead them to rely on food donations. Donated foods are limited in variety and primarily processed because of storage limitations. As such, there was little variety in the diets of these individuals.

Lack of money and familial responsibilities caused many women to consider the preferences of family members before her own. It was considered wasteful to purchase foods just for one person if the rest of the family would not eat the food too, as is evident from the following quotes: "I kind of suffer because no one else in the house likes it too much and we're on a tight budget so I kind of go with what everyone else likes" and "I would never buy milk if the kids didn't need it."

### **History of Poverty**

Many women in this study had experienced a lifetime of poverty that influenced their current eating behaviors. Poverty during childhood brought about limited food choices and forced consumption of foods. Food experiences as shaped by poverty during childhood often led to an aversion to certain foods. Many women conveyed that they were not given a choice of foods as children. A general attitude of limited food choices permeated many discussions and is best put by one woman's comment in a group discussion at a soup kitchen: "we had a choice, eat or go to bed hungry". To this another responded "You were made to eat certain foods when you were a child, now you choose stuff you want to eat." In essence, many women in this study had negative experiences with food as children and consequently, developed an aversion to those foods that they

were forced to consume or those foods that were overabundant in their diets as children. Reicks et al. (1996) also reported that childhood memories of being forced to consume certain foods led to avoidance of those foods later in life in a population of limited income women.

### **Place of employment**

Many participants in this study had been or were presently employed in the kitchens of school cafeterias, nursing homes, or fast food restaurants. Reliance on what is offered free of charge at the place of employment was mentioned by those employed in food service as an influence in food choices. Their choices at the place of employment often led to the consumption of high fat foods because few or no lower fat options were available to them free of cost.

### **Household Structure**

Living situation influenced the eating behaviors of many limited income women in this group. Lack of money and broken families often led women to share households with friends, family members, or domestic partners. When living in these situations consensual agreement with respect to food choices was considered necessary. Single women in this study exhibited greater liberty in food choices than their counterparts with children or significant others.

### *Perspectives on Fruit Intake*

The most common reasons for consuming fruit included taste, perceived health benefits, and as a replacement for junk food. Taste was the most common reason cited for consuming fruit, but it was also a barrier for some women who did not care for the taste of fruit.

Many women reported that they purchased fruits for their children to consume because they considered fruit to be good for you. However, their personal consumption of fruit was limited because of the responsibility to meet the needs of their children or spouse before their own. This concept was well illustrated in one group discussion that began when one woman stated "I have a teenager and if I buy 5 apples, I'm lucky if I get one ...that's why you see women eating in the grocery stores, they have to." Others in the group responded in agreement. Women tended to put their needs last and the needs of other household members before their own as exemplified in a conversation which led one woman to state that "women are buying fruit, vegetables and good cereal, but as a mother, you give that to your children and eat what is leftover." A similar practice was also observed in women participating in the Expanded Food and Nutrition Programs throughout the country (Fitchen 2000). Fitchen (2000) observed that women often ate only starchy foods and left more nutritious foods for other family members while they themselves developed eating habits such as eating leftovers from the pot, licking spoons, and eating children's leftovers (Fitchen 2000).

Additional barriers to fruit consumption included cost, taste, and perceptions that fruits are not filling or versatile. Cost and perceptions that fruit is not filling were related factors. It would be a waste of money for someone with limited funds to purchase

something that is not filling and cannot be used in a variety of ways. Treiman et al. (1996) also found the expense of fruit was a major barrier to fruit consumption in a population of limited income women participating in the Women, Infants and Children Program. They did not, however, report that fruit consumption was limited due to perceptions that it is not filling.

### *Perspectives on Vegetable Intake*

Traditional ideas of what constitutes a meal were the most common reasons cited for consuming vegetables. The notion that vegetables go with the evening meal pervaded many discussions. Although this notion was commonly cited as a reason for consuming vegetables, it can also be considered as a negative influence on vegetable consumption. If vegetables are considered only as part of the evening meal, then vegetable consumption for the rest of the day is limited. This finding is corroborated by a survey examining fruit and vegetable behaviors of limited income women indicating that they were more likely to eat a vegetable at dinner (Quan et al. 2000).

An additional influence on vegetable consumption determined to be both a positive and negative affector was family influence. Women conveyed that they generally purchase and prepare vegetables that are well received by other family members. However, preferences of other family members are generally limited as indicated by a woman who stated that "we've tried broccoli and they [children] don't like it." Children's limited preferences often lead to lack of variety in vegetable consumption on the part of women.

Taste preferences were also determined to be both positive and negative affectors. Although many women stated that they consume vegetables because they like the taste, many others responded that they did not consume additional vegetables because of limited preferences. Lack of exposure to a variety of fruits and vegetables and forced consumption were the most likely reasons for limited taste preferences. Trieman et al. (1996) also reported that women participating in WIC programs had limited preferences for vegetables and that such limitations were due in part to preferences for other foods.

Vegetables were also perceived as having a positive influence on health status because of traditional values placed on vegetables. Several discussions involved the notion that vegetables are "good for you". Perhaps the best example of traditional notions of vegetables came from a group discussion in which one woman stated: "I think that as kids, we were taught to eat our veggies to grow up to be big and strong...and it makes you think that if you pass it down to your kids it becomes part of their life." Many women in this study felt responsible for the health of their children and had a desire to pass on to them the importance of eating vegetables to maintain good health.

#### *Perspectives on Grain Intake*

Grains were considered to constitute the preponderance of food intake. Besides the minimal cost of grains, the primary reasons for the consumption of grains stemmed from traditional ideas that grains can be consumed at various times throughout the day and are not limited to consumption at certain meals. Grains were also valued for the filling qualities, versatility, and stretching qualities. For very little money, grains can satisfy hunger and can be used to prepare many different meals or can be added to other



recipes to make them last longer. It must be noted however that the grains mentioned were not fiber rich grains but were refined grains including white bread, biscuits, noodles, and rice.

### *Perspectives on food intake during times of shortage*

The value that women place on grains was elucidated when the women were asked what they would buy if they were short on food and had only ten dollars to feed the family. Their responses (Table 2) were influenced by cost of the food items, and perceptions that the foods chosen were versatile and acceptable to all family members. The foods were also chosen because "that's the first four things to go: milk, bread, cheese, and meat...we buy groceries at the first of the month and we have tons of canned food and boxed stuff." Perishable foods are the first to be depleted and need to be refurbished in the household.

The depletion of food stuffs was influenced by the number of shopping events and inadequate funds. Many women in this study indicated that the bulk of shopping occurs once a month. This finding is similar to that observed by Fitchen (2000) who found that the purchase and consumption of food varied over the course of a month in Expanded Food and Nutrition Education participants and peaked following pay check distribution and food stamp allocation. Women in this study indicated a common practice of stockpiling foods that can be stored for a month. As such, when funds come in, that money goes towards the purchase of more perishable items that can stretch the foodstuff available in the household. For example, if flour is available in the household, the purchase of milk can stretch the flour and "you can make gravy, biscuits and gravy, gravy

for meat, or anything." Foods consumed in times of shortage are often high in fat, but are filling and acceptable for all household members.

Versatility of food items was highly valued when choosing food items for purchase when funds were limited. As one woman put it: "I consider that (lunchmeat, milk, bread, and cereal) getting by...I mean if you're short on cash and don't have anything in the house...if you get lunchmeat, like ham, you can fry it, eat it on a sandwich, you can do a few other things with it". The women in this study were quite savvy at "getting by" and "stretching" limited food supplies. Fitchen (2000) also noted that limited income women were ingenious at devising substitutes for ingredients and stretching foods available in the household.

In nearly all instances fruits and vegetables were not on the list of foods that would be purchased with ten dollars. Cost of fruits and vegetables as well as lack of familial acceptance were primary barriers to purchasing fruits and vegetables in times of money shortage. Quan et al. (2000) also found that the cost of fruits and vegetables was a major factor affecting fruit and vegetable intake in limited income women but they did not report familial acceptance as a factor influencing fruit and vegetable intake. However, the results of our research indicate that there is a reciprocal relationship between familial acceptance and cost of fruits and vegetables.

Perceptions of food intake during times of shortage were used to develop a decision tree model (Figure 2) that identifies the overall decision process leading to the purchase of foods. This model emphasizes the importance of affordability and household acceptance of food items. The introduction of new food items or luxury food items was only possible when the food item was on sale.

## *Conclusions*

The social role of limited income women in this study with respect to food is one of nurturance and martyrdom, that is, providing for the family and denying self wants. A definite hierarchy with respect to allocating and purchasing of food was evident from discussions in this study. The primary role of women in this study was to provide for others' food needs at the expense of their needs. Their preferences were secondary to the preferences of other household members. The existence of hierarchical food allocation most likely compromises the nutrient density of limited income women's food intake.

The avoidance of waste is a common sense approach to cutting food costs and influences the food choices of low income families. Purchasing habits of limited income women were strongly influenced by the desire to avoid food waste. Sensible ways to avoid food waste include purchasing foods that are acceptable for the entire family and avoiding the purchase of foods that are perishable, namely fresh fruits and vegetables. Strategies undertaken to avoid food waste lead to limited variety of food choices. However, limited variety is a much lesser problem than the possibility of limited intake of calories due to the purchase of a wide variety of more expensive foods. Funds for food are scarce and women cannot afford to purchase and prepare foods that are unacceptable for family members. Food choices that are considered inappropriate by nutrition educators may be considered quite appropriate by those whose food choices are limited by financial constraints (Crooks 1999).

## IMPLICATIONS FOR RESEARCH AND PRACTICE

Food choices are rooted in ecological, social, economic, and cultural aspects of limited income women's lives (Kendall et al. 1996, Crooks 1999, Pelletier 1999). Furthermore, barriers to food choices have been found to influence nutrition behavior more strongly than benefits (Dittus et al. 1995). Since household acceptance was a major barrier affecting the decision to purchase fruits, vegetables and whole grains, efforts to increase intake of these food groups should focus on the household level. Teaching a woman to consume more fruits will not be effective if she perceives it as unaffordable or if it is not acceptable for other household members.

Nutrition educators should consider the social role of limited income women and take a household approach when working with limited income families. From this study it appears important for educators to identify family preferences in order to increase fruit and vegetable consumption. Results of this study indicated that the preferences of women, the primary caretakers, were less important when making food decisions than the preferences of other family members. We suggest that involving children in the educational process will be more effective than educating women alone since their preferences were perceived to be important when making food choices.

The economic situation of households in this study was considered to be the major influence on the selection of fruits, vegetables, and grains. The financial constraints of limited income women must also be considered by nutrition educators. Identifying low cost foods that are acceptable to the entire family will be more likely to improve fruit, vegetable, and grain intake than focusing on the food choices of an individual. Providing recipes with cost per serving and utilizing foods that are already in

the eating plans of limited income participants will be more meaningful to participants in community nutrition programs that target limited income women.

Lack of money permeates the decision process and perspective of limited income women with respect to food choices. It is also evident from this research that nutrition education alone will not improve the intake of limited income women. Employment in low wage jobs and unemployment perpetuate the financial constraints of limited income families. Increased minimum wage, increased food stamp allocation and the elimination of food tax are ideas for improving the financial situation and thus, the food situation and health of limited income families.

When looking at health disparities that exist because of income and realizing that financial constraints restrict food choices, it is apparent that nutrition educators need to become more involved in policies that lie outside the traditional scope of the discipline (Nestle 1998). Establishing food recovery and gleaning programs and community or container gardening projects in community nutrition programs may offer solutions to inadequate fruit and vegetable intake (Hoisington et al. 2001, Kantor 2001, Vasconellis and Jordan 2000, Anonymous 1996). Foods from these programs provide low cost or free fruits and vegetables that may increase the variety in food choices. Since exposure to variety of fruits and vegetables is limited, programs such as these can provide opportunities for participants to try new foods and possibly develop a preference for them. These programs offer foods free of charge and thus allow for participants to free up food dollars that would normally be allocated towards some of these foods.

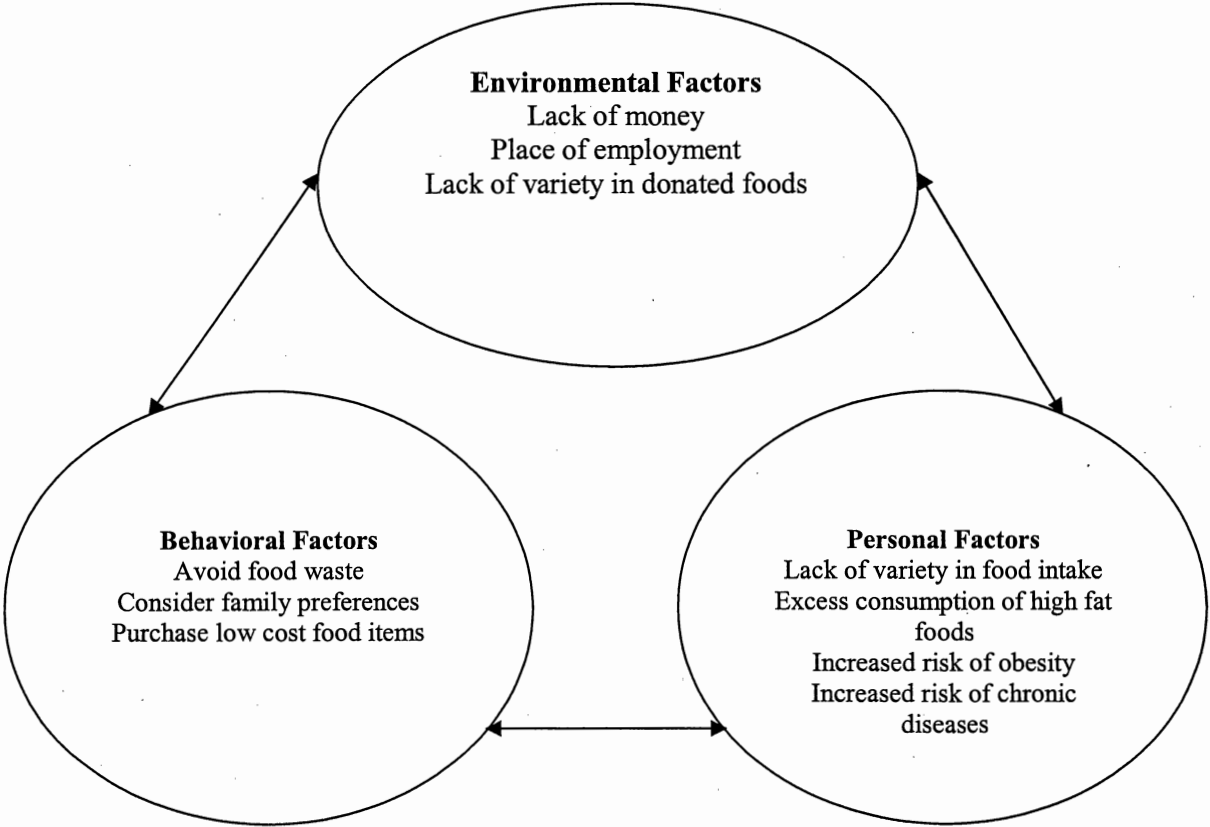
Future research is needed to quantify the number of times that limited income households experience food shortage and rely on foods that are high in fat and saturated

fat to satisfy hunger. Future research is also necessary to validate the results of the decision tree with limited income women.

#### LIMITATIONS

The qualitative nature of this study and small sample size limit the generalizability of results to larger populations. This study was also limited in ethnic representation, since the majority of participants were Caucasian. In spite of the limitations of this study, the results can be used as a framework for developing future studies aimed at understanding fruit, vegetable and grain intake in limited income women.

**Figure 1.** Conceptual model of the relationship of poverty to general food choices and health risks in limited income women.



**Table 1.** Semi-structured interview script

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Think back to the last time you ate a meal that you enjoyed. What did you eat?

How did you decide what to eat?

What are some fruits that you eat regularly?

- How many servings/day should a person eat fruit?.
- Why do you eat fruits? (*ask about canned/frozen*)
- How important is it to you to make sure that eat fruit ? *Expand if necessary*
- Why don't you add more fruit ?

What are some vegetables that you eat regularly? (*ask about canned/frozen*)

- How many servings/day should a person eat vegetables?
- Why do you eat vegetables?
- How important is it to you to make sure that you eat vegetables? *Expand if necessary.*
- What don't you eat more vegetables?

What are some grains that you eat regularly? *bread, cereal, pasta, noodles, rice*

- Why do you eat grains?
- How important is it for you to make sure that you eat grains? *Expand if necessary.*
- Would you be willing to eat more cereal? When?
- Why don't you eat more grains?

Think about the fruits, vegetables and grains that you eat. Which one do you think you are getting the most of/?

- Why do you eat more.....?
- Least of?

When you go to the grocery store and don't have much money, what do you make sure that you buy?

- How do you decide what to buy?
-



**Table 2 . Food choices of limited income women when funds are scarce.**

Food Response	Group Interview Responses (n=4) <sup>1</sup>	Individual Interview Responses (n=15)
Grains including: bread, cereal, cornbread mix, and flour	4	12
Milk (Whole)	3	7
Eggs	3	3
Meats including: hotdogs, tuna, lunchmeat	4	8
Potatoes	2	2
Butter (margarine <sup>2</sup> )	2	1
Boxed Meals including: Tuna Helper, Macaroni and Cheese	2	2
Cheese	1	1

<sup>1</sup>The question was not added until after the first discussion group.

<sup>2</sup> Participants referred to margarine as butter.



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## CHAPTER IV

### AN ETHNOGRAPHY OF HEART DISEASE RISK FACTORS IN LIMITED INCOME WOMEN

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#### ABSTRACT

Heart disease is the leading cause of death among women in the United States. Current research indicates substantial differences in the health status of women by income. An ethnographic approach was used to provide a social and cultural understanding of knowledge, beliefs, and behaviors associated with modifiable heart disease risk factors in economically disadvantaged women. Twenty five overweight Caucasian women (mean BMI=34) were recruited from a homeless shelter, public health department, food pantries, and a list of food stamp recipients. Data from in-home conversational interviews, picture sorts, and four day weighed food records were triangulated to provide a qualitative and quantitative view of modifiable risk factors for heart disease among research participants. Results from this study indicated that the majority of women were aware of modifiable risk factors and that 72% of participants considered themselves to be at future risk for the development of heart disease. However, the majority of participants have not adopted healthy lifestyles because of limited knowledge about risk factors and because of barriers that prevent them from making changes. Inadequate funds, childcare, and hectic

lifestyles were identified as primary barriers affecting women in this study. A general attitude of health pessimism cultivated by limited social support was evident among research participants. These data suggest that programs targeting heart disease prevention among limited income women need to be crossdisciplinary and address strategies for coping with life stressors and improved social support if significant health gains are to be made. This study was funded by the Department of Human Services, Food Stamp Program.

## INTRODUCTION

Income inequality in the United States has increased over the past three decades (Pappas et al. 1993). Overall heart disease death rates have declined since 1970, however, heart disease remains the leading cause of death in the United States and the progress among limited income populations remains less than that of those with more wealth. Death rates for heart disease are reportedly higher among those with limited incomes, regardless of gender, age or race (Pamuk et al. 1998). Additionally, disparities for women appear to be greater than those of men. Research has indicated that poor women are 3.4 times more likely to die from heart disease than those with the higher incomes (Pamuk et al. 1998).

Years of heart disease research have focused predominantly on males and unfortunately created an impression that heart disease is basically a male affliction despite the fact that it is the leading cause of death for women in all ethnic groups (Preuss 1993). The prevalence of cardiovascular risk factors among low income women is substantial while knowledge of heart disease risk factors is reportedly poor (Poduri &

Grisso 1998, Wamala et al. 1997, Williams et al. 1997). Such disparity in heart disease prevalence among poor women may be due to the fact that people with limited income are less able to alter their situations than those with more resources (Kingston & Smith 1997).

It has been suggested that those with low socioeconomic status are more likely to adopt a compilation of unhealthy lifestyle behaviors associated with illness and premature death (Shi 1998, Johansson et al. 1999, Singleton 1994). Current research indicates that health disparities among people of lower socioeconomic status may be attributable to a high prevalence of health risk factors such as sedentary lifestyles, cigarette smoking, heavy alcohol use, and obesity (Pamuk et al. 1998, Ernst et al. 1997). Limited income individuals may also be less aware of factors that prevent heart disease because of lack of education, limited access to and use of preventive health services, lack of social support, or hostile environments (Iribarren et al. 1997, Nayga 1996, Pamuk et al. 1998, Terris 1996). Such differences in health behaviors may result from social and cultural patterns as influenced by economic strain (Mcisaac & Wilkinson 1997, Terris 1996).

Many studies examining heart disease risk factors have not taken into account the fact that modifiable risk factors are a function of the social and cultural situation of limited income individuals. This study examined social and cultural determinants of heart disease risk factors using an ethnographic approach. Such an approach allows for a multifaceted investigation of health behaviors and the identification of emic viewpoints (Preston 1997). The elucidation of emic views of health is central to the amelioration of poor health outcomes in limited income women. The aim of this research is to identify



local terms and concepts of heart disease and to examine limited income women's perceptions of its causes, symptoms, severity, and consequences.

## METHODS

**Study design and population.** Conversational in-home individual interviews were conducted in a rural Midwestern county. Participants were met a minimum of three times in their homes to allow for the development of strong interviewer-interviewee bonds. In order to participate in the study, women had to be between 19 and 44 years of age, Caucasian, overweight (defined by a body mass index  $> 25$ ), and limited income ( $\leq 130\%$  of the 1999 Federal Poverty Guidelines, Appendix E). Participants were recruited (Appendix F) from a homeless shelter, public health department, food pantries, and a list of food stamp recipients. A \$75 incentive was provided to women for participating in three interviews and recording and weighing foods for a period of 4 days. Only the results of perceptions of heart disease will be presented in this paper. Participants also completed consent forms (Appendix G) in compliance with the Oklahoma State University Institutional Review Board (Appendix H).

During the first in-home meeting (Day 1), the researcher got to know the participant via informal questions and a demographic questionnaire was verbally administered. Following the introduction, the researcher collected a 24-hour dietary recall (Appendix J) and trained participants in the use of OHAUS LS5000 portable scales. Participants were required to keep a record of the amount of foods eaten for a period of 4 days using the scales. Following training in the use of the scales, the researcher and participant generally had informal conversations and a time was scheduled

for the next meeting (Day 2). On Day 2, the researcher reviewed the quality of weighed food records and made changes when the participants had not been descriptive enough in the recording of food items. Following the review of food records, the researcher asked questions pertaining to heart disease risk. Upon completion of the interviews, the researcher generally stayed for a minimum of 20 minutes and had informal conversations with the participant to close the session and set a time for the next meeting (Day 3). On Day 3, the researcher returned to clarify any findings from the previous interview and to ask follow-up questions when necessary. Participants were then asked to sort 61 commonly consumed foods identified from a previous research project examining food patterns in limited income women (Cook 2000). Only the foods commonly consumed by Caucasian women were used for the current study. Participants sorted the foods as being “high in \_”, “low in \_”, or “I don’t know” for each of the targeted nutrients, namely folate, cholesterol, and fat. These nutrients were chosen because of their relationship to heart disease risk and because the researchers were interested in learning about participants perceptions of these nutrients.

Participants in this study also participated in two additional interviews focusing on obesity and food allocation and purchasing habits, but the results of these interviews will not be presented in this manuscript.

**Dietary intake methodology.** The importance of avoiding lengthy periods of dietary intake reporting is necessary to minimize changing in eating patterns (Rebro et al. 1998). Combined dietary intake methodology has been proven an effective means of assessing

dietary intake (Peterkin et al. 1982). The 24-hour dietary recall and weighed food intakes were the methods chosen to assess dietary intake in the current study.

The 24-hour recall instrument (Appendix J) was administered by a single researcher in the participant's home. The multiple pass method was used to help participants remember foods that are commonly forgotten (Briefel et al. 1997). Participants were prompted to remember crackers, breads, rolls, tortillas, hot or cold cereal, added cheese, chips, candy, nuts, seeds, fruits eaten with meals or snacks, coffee, tea, soft drinks, juices, beer, wine, cocktails, brandies, and any other drinks made with alcohol. A food recall kit including common household measuring items, bean bags, a deck of cards, and photos of popular foods (Hess 1997) was used to determine foods consumed during the previous 24-hours.

Participants also completed four 1-day weighed food records. Participants were trained in the use of scales and recorded food items in gram weights for a period of four consecutive days. A single researcher demonstrated how to use the scales and participants were then asked to repeat the process. If any errors were made, the participant was asked to repeat the method until no errors were made. Scales and a booklet of written instructions (Appendix K) were left with participants. Participants were instructed to weigh and record food items in gram weights whenever possible and were instructed to record food items in common household measurements only if there was an eating event where scales could not be used (ie eating outside of the home). Participants were instructed not to alter their normal eating habits. The researcher called or visited the participant daily to ensure that the participant was not encountering any problems in the use of scales.

Weighed food records and 24-hour dietary recalls were analyzed using the Food Processor (version 7.2, ESHA, Salem, OR) program. Nutrients chosen for analysis included protein, carbohydrate, fat, cholesterol, folate, sodium, and fiber. These nutrients were chosen because of their relationship with heart disease risk. The sum of the nutrient levels from the 24-hour recall and the four days of the food record was calculated and used to compute mean intake levels of the identified nutrients and characterize the dietary intake of participants using SPSS (version 10, Chicago, IL).

**Quick sort methodology.** Quick sort (Q-sort) methodology has been used effectively in limited income populations to evaluate dietary consumption as well as knowledge and beliefs about foods and health (Yaroach et al. 2000, Lieberman 1998, Kumanyika et al. 1997). To determine perceived risk for heart disease, participants were asked to rank the leading causes of death. Participants were first asked an open ended question about the leading cause of death for women. Participants were then presented nine notecards in random order that were labeled with the leading causes of death in Oklahoma. Participants were asked to sort the notecards in descending order according to their perceptions of causes of death for women in Oklahoma. The researcher recorded responses (Appendix L) and data was entered into SPSS (version 10, Chicago, IL). The leading cause of death was identified by the greatest frequency of respondents ordering a cause of death as number one. Each subsequent cause of death was ordered using a forward selection process. At each subsequent level, frequencies were summed to determine the next leading cause of death.

The trichotomous Q-sort technique was used to identify participants' knowledge of cholesterol, fat, and folate content of commonly consumed foods. Foods to be included in the sort were identified from a previous research study of limited income women (Cook 2000). Cook (2000) used the 100-item Block 92 food frequency questionnaire (Block 92 FFQ) to identify food patterns. For the present study, 50 items were identified as being most frequently consumed. Because several foods often fell on 1 line item, food items were disaggregated and a total of 61 individual food items were identified for inclusion in the sort. For example, the butter, margarine and other fats added to vegetables, potatoes were one line item of the Block 92 FFQ. Separate cards for butter and margarine were created because the cholesterol content of these foods is quite different. For other line items containing more than one food, the researchers chose one food based on their subjective assessments of what best represented the food intake of the population. For example, orange juice and grapefruit juice were on another line item and we chose orange juice to represent this line item of the Block 92 FFQ.

The National Dairy Council food model set of color food photographs in standard portion sizes was used to make cards for sorting. Foods were randomly sorted and given to participants to categorize as high cholesterol/low cholesterol/not sure, high fat/low fat/not sure, and high folate/low folate/not sure. The not sure category was used to alleviate anxiety if participants were uncertain about the composition of a particular food (Lieberman 1998). Participants were encouraged to ask questions if they were uncertain about how food items were prepared. Following each sort, participants were asked if they were comfortable with how they sorted the cards and were encouraged to reclassify any cards if desired. If participants were satisfied with their sort, foods were recorded

according to their classification (Appendix M) and later entered into an Excel file. Frequencies were then calculated to determine the level of knowledge associated with the composition of foods. Correct knowledge was defined according to food label guidelines (US Food and Drug Administration 1999). High fat foods were defined as having  $\geq 3$  grams per serving, high cholesterol foods were defined as having  $\geq 20$  mg of cholesterol, and high folate foods were defined as containing at least 10% of the Daily Value per serving amount. The researcher then subjectively assessed participants' knowledge by comparing the results of participants' sorts to the criteria established.

Participants were also asked to order their greatest concerns in life. They were handed blank cards and instructed to write one concern on each card. The researcher did not set a limit on the number of concerns. Participants were allowed to use as many cards as needed. After the participant had written all the things that caused her to be worried, concerned, or stressed, she was asked to order the cards from greatest concern to least concern. Participants were then handed two cards by the researcher. On one card stated good nutrition and the other stated losing weight. Participants were then asked to reorder their concerns with the new cards added to their concerns. Coded concerns were entered into an SPSS database (SPSS version 10, Chicago, IL) so that frequencies could be determined. The greatest concern was defined as the concern that was expressed most frequently as the number one concern. At each subsequent level following the number one concern, frequencies were summed to determine the next most frequent concern. A hierarchical model was then developed based on frequency of concerns.

**Interview methodology.** A feminist approach was taken when conducting interviews. Such an approach fosters an environment of sharing and permits the divulgence of information that would not normally be gained using traditional androcentric methods that assert a sharing environment imposes biases upon the research content (Reinharz 1992). Creating an environment of trust helped form strong bonds between the researcher and participant and built content validity because when there is trust, fewer guards are up and participants become more comfortable sharing information than may have been shared because of feelings of discomfort with the researcher (Reinharz 1992).

Interviews were conducted in the homes of research participants. Homes were chosen so that observations could be made about lifestyle and interactions among household members. The home was also chosen as the location for interviews because it provided a more comfortable environment for participants and because previous experience indicated that it is more difficult to recruit participants when they have to travel any distance.

A semi-structured interview script was developed using a constructivist framework which allowed for the generation of new concepts that lead to theory development. The interview script was developed by the researchers with the following objectives in mind:

1. To identify perceived personal risk for heart disease
2. To identify participants' knowledge and awareness of heart disease and how to prevent it
3. To identify perceptions of exercise and identify of barriers to increased physical activity

4. To identify sources of health information
5. To identify of life stressors that may interfere with improved health status

These topics were identified from a review of the literature and based on the systematic approach to health improvement and the elimination of health disparities as identified by Healthy People 2010 (US Dept. of Health and Human Services 2000).

All interviews were audio-taped and subsequently transcribed verbatim. A single researcher trained in ethnographic techniques analyzed all transcripts by means of content analysis. An additional researcher not involved in the data collection process read all transcripts to validate results. Each audio-tape was listened to and read in its entirety and compared to field notes of observations to get a sense of the whole. Data were constantly compared and emic views were used to develop higher level concepts (Williams et al. 1997). Major themes, key events, and patterns were identified from emic responses which represented women's knowledge and attitudes of behavioral risk factors for heart disease (Atkinson 1992, Fetterman 1998). An inductive and interpretive framework was used to elucidate meaning.

The beliefs and knowledge of causes, symptoms, impact, and treatments for heart disease were organized into an ethnomedical model. Such a model assumes that illness is a paradigm of cultural system and provides good insights into the epistemology of illness (Nichter 1992).

**Triangulation of data.** Triangulation of data is considered essential to ethnographic research. Using multiple sources of information allowed the researcher to compare sources of information and test the quality of information obtained (Fetterman 1998,



Chenail 1997). Mean nutrient intakes calculated from 24-hour recalls and four 1-day food records were used to subjectively compare participants' perceptions of heart disease risk to actual risk based on diet. Picture sorts were used to lead to a greater understanding of the level of knowledge that participants had about dietary risk factors. Participants were asked open ended questions about factors leading to heart disease and picture sorts were used to determine whether they were knowledgeable or merely aware of dietary risk factors. Observations of living situation and interactions with household members were compared to participants' descriptions of their life situations. Such observations led to a more in-depth understanding of the social and cultural situation of women in this study.

## RESULTS

**Sociodemographic characteristics of the sample.** Twenty-seven participants completed a demographic interview to participate in the study. One participant agreed to participate in the study, but was not at home for the scheduled interviews and was dropped from the study. Another participant was recruited by referral from another participant and the results from this participant are not presented in this report because she was not of the targeted racial/ethnic group. Table 2 presents the sociodemographic and heart disease risk profile of study participants. The study sample was limited to Caucasian women to minimize the influence of ethnicity in response. A total of twenty-five Caucasian women 20 to 44 years of age participated in this study.

All participants were limited income based on the inclusion criteria of having a household income at or below 130% of the 1999 Health and Human Services Poverty

Guidelines (Federal Register 1999). The economic situation of study participants was grim with 60% of women reporting a household income of less than \$10,000 per year and 28% reporting household incomes less than \$15,000.

In order to participate in this study, women had to have a body mass index greater than or equal to 25 because they are considered at greater risk for developing heart disease than those with lower BMIs (NIH 1998, Ernst et al. 1997). Height and weight were self-reported. One participant in the study refused to report her weight because of embarrassment, but it was visually evident to the researcher that her BMI was greater than 25.

Heart disease risk factors were prevalent in this population (Table 2). Sixty-eight percent (n=17) of participants reported smoking. Mean BMI for this sample was 33.9. Participation in physical activities was reported by 56% (n=14) of participants. However, later discussions with women indicated that “caring for and running after children” were the principle forms of physical activity. Activities for the sake of exercise were seldom reported among women.

**Perceptions of current health.** Results from in-depth interviews indicated that nearly 80% of women described their health as being fair or poor. Current weight and poor diet were the most common reasons cited for poor health. Additional physical ailments were also commonly cited. Women in this study reported a variety of health concerns such as carpal tunnel syndrome, asthma, endometriosis, and stomach and back problems. Lack of exercise, fatigue, depression, smoking, and stress were also cited as reasons for poor health.

Although many women in this study perceived themselves as being at risk for developing heart disease later in life, the results of the open ended question asking what was the leading cause of death indicated that 15 of the 25 women thought some type of cancer was the leading cause of death. Only 3 of women thought that heart disease was the leading cause. The majority of women in this study also felt that men were at greater risk for the development of heart disease because of perceptions that women are generally more health conscious than men. It is also interesting that 4 women reported that “stress and men” cause death in women.

Analysis of the leading causes of death Q-sort for women (Table 3) indicated that women were somewhat knowledgeable about the top four causes of death with the exception of cancer being perceived as a more common cause of death than heart disease. It is also interesting that diabetes, kidney disease, and suicide were perceived as more prevalent than they actually are. When asked how decisions for the ordering were made, women in the study responded that they considered illnesses that their friends and family members have experienced. As such, their ordering was influenced by personal experience.

**Knowledge and awareness of heart disease risk factors.** Figure 1 depicts an ethnomedical model of limited income women's perceptions of the causes, symptoms, severity, and consequences of heart disease. Many participants in this study learned about heart disease by watching family members experience or dying from it. As such, heredity was commonly cited as cause of heart disease. And, because of traumatic

experiences with heart disease, it was perceived as being scary and leading to death by many.

Consumption of a poor diet was commonly stated as being causal for heart disease. Many participants felt that consumption of high fat, high cholesterol and greasy foods could lead to heart disease later in life. Although participants were aware that poor diet is a risk factor for heart disease, their diets did not indicate that they were taking action to prevent heart disease (Table 4). The mean kcal intake for this group of women was  $2298 \pm 1024$ , exceeding the current US Dietary Guideline (2000) recommendations of 1600 kcal for sedentary women. Fiber intake (mean  $11 \pm 6$ g) and folate intake (mean  $258 \pm 332$ µg) were both less than current recommendations while protein intake (mean  $73 \pm 39$ g), sodium intake (mean  $3488 \pm 1646$  mg), and fat intake (mean  $83 \pm 51$ g) exceeded current recommendations for good health. Cholesterol intake was similar to current recommendations.

Although interviews with women indicated they were aware that high cholesterol and high fat diets promote heart disease, their knowledge of these dietary components was poor as evidenced through trichotomous sorts of food items. Knowledge about folate was poorest with only 5 participants attempting to sort foods for folate (Table 5). The remaining 20 participants classified all foods in the category of unsure. When the five participants were asked how they learned about folate or folic acid, they indicated television commercials and nutrition education while they were pregnant. One participant who sorted the cards for folate felt that foods that were high in folate were also “acidy”.

As participants were sorting foods according to fat content, it became apparent that many were not knowledgeable about the fat content of many foods. For this reason, the researcher asked what they were considering when sorting foods for fat content. The majority of participants considered foods high in fat to be “fattening to the body” or “high in calories”. This perception is evident from the results of the trichotomous sorts (Table 6) in that sweetened tea, sugar, and kool aid were classified as being high in fat by the majority of participants despite the fact that they are all low fat foods. It is also interesting that high fat grains such as muffins, biscuits, pancakes and cornbread were primarily classified as being low in fat. Mixed foods such as spaghetti and meatballs, tacos and tuna salad were also perceived as low in fat, but were actually high fat foods. Knowledge about the fat content of dairy foods was mixed with most participants correctly classifying whole milk as high fat food, but 14 participants classified American cheese as either low in fat or they were uncertain about the fat content. Participants were knowledgeable about the fat content of fruits and vegetables with the majority of participants correctly classifying them as being low in fat. For the most part, knowledge of the fat content of meats was high since participants identified fried meats as being high in fat and roasted meats as being low in fat.

Knowledge about the cholesterol content of meats (Table 7) was relatively low for the meat group. Participants related cholesterol content to “the way foods are cooked” and as being “fatty or greasy foods”. Their perceptions about the way food is cooked affecting the cholesterol content was evident in that most participants classified roasted meats as being low in cholesterol while the rest of the meats were primarily classified as being high cholesterol foods. Participants did not relate cholesterol content to foods of

animal origin. This was evident in the large number of participants who classified french fries, margarine, potato chips, soft drinks, and sugar as being high cholesterol foods.

In addition to dietary factors, participants were also aware of lifestyle factors that promote the development of heart disease. Smoking, stress, lack of exercise, alcohol consumption, obesity, and infrequent doctor visits were cited as factors contributing to the development of heart disease (Figure 1). Discussions with women indicated that most only visited the doctor when they were ill even though they were aware of the importance of visiting the doctor regularly. Conversations with participants revealed a pessimistic attitude towards doctors because they were perceived as “talking above them”. Additional barriers to regular doctor’s visits included long waiting periods and expense. The majority of women in this study were uninsured and relied on public health departments for healthcare.

When asked if any types of people would be at greater risk than others for developing heart disease, participants most frequently identified those who are overweight as being at greatest risk for developing heart disease. Stressed out people (including single parents, people in abusive relationships, mentally ill and workaholics) and poor eaters were identified next. Some participants also felt that everyone is at equal risk for developing heart disease while others felt that smokers, non-exercisers and the elderly would be at increased risk for developing heart disease. Even though many women identified smoking as a risk factor for heart disease, some did not believe smoking increased heart disease risk in all people. This sentiment was evident in references to grandparents or parents who had lived a long time despite the fact that they had been smokers. There was a general perception that several risk factors were

necessary to develop heart disease. When participants were asked why they felt a particular family member was at risk they would state because “he smokes and he’s fat” or because “she don’t eat right and drinks all the time”.

**Awareness of heart disease symptoms.** Although some participants were uncertain how a person could tell if they have heart disease, those who had watched family members experience the disease were more aware of symptoms of heart disease, as is evident in Figure 1. Pain in the chest was most frequently stated followed by shortness of breath. Some participants felt that there were no signs for heart disease, and you would only find out after having a heart attack. The remaining symptoms were stated less frequently. Most participants were unaware of more than one or two symptoms. As such, a relative uncertainty surrounding the symptoms of heart disease was evident in this group of women.

**Perceived impact of heart disease.** Many women felt that being diagnosed with heart disease would bring about physical and mental challenges that would impact the entire household. Having heart disease would limit the person’s physical capacity to care for the family and lead to depression, worry and concern over personal health, and also the family’s well being. Participants also considered the diagnosis of heart disease as being financially straining to the household because there would be more bills. Some women also felt that being diagnosed with heart disease was ultimately a death sentence. It is also interesting that some women felt having heart disease would “force” them to make lifestyle changes that they would not otherwise undertake. That is, if they want to live,

they will have to alter their eating, exercise and smoking habit. Diagnosis of heart disease was generally perceived as being necessary before lifestyle alterations would be made.

**Awareness of heart disease treatments.** The alteration of lifestyle factors was recognized as an important component of treating heart disease. The role of medicine, surgery and other more invasive procedures were also recognized. Participants were also aware of the importance of visiting the doctor more frequently and of the importance of following the doctor's orders.

**Perceptions of physical activity.** When asked to describe a typical day of activities, women reported housework and childcare as the major forms of activity. Child rearing was perceived as being a major barrier to incorporating physical activity into their lifestyle. Observations of participants' interactions with children indicated caring for children was high maintenance. Some portions of the transcripts were unintelligible because of children "misbehaving". Care for children was often perceived as work in itself and additional exercise was not perceived as necessary.

Most women reported that they were less active now than 5 to 10 years ago. Advanced age and having children were the most common reasons for a decline in physical activity over the years.

Although women considered exercise to be "good for you" most women felt that they were too tired to exercise after work and their schedules were too hectic. Some women also reported that excess weight prevents them from exercising. For some,



putting on clothes to exercise in was perceived as embarrassing because of the excess weight. And for others, the excess weight made it physically difficult to exercise.

Walking was most commonly perceived as being an activity that could be included in current lifestyles. In order to incorporate more physical activity, women reported that they would need assistance in caring for their children and they would need to find a friend to exercise with them. Social support was perceived as being very important in beginning and maintaining an exercise regimen. Women reported that they would be more likely to exercise if they had someone to exercise with. When asked who the person should be, they responded that the person should be of the same gender and from a similar socioeconomic background.

**Life Stressors.** Conversations and observations in households revealed stressful lifestyles. Stress was often brought about by limited finances. Most women were either unemployed or employed in jobs yielding low wages such as fast food restaurants, or custodians. The total number of concerns expressed by participants ranged from one to eleven.

Participants' ordering of life concerns (Figure 2) indicated concerns about their financial situation and welfare of their children were the most pressing issues. Paying bills, finding employment and transportation were high priorities for these women. Making ends meet was a concern for women. Concern over having enough money to pay for housing, utilities, and outstanding bills caused a lot of worry and stress for these women. Having enough food for the family and fears of being "cut off food stamps" were concerns for some women in this study. While in the household, phone calls from

bill collectors were not uncommon, and many participants did not have phones because they could not pay their phone bill.

Participants were also very concerned about the welfare of their children. Feeding and providing for children was a high priority. A compilation of problems was revealed by participants about their children from Attention Deficit Disorder to physical or sexual abuse. Many children had behavioral problems resulting from previous abuse. Physical ailments were not uncommon among the children of women in this study. Caring for children with behavioral and/or physical problems was perceived as very stressful. Worry over having enough resources to provide for children was also a concern.

Many women in this study also reported current or past tumultuous relationships with significant others. Transient diatribes were described by women and it was evident that relationships with men were a source of grief. Familial relationships were also sometimes strained because of previous abuse. Some women reported having been abused as children and strains on relationships persisted to the present.

Reports of ill family members were not infrequent. Parents, siblings, spouses and grandparents were reportedly in poor health and concern over their well-being was often expressed.

Living situations were also problematic for some women. Financial constraints caused some women to share living space with roommates or family members. Observations of participants living situations revealed cramped living quarters and dissent over who would tend to household chores. For others there was concern about the

safety of neighborhoods since limited finances led to the attainment of cheap housing in less desirable neighborhoods.

Social isolation was also an expressed concern for some women. Being alone without anyone to help with their current situation was considered a cause of stress for some. A few women also reported that they were concerned about pending legal situations such as removal of children from the home, drug charges, child abuse cases and custody cases.

None of the women listed anything related to eating a good diet as a concern. Concerns about nutrition were expressed in terms of having enough food to feed family members. Weight loss was only listed by one participant as a concern. When participants merged the nutrition and weight cards with their concerns, nutrition appeared as more important than weight loss. Good nutrition was ordered by most women as a higher concern than losing weight. None of the participants placed weight loss or good nutrition as their number one concern.

**Sources of health information.** Women in this study generally learned most of their information about heart disease and health from television and reading. Women's magazines, health magazines, cookbooks, and fliers in waiting rooms of doctor's offices were the most commonly cited reading materials. Additional health and nutrition information was obtained by watching family members and friends experience an illness or learned during pregnancy, times when personal contact with health professionals was more frequent. Although few, women who took home economics in high school reported learning a great deal about nutrition and health through these classes. And, women who

were required by law to take parenting classes reported that they learned a lot about health and nutrition in these programs.

## DISCUSSION

Despite the fact that cancer was perceived as more serious than heart disease, personal risk for heart disease and the prevalence of heart disease risk factors among women in this study were high and consistent with the findings of previous research (Poduri et al. 1998, Gettleman et al. 2000). Although the majority of women felt that they were in poor health and susceptible to the development of heart disease, none were currently making any efforts to change lifestyle factors identified as contributing to individual heart disease risk. This finding is consistent with that of Humphries and Krummel (1999) who found that perceived susceptibility to heart disease was not significantly related to intention to change diet, indicating that simply perceiving oneself as being at risk is not sufficient to bring about behavior modifications conducive to cardioprotection. Schoenberg (1997) also reported that lack of perceptions of chronicity limited the importance of making lifestyle changes in a population of African American elders. Findings from our research indicate social and economic barriers are likely to prevent women from making changes and supercede perceptions of personal risk.

For the most part, women in this study perceived themselves as having very little control over their health behaviors because financial burdens as influenced by unemployment or employment in low wage jobs prevented them from tending to personal health. In our study, obligations to care and provide for children were higher priorities than personal needs since household funds were insufficient to maintain households. We

suggest that financial insufficiency led many women to have pessimistic and skeptical attitudes towards the feasibility of implementing behavior changes. Such skepticism and pessimism is understandable given the life situations of limited income women in this study. Findings of skepticism and pessimism are not unique to this study and have been reported by others examining limited income women's abilities to change behavior (Williams et al. 1997). Williams et al. (1997) also found that women perceived themselves as incapable of being healthy because of a lack of money.

The isolation and chaos experienced by women in this study were major barriers to exercising. Others have reported the importance of family support in making and sustaining behavior changes (Krummel et al. 2002, Preston et al. 1997). However, the majority of women in this study were single and forced to cope with a life on their own. Merely surviving from day to day for these women was challenging. Financial crises were abundant and childcare difficult. Being the primary caregiver and provider is challenging for limited income women. It is likely that everyday challenges are perceived as greater immediate priorities than the distant possibility of developing heart disease (O'Loughlin 1999).

Stress management is an important component of overall health and many women may adopt unhealthy habits in an attempt to deal with stress. Food and smoking may be used as coping mechanisms for those women without the economic means or social support necessary to seek aid in dealing with life stressors. It has been observed by others that individuals choose which health messages they can comfortably identify with and disregard the rest (Preston 1997). Utilizing this perspective, it could be implied that women in our study choose to disregard health messages regarding dietary intake and

smoking because they cannot identify with them. For these women, smoking and eating may be immediate compensatory mechanisms for dealing with a multitude of life stressors.

Pessimistic attitudes towards the current healthcare system were evident in this study and have been reported in other research studies (Gabhainn et al. 1999, Singleton 1994). Reliance on the public health system because of limited finances and no health insurance led many women to seek medical advice only in situations of illness. Women in this study were disenchanted by the current system because of long waiting periods and impersonalized physician care. Changes in the current healthcare system are necessary if limited income women are expected to visit the doctor regularly.

Employment in low wage jobs where there is little chance of upward mobility has been associated with deleterious health behaviors (Landsbergis et al. 1998, Lynch et al. 1997). From our study it was evident that employment in low wage jobs with no healthcare benefits does little to improve the health of limited income women. Employment for financially challenged single caregivers may lead to increased stress. Others have reported that employment in jobs that are psychologically demanding with little economic reward can have a negative impact on health status (Lynch et al. 1997). It was often difficult for financially strained women to meet the costs for housing, healthcare, food, electricity, and phone. Women were forced to prioritize the basic necessities of living and healthcare for these women was not perceived as an immediate necessity, but as something that can be put off until illness prevails. Krummel et al. (2002) also found that limited income women were not motivated to make behavior changes until something drastic happened to make them change. Results from our study

indicate that reasons for such a delay in implementing behaviors most likely result from financial constraints that force women to prioritize the basic necessities of living.

Barriers to undertaking an exercise regimen were abundant among women in this study. Responses from women imply that every day living is strenuous, tiring, and sufficient to meet their exercise needs. It is quite possible that women psychologically exert a great deal of energy in dealing with life stressors and little energy remains for engaging in physical activities. Perhaps, the promotion of exercise as a means of alleviating stress would be a means of motivating women to get active. It is also important to recognize the importance of social support in initiating an exercise program. Women in this study and others emphasized the importance of having someone to share in the undertaking of behavior change (Krummel et al. 2002). For women in our study, having the support of someone from a similar socioeconomic background with similar experiences was considered important. Interventions aimed at preventing heart disease should incorporate the "buddy system" where participants are partnered together to share and offer encouragement throughout the process of behavior change.

Previous studies have indicated lack of knowledge about dietary factors influencing health status in limited income populations (Kloeblen 1999, Poduri & Grisso 1998). Although participants in the study verbalized that cholesterol and fat intake were considered risk factors for heart disease, they were less knowledgeable about these risks when asked to sort foods according fat and cholesterol content.

Findings from this study indicate that a reciprocal relationship exists among financial strain, life stressors, and heart disease risk. We suggest that improvement in health can only be attained if financial strain is dealt with. Financial strain likely

increases the propensity for life stressors and impedes the implementation of healthy behaviors. Eating healthy and incorporating exercise for women in this study were not expressed concerns, because they were dealing with a number of other challenges that were brought about because of their financial situation. Proper attention to their personal health and the health of their children was not possible because they did not possess adequate resources to attend to them. We posit that the attainment of good health is a luxury and that the motivation to make lifestyle changes is only possible if immediate concerns are met.

The qualitative nature of this study and small, purposive sample limit the generalizability of results to larger populations. Additionally, communities are not generally limited to one racial/ethnic group and this study was limited in ethnic representation, since all participants were Caucasian. In spite of the limitations of this study, the results can be used as a framework for developing future studies aimed at understanding heart disease risk factors in limited income women.

#### IMPLICATIONS FOR RESEARCH AND PRACTICE

The development of culturally relevant and economically realistic heart disease prevention programs is necessary to minimize the health gap between economically advantaged and disadvantaged populations. The complex nature of the lives of limited income populations makes the implementation of cardioprotective behaviors difficult. Findings from this study indicate that it is necessary for educators to identify social factors that influence heart disease risk behaviors in order to effect lifestyle changes.



We suggest that public education about the long-term health consequences and risks associated with heart disease are not effective tools for reaching limited income audiences. Limited income populations may be more concerned with addressing their immediate concerns than preventing a disease that will not occur for many years.

Perceptions of minimal control over health status among limited income women because of stress and financial constraints are issues with broad implications. Nutrition educators should become familiar with program participants' concerns that are beyond the scope of nutrition and health and make appropriate referrals to agencies equipped to assist in improving their situation. Helping program participants find resources within their communities to find gainful employment, encouraging participants to enroll in educational programs that will increase their marketability in the job place, and addressing other concerns is necessary to improve the health of limited income populations.

In addition, to the identification of extraneous programs, educators have an opportunity to strengthen collaborations with other disciplines to develop holistic programs targeting physiological, psychological, social and environmental factors influencing health behaviors. Programs targeting heart disease prevention among limited income women need to be crossdisciplinary and address strategies for coping with life stressors and improved social support if significant health gains are to be made.

Cooperative Extension Service programs have an opportunity to improve the health of limited income populations because of the diverse areas of expertise located at the county level. Programs targeting improved nutritional status, like the Expanded Food and Nutrition Education Program and Food Stamp Nutrition Education Program, should

coordinate with other Cooperative Extension Service programs at the county level to offer limited income populations a wider array of programs depending on their needs. Impact areas targeting money management, family resiliency, and public deliberation would be beneficial in improving the situation of limited income audiences. Cooperative Extension Service educators should consider integrating program efforts to offer a wider array of services to limited income audiences than traditional nutrition education programs.

Research is needed that is directed towards social change. Community action research is necessary to ensure that the content of the prevention efforts developed is tailored to meet the needs of the communities and populations being served (Healthy People 2010, Travers 1997). Involving communities as equal partners in research will help enhance the sustainability of research-based interventions and prevention programs by ensuring that the lessons of research are transferred back into programs of lasting benefit to communities (Healthy People 2010).

**Table 1.** Semi-structured in-depth individual interview script.

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1. What does healthy mean to you?
    - When I say health or healthy, what comes to your mind?
  2. Describe your current health to me. Tell me how you have felt over the past few weeks.
  3. What, if any, health concerns do you have? What are the major health concerns of other women you know?
  4. What do you think about when I mention heart disease?
  5. Do you consider yourself at risk for heart disease? Let's discuss this a bit. What makes you consider yourself at risk? or What are the reasons that you do not consider yourself at risk?
  6. What do you think causes a person to get heart disease?
    - What are the reasons that you think \_\_\_\_\_ causes heart disease?
    - How did you know about the information that you just told me?
  7. Who do you think is at risk for developing heart disease?
  8. What are the consequences of developing heart disease? or What happens to a woman once she develops heart disease?
  9. How can a person tell if they have heart disease? How do they feel?
  10. Tell me about anything that you know of that might keep a woman from developing heart disease.
    - What are the reasons that you think \_\_\_\_\_ prevents heart disease?
    - Where did you learn this information?
  11. What are the treatments for heart disease that you know about?
  12. Are you concerned that any of your family members may develop heart disease? Who are you concerned about? What are the reasons that you are concerned about this person?
  13. Let's talk about your daily activities now. Describe to me what you do in a typical day.
  14. How would you compare your daily activities to other women of your age that you know?
  15. What do you think about exercising?
  16. Describe to me any exercises that you do or tell me the reasons that you do not exercise.
  17. Compare your activity level today to that of 10 years ago? If different ask what makes the activity level different now from then.
  18. Tell me about any exercises that you think you might be able to include in your lifestyle?
    - How do you think that you would be able to incorporate these into your life?
  19. Tell me about your responsibilities in the household.
  20. Think about your life currently.
    - What are your major concerns?
    - What causes you to become stressed?
-

**Table 2.** Sociodemographic and heart disease risk factors in limited income women (N=25).

Characteristic	Mean	Std. Deviation
Age (years)	31.5	6.0
Level of education (years)	11.6	1.5
Number of children	1.7	3.1
Monthly food stamp allotment (dollars)	96.7	135.1
Heart Disease Risk Factors		
BMI	33.9	6.04
Number of cigarettes/day	16.1	10.3
Number of years smoked	15.8	8.4
Number of drinks per drinking occasion	8.3	8.0
	N	%
Employment Status		
Full time	8	32
Part-time	2	8
Homemaker	1	4
Unemployed	14	56
Annual household income		
<\$10,000	15	60
\$10,000-\$14,999	7	28
\$15,000-\$19,999	2	8
\$20,000-\$24,999	1	4
Health Insurance		
Yes	10	40
No	15	60

**Table 3.** Comparison of limited income women's ranking of leading causes of death with actual ranking (N=25).

Leading causes of death for women in Oklahoma*	Participants' perceptions of leading causes of death for women in Oklahoma
1. Heart disease	Cancer
2. Cancer	Heart disease
3. Stroke	Stroke
4. Lung disease	Lung disease
5. Pneumonia and flu	Diabetes
6. Accidents	Kidney disease
7. Diabetes	Accidents
8. Kidney disease	Suicide
9. Suicide	Pneumonia and flu

\* Leading causes of death are in descending order and were derived from Oklahoma Health Statistic reports (1996-1997)

**Table 4.** Comparison of dietary intake in limited income women with current recommendations for good health (N=25).

Nutrient	Mean	Std. Deviation	Recommended Intake	% Current Recommendations
Energy (kcal)	2298	1025	1600 <sup>1</sup>	144
Fat (g)	87	47	53 <sup>1</sup>	164
Saturated fat (g)	31	17	18 <sup>1</sup>	172
Cholesterol (mg)	302	237	300 <sup>2</sup>	101
Fiber (g)	11	7	25 <sup>2</sup>	44
Sodium (mg)	3488	1646	2400 <sup>1</sup>	145
Folate (µg)	258	331	400 <sup>3</sup>	65

<sup>1</sup>Dietary Guidelines for Americans 2000 recommended level

<sup>2</sup>National Cholesterol Education Program recommend level

<sup>3</sup>Dietary Reference Intake recommended level

**Table 5.** Limited income women's responses to trichotomous folate food sort (N=25).

<i>Food Item</i>	<i>Low Folate</i>	<i>High Folate</i>	<i>Don't Know</i>
<i>Grains</i>			
Saltine crackers*	2	0	23
White bread*	2	0	23
Biscuit*	2	0	23
Chocolate chip cookies*	1	0	24
Cornbread	2	0	23
Cornflakes*	2	0	23
Muffin*	2	0	23
Pancakes	2	0	23
Flour tortilla*	2	0	23
Tortilla chips	3	0	22
White rice*	2	0	23
Doughnut*	2	0	23
<i>Fruits</i>			
Orange*	1	3	21
Orange juice*	1	3	21
Fruit cocktail	0	2	23
Banana	1	1	23
<i>Vegetables</i>			
Carrots	1	1	23
Green beans	1	1	23
Baked beans	0	3	22
Corn*	1	1	23
Green peas	1	1	23
Tomato	0	2	23
Tossed salad*	1	1	23
Mashed potatoes made with margarine	2	0	23
Potato chips	1	0	24
French fries	2	1	22
Salsa	0	3	22
<i>Milk</i>			
American cheese	1	1	23
Whole milk	2	0	23
Ice cream	1	1	23
<i>Meat</i>			
Bacon*	2	1	22
Fried chicken	2	1	22
Fried eggs	1	1	23
Fried pork chop	0	0	25
Pork sausage	2	1	22
Bologna	3	0	22
Roast beef	2	0	23
Roasted turkey breast	2	0	23
Roasted chicken	2	0	23

\*Indicates a high folate food ( $\geq 10\%$  Daily Value per serving).

Table continued on next page

**Table 5.** Limited income women's responses to trichotomous folate food sort (N=25), continued.

<i>Food Item</i>	<i>Low Folate</i>	<i>High Folate</i>	<i>Don't Know</i>
<i>Other</i>			
Butter	2	0	23
Chocolate bar	2	0	23
Mayonnaise	1	1	23
Margarine	1	1	23
Kool aid	1	2	22
Sugar	1	0	24
Sweet tea	1	1	23
Ranch dressing	2	0	23
Soft drink	2	1	22
<i>Mixed Dishes</i>			
Gravy	3	0	22
Hotdog	3	0	22
Macaroni and cheese	1	1	23
Beef and bean burrito*	2	1	22
Beef stew	0	3	22
Meat pizza	1	2	22
Cream of tomato soup	1	2	22
Cheeseburger	2	1	22
Chili with beans	0	3	22
Spaghetti & meatballs	1	2	22
Taco	1	2	22
Tuna salad	2	1	22

\* Indicates a high folate food ( $\geq 10\%$  Daily Value per serving).



**Table 6.** Limited income women's responses to trichotomous fat sort (N=25).

<i>Food Item</i>	<i>Low Fat</i>	<i>High Fat</i>	<i>Don't Know</i>
<i>Grains</i>			
Saltine crackers	19	5	1
White bread	18	6	1
Biscuit*	16	6	3
Chocolate chip cookies*	2	23	0
Cornbread*	16	4	5
Cornflakes	22	1	2
Muffin*	14	10	1
Pancakes*	14	6	5
Flour tortilla*	17	6	3
Tortilla chips*	10	15	0
White rice	22	2	1
Doughnut*	2	23	0
<i>Fruits</i>			
Orange	23	1	1
Orange juice	22	1	2
Fruit cocktail	17	7	1
Banana	24	1	0
<i>Vegetables</i>			
Carrots	24	1	0
Green beans	24	1	0
Baked beans	10	10	5
Corn	24	1	0
Green peas	24	1	0
Tomato	24	1	0
Tossed salad	25	0	0
Mashed potatoes made with margarine*	10	13	2
Potato chips*	2	23	0
French fries*	1	24	0
Salsa	16	4	5
<i>Milk</i>			
American cheese*	9	11	5
Whole milk*	10	14	1
Ice cream*	2	22	1
<i>Meat</i>			
Bacon*	1	23	1
Fried chicken*	3	21	1
Fried eggs*	8	16	1
Fried pork chop*	4	20	1
Pork sausage*	1	23	1
Bologna*	8	13	4
Roast beef*	12	10	3
Roasted turkey breast*	19	3	3
Roasted chicken*	16	7	2

\*Indicates a high fat food ( $\geq 3$ g fat per serving).

Table continued on next page.

**Table 6.** Limited income women's responses to trichotomous fat sort (N=25), Continued.

<i>Food Item</i>	<i>Low Fat</i>	<i>High Fat</i>	<i>Don't Know</i>
<i>Other</i>			
Butter*	4	19	2
Chocolate bar*	1	24	0
Mayonnaise*	5	17	3
Margarine*	5	19	1
Kool aid	7	16	2
Sugar	4	21	0
Sweet tea	9	15	1
Ranch dressing*	6	17	2
Soft drink	2	23	0
<i>Mixed Dishes</i>			
Gravy*	6	17	2
Hotdog*	5	17	3
Macaroni and cheese*	9	12	4
Beef burrito*	7	16	2
Beef stew*	15	7	3
Meat pizza*	4	21	0
Cream of tomato soup	19	3	3
Cheeseburger*	2	20	3
Chili*	7	13	5
Spaghetti & meatballs*	16	8	1
Taco*	10	10	5
Tuna salad*	17	6	2

\* Indicates a high fat food ( $\geq 3$ g fat per serving).

**Table 7.** Limited income women's responses to trichotomous cholesterol food sort (N=25).

<i>Food Item</i>	<i>Low Cholesterol</i>	<i>High Cholesterol</i>	<i>Don't Know</i>
<i>Grains</i>			
Saltine crackers	20	2	3
White bread	15	5	5
Biscuit	14	7	4
Chocolate chip cookies*	2	21	2
Cornbread*	13	7	5
Cornflakes	22	1	2
Muffin*	13	8	4
Pancakes*	13	10	2
Flour tortilla	14	7	4
Tortilla chips	8	15	2
White rice	20	3	2
Doughnut*	1	23	1
<i>Fruits</i>			
Orange	21	1	2
Orange juice	18	1	6
Fruit cocktail	21	1	3
Banana	22	1	2
<i>Vegetables</i>			
Carrots	24	0	1
Green beans	23	1	1
Baked beans	10	10	5
Corn	21	2	2
Green peas	23	1	1
Tomato	22	1	2
Tossed salad	23	0	2
Mashed potatoes made with margarine	10	11	4
Potato chips	2	21	2
French fries	2	23	0
Salsa	12	7	6
<i>Milk</i>			
American cheese*	13	10	2
Whole milk	19	6	0
Ice cream*	7	10	8
<i>Meat</i>			
Bacon*	1	24	0
Fried chicken*	1	23	1
Fried eggs*	1	20	2
Fried pork chop*	2	23	0
Pork sausage*	1	24	0
Bologna*	4	18	3
Roast beef*	12	10	3
Roasted turkey breast*	21	3	1
Roasted chicken*	15	9	1

\*Indicates a high cholesterol food ( $\geq 20$  mg cholesterol per serving).

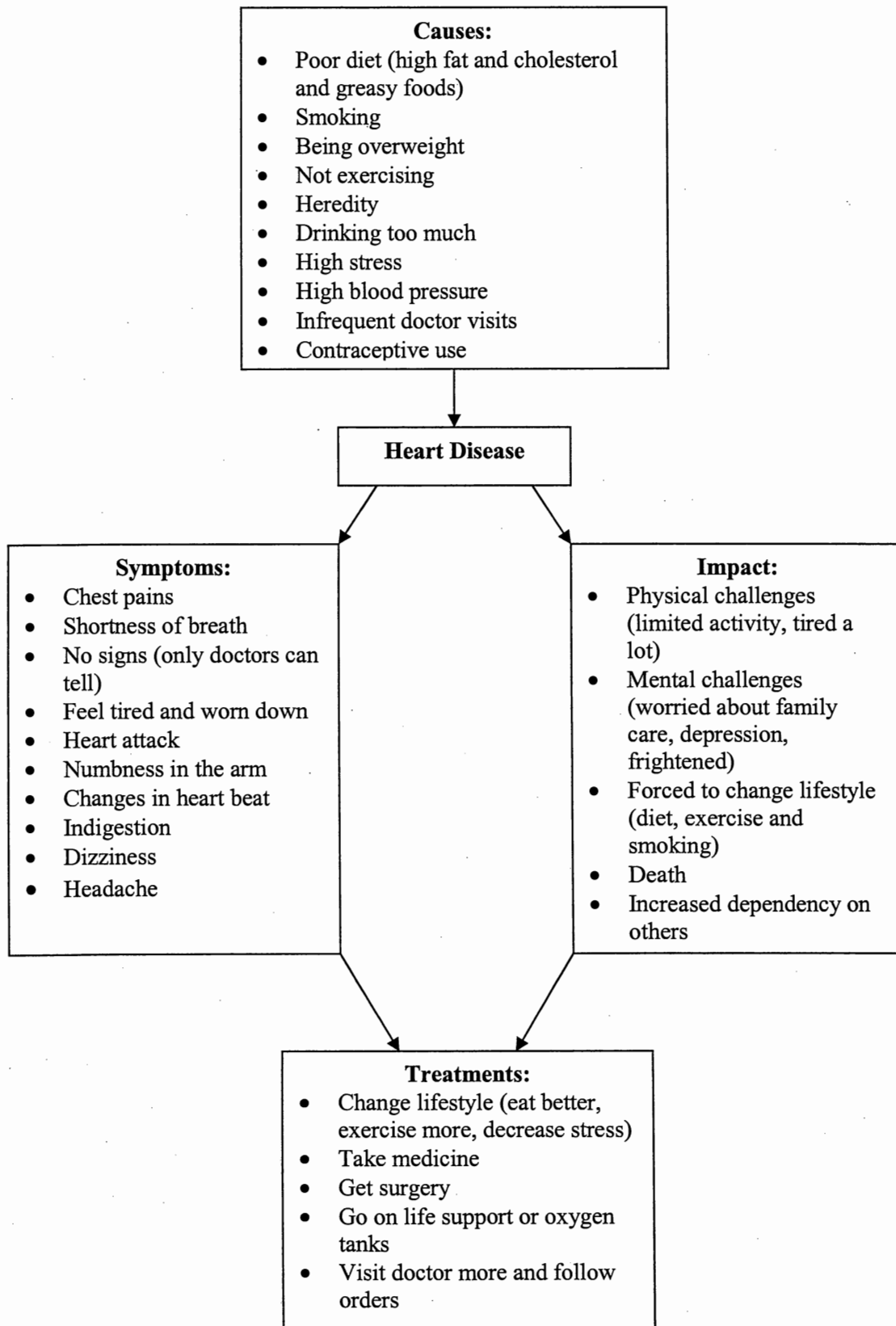
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**Table 7.** Limited income women's responses to trichotomous cholesterol food sort (N=25), Continued

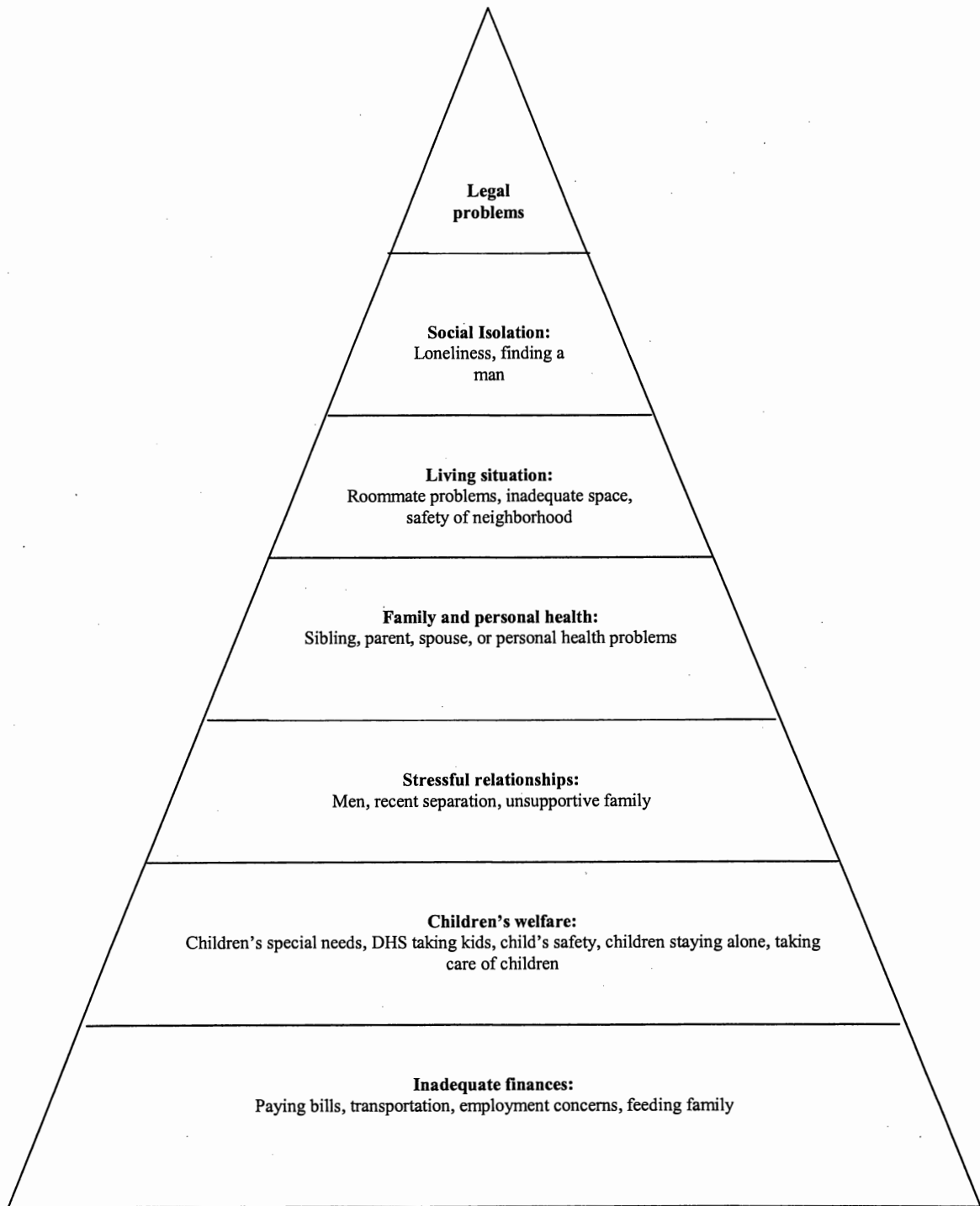
<i>Food Item</i>	<i>Low Cholesterol</i>	<i>High Cholesterol</i>	<i>Don't Know</i>
<i>Other</i>			
Butter*	2	21	2
Chocolate bar*	3	16	6
Mayonnaise*	5	17	3
Margarine	3	18	4
Kool aid	10	5	10
Sugar	5	14	6
Sweet tea	8	8	9
Ranch dressing*	8	11	6
Soft drink	5	13	7
<i>Mixed Dishes</i>			
Gravy*	9	13	3
Hotdog*	2	21	2
Macaroni and cheese*	12	12	1
Beef burrito*	5	18	2
Beef stew*	16	7	2
Meat pizza*	3	22	0
Cream of tomato soup	17	4	4
Cheeseburger*	2	21	2
Chili with beans	2	16	7
Spaghetti & meatballs*	9	16	0
Taco*	7	16	2
Tuna salad	13	8	4

\*Indicates a high cholesterol food ( $\geq 20$  mg cholesterol per serving).

**Figure 1.** An ethnomedical model of heart disease in limited income women.



**Figure 2.** Hierarchical concerns of limited income women.



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## CHAPTER V

### UNDERSTANDING OBESITY IN LIMITED INCOME WOMEN

Stephany Parker, MS and Kathryn Keim, PhD, RD/LD

#### ABSTRACT

Limited income women are more likely to be obese than their more affluent counterparts and reasons for this disparity have yet to be identified. This study uses an ethnographic approach to examine a cultural definition of obesity and health in limited income women, along with causes and treatments for obesity. In-home in-depth interviews, Q-sorts of somatotype drawings, and participant observations were triangulated to allow for a better understanding of qualitative and quantitative aspects of obesity. A purposeful sample of twenty-five limited resource Caucasian women was recruited from a rural county in the Southwestern United States. Analyses indicated that disordered eating habits were common and resulted from a multitude of social, economic and familial pressures. Food was often used as a means of coping with these pressures and was perceived as comforting during times of significant stress. Women indicated a lack of support in coping with life stressors and expressed feelings of isolation and loneliness. Social and economic barriers were identified as impeding the adoption of more healthy lifestyles. Weight loss was a low priority due to financial, emotional, familial and health care constraints. Women stressed the importance of consistent social support when attempting to undertake new habits. Having someone to share common experiences with was identified as a necessary component of programs aimed at health improvement.

## INTRODUCTION

Current health promotion efforts are aimed at emphasizing the deleterious effects of overweight and obesity. In the United States, overweight and obesity have reached epidemic proportions with approximately 300,000 deaths annually being attributable to overweight and obesity (USDHHS 2001). Current evidence indicates that overweight and obesity, defined by a Body Mass Index (BMI)  $\geq 25$  for adults (USDHHS 2001), may well be the most important nutritional diseases in the nation (Nestle & Jacobson 2000, USDHHS 2001). Obesity itself has been described as a risk factor for a number of health conditions including heart disease, high blood pressure and type 2 diabetes (Rippe et al. 1998, Nestle & Jacobson 2000, USDHHS 2001). Overweight and obese individuals are not only at increased risk for many chronic diseases, but they are also stigmatized for their appearance. The stigmatization of obesity may be more important than the physiological consequences of obesity (Rodin et al. 1984, Cahnman 1968, Cossrow et al. 2001). Negative attitudes towards obesity can have severe psychological consequences and limit socioeconomic success (Cossrow et al. 2001, Stunkard 2000).

Although poorly understood, gender and socioeconomic disparities in the prevalence of overweight and obesity have been recognized (USDHHS 2001, Sobal and Stunkard 1989, Ross & Mirowsky 1983, Stunkard et al. 1972). Overweight and obesity disproportionately affect limited income women. Data from 1988-1994 National Health and Nutrition Examination Survey (NHANES III) indicated that 67% of women with household incomes  $\leq 130\%$  of poverty threshold were considered to be overweight (BMI  $\geq 25$ ) while 52% of women with household incomes  $>130\%$  were classified as overweight (Healthy People 2010). Taking action to prevent and understand overweight

and obesity will have profound effects on eliminating health disparities in the United States (USDHHS 2001).

The disparate occurrence of overweight and obesity among limited income women has been quantified. However, an understanding of the disease from the perspective of the individual is lacking. Obesity has traditionally been treated as a clinical problem with roots in individual behavioral patterns and physiological consequences. The social causation for obesity is poorly understood. However, many social factors contribute to the etiology of obesity (Cahnman 1968, Brown and Konner 1987, Cassidy 1991).

It has been suggested that social norms for weight differ across income groups because each strata can be considered a distinct cultural group (Cassidy 1991, Ritenbaugh 1982). Obesity has been described as a culture bound syndrome (Ritenbaugh 1982). Understanding obesity as a culture bound syndrome requires that it be understood from a cultural context and that the etiology be summarized in terms of the core meanings and behavioral norms of the population under study (Ritenbaugh 1982). Utilizing this perspective implies that successful treatment and prevention can only be accomplished by participants in that culture (Rittenbaugh 1982).

Sociologists and anthropologists have developed theoretical interpretations for the problem of obesity in limited income women using historical and comparative research. Reports suggest that societal injustices such as racism, sexism, poverty or sexual abuse may contribute to the increased prevalence of obesity in limited income women (Thompson 1993). Other factors such as limited access to recreational facilities, disparate educational opportunities, differences in consumption standards, and

differential social pressures for thinness have also been suggested as factors influencing the greater proclivity for obesity in limited income women (Cahnman 1968, Stunkard 2000, Aguirre 2000, Garner et al. 1980).

To our knowledge, no studies have examined emic perspectives of the causes and consequences of overweight. Focusing on local knowledge and meaning is critical in understanding the cultural, social and economic implications of obesity to improve the quality of life for overweight individuals (Sobal & Maurer 1999). The purpose of this study was to develop a cultural understanding of obesity in limited income women. To elucidate a cultural definition of obesity, we explored perceptions of attractiveness, health, weight loss, weight gain, and body dissatisfaction.

## METHODS

These data were collected as a part of a study examining heart disease risk factors in limited income women (Parker and Keim 2002). Participants met with the researcher a minimum of three times in the home to examine cultural perceptions of heart disease, obesity and food allocation and procurement. Only participant perceptions of obesity will be presented in this report.

**Participant Recruitment.** A purposeful sample of 25 limited income women was recruited from a rural midwestern county in the United States. In order to participate in the study participants had to be female between 19 and 44 years of age, Caucasian, overweight (defined by a Body Mass Index  $\geq 25$ ), and limited income, defined by income  $\leq 130\%$  of the 1999 Federal Poverty Guidelines (USDHHS 1999).

Participants were recruited in person from a health department, local food pantries, and a homeless shelter. A list of food stamp recipients provided by the State Department of Health and Human Services was also used as a means of recruitment. Additional participants were recruited by means of snowball sampling.

The present study was approved by the Institutional Review Board at Oklahoma State University in Stillwater (Appendix H). All participants provided informed consent (Appendix G) and received a \$75 incentive upon completion of the entire study.

**Self reported body weight.** Participants were asked to report their most recent height and weight. The validity of self reported height and weight has been established by previous researchers (Stewart 1982). Quetelet's index ( $\text{weight}(\text{kg})/\text{height}(\text{m}^2)$ ) was used to measure body mass index (BMI) (Garrow and Webster 1985).

**Cultural weight definitions.** Thompson and Gray's (1995) Contour Drawing Rating Scale was used to examine cultural definitions of weight. The scale consisted of nine female front-view contour drawings of incremental sizes ranging from extremely underweight to extremely overweight. Each figure corresponded to a value on a 9 point scale (1=thinnest figure, 9=heaviest figure). Each drawing was photocopied separately and spaced evenly on an 8"x 8" card made from white posterboard. Cards were numbered from 1=thinnest to 9=heaviest on the back to facilitate coding. Participants were presented a pile of cards in random order and asked to describe each of the nine images in their own words. This procedure has been used to define ascriptions of obesity according to culturally defined standards (Massara 1980).

In the current study, the researcher hand recorded individual descriptions of the nine images (Appendix N). To develop emic weight categories, the researcher coded participant responses. Coded responses were entered into an SPSS database (SPSS version 10, Chicago, IL) and frequency of responses was determined for each figure in the scale. From these responses, emic weight categories were developed for the purpose of analysis and further comparisons. The most frequent codes were used to designate which figures belonged to each category.

**Q-Sorts of Contour Drawing Rating Scale.** A second method to determine cultural perceptions of body weight was the rank ordering of the nine figures in the Contour Drawing Rating Scale according to health and attractiveness. Participants were presented a pile of the figures in random order to minimize response set tendencies. They were then asked to order the figures from “most healthy” to “least healthy” and “most attractive” to “least attractive”.

The relation between cultural perceptions of attractiveness and health were examined by calculating two discrepancy scores between most healthy and most attractive figure numbers and least healthy and least attractive figure numbers. For example if a participant chose figure 1 as being most attractive and figure 3 as being most healthy, the discrepancy between most healthy and most attractive would be calculated by subtracting the most attractive figure number from the most healthy figure number giving a Most Healthy/Attractive Discrepancy (MHAD) score of -2 ( $1-3 = -2$ ) indicating that what was considered most attractive was two body sizes smaller than what was considered most healthy. If the number was positive, what was considered more



attractive would be 2 body sizes larger. Least Healthy/Attractive Discrepancy (LHAD) score was calculated by subtracting the least attractive figure number from the least healthy figure number. A positive score indicated the figure considered least attractive was larger than the figure considered least healthy and visa versa. Mean discrepancy scores were calculated for the group to determine differences in the perceptions of health and attractiveness.

**Perceptual measures of body weight.** To further develop the concept of culture and body size, participants were asked a series of questions to assess estimates of current and normal body size utilizing the Contour Drawing Rating Scale. We also investigated whether participants perceived that they could realistically attain a figure size that they had identified as desirable to gain an understanding of recidivism in weight loss (Leonhard and Barry 1998). The following questions were used in this study and are a modification of Leonhard and Barry's (1998) research examining perceptual measures of body image: 1) "Which figure looks most like you? (CBS)"; 2) Which figure(s) do you consider overweight?" (OBS); 3)"Which figure would you like to be?" (LTB); 4)"Which figure do you think you could achieve?" (ATB) ;5) "Which figure is the average size of most women you know?"(FBS).

Responses to each question were examined separately and the frequency of participants endorsing each of the six response categories was determined.

**Measures of body dissatisfaction.** Several measures were used to assess body dissatisfaction. Discrepancy scores were used to determine body dissatisfaction

(Leonhard and Barry 1998). An Achievable Weight Discrepancy (AWD) score was determined by subtracting LTB (like to be figure) from the ATB (achievable body size figure). Dissatisfaction was also determined by calculating a Desirable Weight Discrepancy (DWD) score defined as the difference between CBS (current body size figure) and LTB (like to be figure).

Three single questions developed by Cohn and Adler (1992) were also used to assess body dissatisfaction:

Weight: "I wish I was: a) a little thinner, b) a lot thinner, c) no different, d) a little heavier, e) a lot heavier."

Height: "I wish I was: a) a little shorter, b) a lot shorter, c) no different, d) a little taller, e) a lot taller."

Physical status: "I am: a) very skinny, b) a little skinny, c) neither skinny nor fat, d) a little fat, e) very fat."

Responses to each question were examined separately and the frequency of participants endorsing each of the five response categories was determined.

**In-depth individual interviews.** In home personal interviews were conducted to lead to an understanding of perceptions of body weight in limited income women. We chose the home as the location for interviews so that participants could be observed within their natural settings where meanings are constructed, used and negotiated. The researcher kept field notes describing observations of participants' environments and when appropriate, actions of other members of the household.

A single researcher conducted all interviews and utilized a nonjudgmental orientation which requires the interviewer to suspend personal judgment of question responses (Fetterman 1998). A feminist approach was taken when conducting interviews. Such an approach fosters an environment of sharing and permits the divulgence of information that would not normally be gained using traditional androcentric methods that assert a sharing environment imposes biases upon the research content (Reinharz 1992). Creating an environment of trust and confidence helped form strong bonds between the researcher and participant and built content validity because when there is trust, fewer guards are up and participants become comfortable sharing information that would not normally be shared because of feelings of discomfort with the researcher (Reinharz 1992).

The goal of the interview was to elicit emic perceptions of weight to gain a better understanding and accurately describe overweight and obesity from the “insider’s perspective” (Fetterman 1998). The questions were asked in conjunction with the figure ratings to provide an in-depth understanding of why participants were making the choices for the different methods using the Contour Drawing Rating Scale. The following objectives were used in structuring interview questions shown in Table 1:

1. To determine the importance of weight in assessing attractiveness.
2. To determine factors leading to overweight and obesity.
3. To determine perceptions of current body size and body satisfaction.
4. To assess the importance of weight loss and barriers to weight loss.

Objectives were developed based on factors identified as contributing to obesity from a review of the literature. Questions were developed based on the research objectives by a single researcher and reviewed by an additional researcher for clarity. Questions were

piloted with the first five participants in the study. No changes were made to the questions because they were well received and understood by participants.

All interviews were audiotaped and transcribed verbatim. A single researcher trained in ethnographic field methods conducted all of the interviews, collected all of the data and analyzed the transcripts. An additional researcher not involved in the data collection process read the transcripts to validate the development of dominant themes and patterns. A constructionist framework was used to explore processes leading to obesity and to understand problem of obesity from the perspective of limited income women. From a constructionist standpoint, a social problem such as obesity depends on population definitions (Sobal & Maurer 1999).

Interview questions were simultaneously analyzed by means of content analysis as described by Fetterman (1998). The format for this type of analysis is an iterative process requiring an ongoing interaction between data collection, data analysis and theory formation (Fetterman 1998). The analysis took place at three levels. For level one analysis, the researcher listened to and read each transcript in its entirety. The researcher simultaneously developed a table of key themes and notable quotes for each interview question. For level two analysis, the researcher compared key themes and kept memos of ideas about the data and key themes. For level three analysis, the researcher identified dominant patterns and synthesized notes at the theoretical level. Notable quotes were identified to support the dominant patterns so that a thick description using participants own words could be developed (Atkinson 1992). An additional researcher not involved in the data collection process, read all transcripts to confirm the dominant patterns and themes identified.

**Data Triangulation.** Triangulation of data was achieved by comparing the multiple sources of data collected and testing the information gained from each method (Fetterman 1998). Participant responses to interview questions were compared to Q-sorts, all discrepancy scores, perceptual measures of body weight, and Cohn and Adler's (1992) body dissatisfaction questions to identify any inconsistencies in results.

## RESULTS

**Participant characteristics.** Twenty-seven participants completed a demographic interview to participate in the study. One participant agreed to participate in the study, but was not at home for the scheduled interviews and was dropped from the study. A second participant was recruited by referral from another participant and the results from the second participant are not presented in this report because she was not of the targeted ethnicity. Thus, the results are based on data from twenty-five participants. The demographic characteristics of the sample are provided in Table 2. Most participants were unemployed (56%) and had annual household incomes <\$10,000 (60%); 60% of participants had no health insurance. The majority of participants (79%) had a BMI  $\geq$  30 with 42% of participants having a BMI between 30 and 34.9, 25% between 35 and 39.9, and 13%  $\geq$  40. One participant did not report her weight because of embarrassment. We included her in the study because she was obviously very obese.

**Cultural perceptions of weight and health.** Findings from participant open-ended descriptions of the Contour Drawing Rating Scale (nine figures) indicated that being

underweight was considered more unhealthy than being overweight. More women described the three smallest figures in terms of sickness or health using phrases such as “she is anorexic and looks plum sick”, “she’s way too skinny and might have AIDS”, “she looks unhealthy and is too skinny”. Images 4-5 were described by most participants as being “about the right size” or “average size of a woman” and their comments indicated that these figures were the most acceptable. Figures 6-9 were most frequently described by women as bearing too much weight. Women’s descriptions of figures 6-9 included such phrases as “looks like she’s had one child and could lose some weight”, “she needs to lose a little”, “she needs to exercise and tone up” and “she’s ugly and overweight”. Other terms used to describe the larger figures included “heavy set”, “plump”, “chunky”, “chubby”, “big boned” and “fat”.

From these findings, a cultural weight classification system was developed by the researchers based on emic descriptions. Category 1 consisted of figures 1-3 and was classified as “skinny”; Category 2 consisted of figures 4-5 and was classified as “acceptable”; Category 3 consisted of figures 6-9 and was classified as “too much weight”.

Obese was not a term commonly used to describe the larger figures. Only 3 participants used the term obese when describing figures in Category 3. The terms used by participants to describe overweight figures were much less severe than those used to describe the smaller figures. Participants generally and consistently described the figures in category 1 as being in poor health while the other figures were most often described as being a desirable weight or bearing too much weight.

**Simultaneous evaluations of weight and health.** Observations of women's ordering of the body figures from most to least healthy indicated that some participants had trouble deciding whether being extremely overweight or underweight was least healthy. The majority of participants (n=18) felt that underweight figures were the least healthy while 7 participants felt that the overweight figures were least healthy (Table 3). The more frequent categorization of underweight figures as being unhealthy revealed that participants consider underweight a more severe health problem than overweight. This confirms the open-ended descriptions the women gave to the same nine figures (Contour Drawing Rating Scale) earlier.

During the health ranking, participants were asked "what makes a person healthy?". Most women indicated that weight was an important factor for health. For some participants, being extremely underweight was perceived as less healthy than being extremely overweight. One theme that emerged was the belief that being extremely underweight is an indication of having a disease or being more susceptible to disease. This finding was evident from statements such as:

*"Being too skinny's not too healthy these days because there's diseases that's gonna cause you to be skinny".*

*"That beanpole one is most unhealthy because she looks like she's not taking care of herself or is on dope or something."*

When deciding whether overweight or underweight was least healthy, another participant stated, *"When you're underweight, you develop a lot of problems too same as you could being overweight. My friend's big and then I got a sister, little scrawny thing-so, when I was thinking, I was thinking about which of them complains more, and it's my*

sister.” Many women perceived being underweight as more deleterious to health than overweight. For instance, another participant stated:

*“It’s more dangerous for your body to be underweight than overweight. These women (the larger body images) though their muscles may be logged down or bogged down or something with excess fat, their muscles are still healthy. And, maybe even more so, because they’ve been carrying around all that extra weight and may be pretty strong”*

Having a bit of extra weight was generally considered more healthy because good diet and exercise habits were perceived as more important to health than overweightness or obesity. This finding was exemplified by one woman who stated: *“It’s about as bad to be too skinny as it is to be too fat and I know they say a lot of big people are healthy and stuff, that if you’re exercising and stuff, even though you’re big, if you’re eating healthy..it (eating habits) has more to do with it than weight.”* Another woman echoed this sentiment when she stated that being healthy *“depends on what and how they (overweight and obese people) eat. They could be healthy, but inherit their overweightness.”*

For most women being extremely underweight was perceived as more threatening than being extremely overweight because of perceptions that something could be done to improve the health of the overweight person while the person who is underweight probably has a health condition that is beyond their control. For example, when evaluating the body figures for health, one woman stated: *“I mean even if she (the largest body figure) did have a heart attack, I seen people do well, you know, recovering. I know even after a person’s had a heart attack though the danger of having another one is*



*not so severe. But those anorexic ones, they look starved, so it may not be heart disease that they die of, but they could have heart failure."*

Having extra weight was perceived by some as being advantageous during periods of deprivation and financial constraint. This notion was best exemplified by one woman who stated, *"A person needs to have a bit of meat on them. That way if they're stranded some place, you can afford to starve."*

Participants' perceptual measures of body size indicated that the cultural norm for this group was overweightness (OBS, Table 4). Participants were aware that they were overweight with 100% of them choosing figures in Category 3 as being most like their current body size (CBS, Table 4). Not only did participants consider themselves overweight, but their friends (ABS, Table 4) were generally considered overweight too with 84% of participants choosing figures in category 3 to describe the average size of most women they know. Despite the fact that it was the norm for this group to be overweight, participants all desired to be thinner than they were as evidenced by the fact that 80% of participants desired to be the size of figures in category 1 or 2 (LTB).

**Participant simultaneous evaluations of health and attractiveness.** When talking with participants during the in-depth interview about what makes a person attractive, physical appearance was not mentioned as being an important factor when evaluating attractiveness. However, Q-sorts of figures indicated that what is considered most healthy is also considered attractive. There were few differences in the ordering of figures according to health and attractiveness. The mean MHAD score calculated was  $0.36 \pm 1.03$ , indicating that the images considered most healthy were very similar to those

considered most attractive and the most healthy body figure was slightly larger than the most attractive. The mean LHAD score  $(-0.88 \pm 3.47)$  also indicated very little difference and means the least healthy body figure was smaller than the least attractive. Both of these discrepancy scores indicate that the smaller body figures were considered more attractive even though their health may not be so good. As such it could be implied that in order to be attractive, women must sacrifice their health.

**Cultural perceptions of weight and attractiveness.** Participant ratings for attractiveness indicated that being extremely underweight was somewhat less desirable than being extremely overweight with 60% of participants choosing figures in Category 1 as being least attractive and 40% of participants choosing figures in Category 3 as being least attractive (Table 3). The perception of extreme thinness as unattractive was expressed during the interview by one woman when commenting on what makes a woman attractive: *“Well, a woman needs to have a little bit of meat on her bones, she doesn’t need to be skin and bones.”* This aversion to extreme thinness was echoed by another woman who stated, *“Well, there’s some women who feel very attractive when they’re overweight. My sister (who is extremely underweight) thinks she’s god’s gift to men and there’s most men say they won’t go near her ‘cause there ain’t nothing there which is the way I look at it.”*

Often times, women referred to what was considered attractive in terms of what men would find attractive. Participants’ perceptions of what men find attractive were mixed in our discussions. Some women felt that men preferred thinness while others felt that men preferred bigness. Despite the mixed perceptions, men’s preferences for a

certain body type emerged as important to them and they were a common theme throughout the course of our discussions. The value placed on the male preference for a certain type first emerged when participants were asked to explain their ordering of body figures. When explaining why the extremely overweight figure would be more attractive than the extremely underweight figure, one participant stated: *“There’s men out there that like big-boned women and big women and stuff like that because they consider it (extra weight) love handles.”*

Although extreme overweightness was considered more attractive than extreme underweightness, 84% of women chose figures from Categories 1 and 2 as most attractive (Table 3). Their LTB figure preferences were considerably smaller than CBS figure preferences as evidenced in the mean Desirable Weight Discrepancy score calculated between the two of  $3.36 \pm 1.4$  (Table 4). This score indicates that their perceived current body size is at least three figures greater than what they would like to be. Conversations with women while they were sorting figures according to attractiveness revealed that most women considered overweight as unattractive. Their feelings were rooted in social expectations of thinness and what body size they think men like. Selected comments are presented below:

*“Guy, you know, they’d always pick her (a body figure smaller than she) instead of me or something like that and call me fat. I grew up with stuff like that. Super models are always skinny and you don’t ever see no heavy weight, overweight supermodel or anything.”*

*"Thin is beautiful. I see how thin people are treated and how fat people are treated and men do not like fat women and I have been rejected for the very fact that I was fat. It didn't matter about the personality or what type of person I was inside, it was just that I was fat and now that hurts."*

Even though most women acknowledged social expectations of thinness, many felt cosmetic alterations could improve physical attractiveness even if they were overweight. Alterable physical attributes such as skin, attire, and hair were commonly considered attractive assets. For example, one woman stated, *"when I feel pretty and attractive, it's when I put on beautiful clothes, my hair is done real pretty, I've got my makeup done real good."*

For most women, evaluations of other people's attractiveness had nothing to do with body size, but when reflecting on their own attractiveness, weight became a more important issue. When evaluating others, psychological attributes such as personality, self-esteem and intelligence were considered important qualities for attractiveness. However, when evaluating personal attractiveness, weight was considered very important. The importance of weight when evaluating their own attractiveness is exemplified in the comments below:

*"I think a person can still feel good about themselves when they're overweight, still feel attractive, but I don't seem to be able to do it."*

*"Whenever I was skinny, or kind of skinny, I felt more better about myself and now I'm just like I don't like looking at myself in the mirror."*

*“When I am thinner, I feel a lot better about myself, I have more self confidence.”*

*“I’d really like to lose the weight I’ve accumulated in the middle. I used to look nice in dresses.”*

*“I know I haven’t been happy since I’ve been overweight..I know I feel a lot better whenever I’m at the right weight.”*

**Perceptions of causal reasons for overweightness.** In-depth interviews with women indicated that life traumas were considered as contributing to overweight. Participants referred to depression, loneliness, stress, and bad childhood experiences as precipitators of weight gain. When reflecting on life stressors one participant stated: *“you get down and you just don’t want to do nothing, it’s hard to get out of the house and get motivated and then you eat, yeah you eat when you’re under stress. Eating fills the void, I mean you’re thinking about food, you’re tasting it, it makes you feel better.”* Eating was also referred to as a coping mechanism during times of stress as exemplified in the following statement: *“I get stressed and just eat and eat and eat. You eat because you don’t know what to do with yourself, so you eat, binge..when the kids first got taken, I did that. And the losing of a job or fighting with a husband (will make you binge too).”* It was evident in discussions that depression and stress also limited activity levels because during these times, they wanted to be cut off from the rest of the world and would spend a lot of time watching TV or being alone in their room. None of the women mentioned exercising as a means to reduce stress.

Women often referred to using food for emotional satiety. When reflecting on what causes a person to be overweight a participant stated, *"I've heard that if you have low self esteem, you can substitute food to boost your self esteem. I've always heard that chocolate cures a heartache, you know, and some women divulge themselves in chocolate ice cream or cheesecake or anything like that."* When another participant was asked why she thought people turned to food in times of crisis, she stated: *"I think we tend to use food as a comforter because we don't have one you know. People eat because of their problems...so, a person who's overly stressed probably has a lot of problems in their life and probably take it out on food."*

Food was also referred to as a means of escape. When thinking about her childhood, a participant referred to eating as *"something you can do to keep your mind off it (problems)...I ate a lot, I just ate all the time. My parents were divorced, my father left all the time, he had custody of us, so I had to take care of my sister. It (food) took my mind off it."*

Criticism of weight during childhood was also considered a reason for overweightness: *"If you're young and get criticized about it (weight), it could get into your mind and you have a lot of problems and stuff. I know a lot of people who were fat as a child and are fat as adults."*

Women were aware that lifestyle factors, genetics, and health problems had an influence on weight. Physical inactivity and poor dietary choices were commonly stated as reasons for overweightness. Other women perceived factors beyond their control, such as genetics and health problems, including "gland problems, low metabolism and chemical imbalances", as causing obesity. Bearing children was also considered a

contributor to excess weight. Some women indicated that they were never able to lose the weight gained during pregnancy.

**Body weight dissatisfaction.** Body weight dissatisfaction (Table 5) in women reflected a desire to be thinner with 48% of women expressing a desire to be a little thinner and 52% of women wanting to be a lot thinner. Even though 52% of participants wanted to be a lot thinner, only 32% described themselves as being very fat. Although all participants had a BMI > 25, it is interesting that 20% of them considered themselves as neither skinny nor fat and 48% considered themselves as being a little fat. Only 32% of participants considered themselves as being a lot fat.

Mean discrepancy scores (Table 4) between their current body size and the body size that they would like to be indicated a great deal of dissatisfaction. The mean DWD score was  $3.36 \pm 1.52$  (Table 4) indicating that their current size was generally 3 figures greater than what they would like to be. There was also a difference between what women perceived as an achievable body size and what they perceived as the most desirable body size. The body size that women felt was attainable was generally larger than the size they wanted to be as indicated by the mean AWD score of  $-1.16 \pm 1.28$  (Table 4). These findings indicate that women were not comfortable with their body size nor did they feel confident in their ability to lose the desired amount of weight.

**Motivators for weight loss and experiences with overweight.** Results from in-depth interviews and conversations with participants indicated that women wanted to lose weight because of social expectations. Participants were acutely aware of “*society*

*pushing people to be skinny, especially women.*” Magazines and the media were often cited as contributing to the “*large market for diet pills and exercise equipment and look this way*” and women viewed their body size in comparison to popular culture.

Participants in this study felt women were unduly affected by social expectations of thinness as is evident in the following statement: “*men don’t have as much of a straight line as women do..they’re a lot of overweight men too. They’re not looked at the way women are.*” When thinking about the experiences of overweight men and women, another participant stated that “*of course, the women will be criticized and teased, as a child especially.*”

Women frequently mentioned negative experiences and felt stigmatized because of their weight. When asked why they had decided to try to lose weight, women made comments like, “*people pointing and talking, every time you walk down the street, people will say something negative*”, “*the way they look and people talking about me made me want to lose weight*”, and “*we’re (overweight people) just tired of being overweight and people putting us down, so we want to make an effort to get a size smaller so people will stop talking about us.*” Comments such as these not only came from strangers, but also came from participants’ friends and family members.

Some participants had even felt discriminated against because of their weight as experienced by one participant who stated, “*a lot of people discriminate against that (being overweight). They call you fat and ugly. A lot of these jobs look at your appearance and if you’re overweight, you can be dressing like a normal skinny woman to look your very best, and appearance and weight are two main issues besides personality where a lot of discrimination is jobwise.*”



To avoid the continuance of such negative experiences, many women attempted to lose weight. Losing weight was considered by many women as a means of alleviating depression as illustrated by one participant who stated, "*when they look better, they have a better aspect, good outlook on life. They're happy, in a better mood, not as depressed. They have more energy and feel better about themselves.*" Women often mentioned being depressed or having a low self esteem because of their experience being overweight.

Many participants also attributed the desire to lose weight as stemming from male preferences for a certain body type as indicated by comments such as, "*men want those petite slim girls*", "*guys are gonna go with the smaller women*", "*I decided to lose weight to have better luck finding men*", and "*the type of men I'm attracted to don't like fat women*". In an attempt to conform to the perceived male ideal, women often chose to lose weight. When asked why men desire such thinness, a participant stated that preferences for a specific body type were "*bred into men that women are supposed to be thin*".

Some women also felt pressure from significant others to lose weight as exemplified by statements like, "*In my past marriage, he'd crack jokes all the time about my weight, being overweight. He don't like fat women.*", "*my husband kept calling me a fat a-- b----*", "*I was real skinny so now my boyfriend always brings up weight,*" and "*it is the men doing this to us women, they're the ones that are pushing it (weight loss). We want you to look this way and that way.*"

Other women were drawn to lose weight because they wanted to be able to wear more clothing and because larger sizes were considered expensive. Comments such as

*“they (overweight women), can’t walk into the store and buy something because they can’t fit into it” and “they would have more variety of clothes if they were smaller. Most of my wardrobe is sweatpants, during the winter it’s sweatpants and t-shirts; during the summer, it’s big shorts and t-shirts.”* Clothing for larger women was not perceived as fashionable as typified by one participant who stated, *“I can’t fit into pretty clothes.”*

**Barriers to weight loss.** The results of in-depth interviews indicated numerous barriers to weight loss. All participants in this study had attempted to lose weight in the past. However, recidivism in weight loss attempts was common and most women reported being on several different diets throughout their life course. Participants often stated that they had been unable to lose weight in the past because of a “lack of will power”. Having the will power to change old habits was perceived as difficult. Controlling one’s dietary habits was often perceived as extremely difficult as reflected in the following statement: *“it takes a lot of self discipline to not let my mind control what I eat, if I’m hungry I don’t eat and that’s hard for a person to say, I’m not going to eat.. I’m not hungry..so I’m not going to eat.”* When thinking about failed weight loss attempts another participant stated, *“I just fell off the wagon. It’s hard to stay focused.”*

Many participants felt that it was important to be able to develop a routine to be successful at weight loss. When reflecting on weight loss, a participant stated that *“whatever you go with, you have to develop a routine or habit. And for me myself, it’s hard to. I make it one good day dieting and watching what I eat and then the next day, you know, I don’t stick with it.”* Hectic lifestyles and having children were perceived as

interfering with the development of routines by some participants as indicated by the following comments:

*“when I had one (child), it was fine, then two was crazy, right at three it was getting back to normal. Then, I had my fourth, it was really hectic when they were babies trying to get down to a schedule and get life in control.”*

*“I was just going to school and being a full time mother at nights and it (weight loss) was hard to fit into my schedule. I spent too much time in fast food places, too many greasy foods and stuff like that.”*

Stress and depression were not only reasons for weight gain but they were also barriers to weight loss. Part of the difficulty in making and sustaining dietary changes was due to the role of eating in alleviating stress and depression. This finding was iterated in statements like: *“stress causes you to eat, you’re stressed and you don’t eat the right foods a lot of times like desserts”* and *“if I put my mind to it, I probably could lose weight, but the way I eat, I mean, I’m always depressed”*. The importance of using food to cope with problems was evident in this statement from one of the participants: *“food don’t talk back or yell back or anything. It just sits there and it gets out of your head when you’re watching TV, so you don’t think about anything else.”* Eating to alleviate life problems was reiterated by another participant who stated, *“It (eating) is a way of escaping and you feel better. You want to feel better and everybody feels better when they’re eating something that tastes good and you’ve got a full stomach. Because in my depressed times, I want the sugar and I want the chocolate, you betcha. And, I’ve read that it’s a proven fact that depression will cause you to crave sugar.”*

Another reason for recidivism in weight loss was the disenchantment with the weight loss process. When attempting to lose weight, participants were interested in immediate results and often went off diets because they could not see the results of their efforts soon enough. Statements such as, *“I got tired of it (the diet) and depressed with it wanting to see something soon”* and *“I guess, as time goes by, you think gosh, I keep doing this and doing this and it’s not getting me anywhere”*, indicate the level of frustration that was evident in many conversations with participants in this study.

Preferences for foods not perceived as “diet foods” also interfered with weight loss attempts. Many participants indicated a preference for “fattening foods”. This preference was evident when one participant was reflecting on why she had failed to lose weight in the past, *“I go to the grocery store and see like cookies and chips and stuff. They look good and taste good. They say you need to take me.”* The difficulty in making and sustaining dietary changes was also apparent in discussions with another participant who stated, *“if they try it (diet) and it don’t work the first time, then they don’t want to try anything else and they don’t want to eat the right foods, and they just go back to eating fattening junk foods.”* Conversations with participants indicated that eating “fattening foods” was considered a pleasurable experience and eating out was an affordable form of entertainment.

Some participants felt that weight loss was impossible for them because of health problems. Thyroid problems, carpal tunnel syndrome, and back problems were stated as health problems interfering with weight loss. One participant thought that her medication was preventing weight loss.

Although only explicitly stated by one participant, negative experiences with men and/or previous sexual abuse may be preventing weight loss efforts in some women.

This finding was evident in one participant who commented *“right now, I don’t give a sh-- about my weight because it got to the point where guys were always following me around..you know trying to get me to go to bed with them, so I was like leave me alone. So, I stopped caring and wearing makeup so they’d leave me alone..I just want to be left alone and if that means being fat and not wearing makeup then that’s what I do.”*

Negative experiences with men were not confined to this participant. Conversations with other women when the tape recorder was off indicated that they had been sexually or physically abused by men in the past, but they did not associate this abuse with their feelings about weight loss.

**Recommendations for successful weight loss programs.** Many women perceived dieting and exercise as costly. When asked how they thought they could be more successful at weight loss, the importance of developing a support system was emphasized by the majority of participants. Observations and discussions with participants indicated a great deal of social isolation. Many evenings the researcher stayed hours at the homes of participants because they were hungry for conversation and the opportunity to share their experiences with another. Participants generally spent most of their days caring for children or at dissatisfying jobs. Going to a group or having a buddy were mentioned as important *“when their willpower breaks”*. Buddies were also considered important for motivation and accountability.

Along these same themes, participants felt that it was important to have someone to share in the process of weight loss and someone with whom they could exercise. Participants stressed the importance of partnering women together who had similar experiences. Being able to talk to someone regularly, who can be called upon when feeling vulnerable was also considered important. Women in this study also mentioned the importance of having the support of family members and friends when undertaking dietary and physical activity changes.

In addition to developing a support system for weight loss, some participants also mentioned the importance of time management. Being able to develop a schedule that would enable them to cook healthy meals and allot time for exercising was considered important. Participants emphasized the importance of realistic schedules that take their lifestyles into consideration.

## DISCUSSION

Previous research has shown that serious social or psychological problems have an impact on weight (Carpenter et al. 2000, Myers & Rosen 1999, Ross 1994, Harris et al. 1990). Overweight and obesity for our participants can be viewed as the embodiment of stressful life experiences. Our previous research (Parker and Keim 2002) with these women indicated that stress emanates from economic strain coupled with limited or no social support. Other researchers have suggested that social status has an influence on health because of its relation to stressors and resources with which to respond to stressors (Shulz et al. 2001). Shulz et al. (2001) found that life stressors such as family, economic, work and unfair treatment were all significantly associated with depressive symptoms

beyond the effects of age and socioeconomic status. Our study supports this finding in that women frequently mentioned depression and stress as contributing to weight gain and preventing weight loss.

We suggest that economic strain coupled with limited social support leads to depression and disordered eating behaviors resulting in weight gain and that the effect is a cyclical one. Additional researchers have suggested that stress and the lack of appropriate mechanisms to cope with stress foster disordered eating (Crowther et al. 2001, Herman et al. 1987). Women in our study turned to eating as a way of coping with emotional difficulties, hardship, or traumatic life experiences.

Disordered eating behaviors and limited physical activity resulted from stress, isolation and depression and culminated in the accumulation of excess weight. For women in our study the physiological consequences of overweight and obesity were largely undermined when compared to psychosocial consequences. Obesity was not considered a disease but rather as a condition imparting social penalties. Women were influenced by cultural expectations of thinness and felt stigmatized because of their inability to conform to social expectations. We suggest that the stigmatization associated with their weight magnifies the already present stress and depression and intensifies the disordered eating behaviors leading to more weight gain.

The perception of social penalties associated with overweightness was common in this study and has been reported by previous researchers (Cossrow et al. 2001, Rodin et al. 1984, Cassell 1995, Cohn and Adler 1992, Cahnman 1968, Myers 1999, Harris et al. 1990, Rothblum et al. 1990). Reports of job discrimination, inadequate access to affordable clothing, and the inability to acquire a desirable mate were considered a

consequence of weight discrimination for some women in our study. We suggest that social penalties such as these may exacerbate the low socioeconomic status of these women indirectly by intensifying the level of stress and depression. Research has suggested that depression is a barrier to employment and job retention (Lennon et al. 2001). If excess weight prevents the acquisition or maintenance of a job, affordable clothing, and a partner to share in expenses, it is likely to compound the financial constraints experienced by these women.

Stunkard (2000) posited that the relationship between socioeconomic status and obesity is bi-directional; socioeconomic status determines the prevalence of obesity and obesity leads to a decline in socioeconomic status. As such, obese women may be dually stigmatized because of their poverty and because of their obesity.

Prevailing social values are such that women are evaluated in terms of their appearance (McKinley 1999). Weight loss was considered important for most women, but it was not for the associated health benefits but rather for the social benefits. Cohn and Adler (1992) have suggested that deviations from perceived norms may make women self-conscious and place undue pressure on women to be thin. Women in our study were extremely dissatisfied with their weight and placed a great deal of personal value on their weight. Negative perceptions of personal body size were shaped by disdainful comments from others, prevailing social values, and low self esteem. The condition of overweight exacerbated feelings of depression, isolation and stress.

Many women in this study placed a great deal of emphasis on the expectations of males with regards to weight. One of the main benefits associated with weight loss was the ability to attract men. We propose that the social isolation and financial constraints



experienced by these women are likely reasons for the importance of attracting or pleasing a male. We suggest that the acquisition of a male would help to alleviate financial and emotional strains placed on these women. Rodin et al. (1984) have also reported the importance of attractiveness in mate selection and suggest that beauty can be an asset with which to gain access to a man's resources. Although our previous research indicated that relationships with men have not always been ideal, having someone around to share expenses may be very important for these women (Parker and Keim 2002). Women's perceptions of what males desire were mixed. Previous research has shown that what women think men prefer and what men prefer may be quite different (Demarest and Langer 1996, Cohn and Adler 1992).

It is also important to note that being overweight was not perceived as a health condition requiring immediate attention, but as a side effect of some other state or condition such as depression, stress, poor genetics, or physical ailment. We are unaware of additional research reporting this finding.

### **Limitations**

This study involved an in-depth examination of perceptions of weight in a limited income population of women. Our sample was small and not ethnically diverse. It was designed to gain an understanding of the range of opinions held about overweight and obesity, not to determine the magnitude of those opinions among the general population. To maximize the information obtained, the questioning, techniques, and wording varied from respondent to respondent. The responses received depended on the context of the discussion. As such, the findings presented in this study cannot be generalized to larger

populations but should be considered as a starting point for additional research examining cultural aspects of overweight and obesity.

## IMPLICATIONS FOR RESEARCH AND PRACTICE

Weight loss interventions should address social factors preceding weight gain. Programs that focus on coping with stress and depression are an important step towards the improvement of the health of limited income audiences at the individual level. However, system based approaches are necessary to address factors causing stress and depression. For limited income populations, weight loss may not be their most pressing concern. Our research indicates that it is important for educators to identify problems that lie outside the scope of nutritional issues. We suggest that multidisciplinary programs addressing financial, emotional, and nutritional concerns will be most effective in improving weight management.

The results of our research also indicate the importance of partnering clients to share in the weight management process. Participants in our study indicated that they were lonely and had limited social support. Programs should partner participants with similar experiences for successful weight loss efforts. The identification of a sponsor to be available during stressful times and to whom participants can be accountable should be an integral part of weight loss programs.

The lack of perceptions of chronicity of excess weight is an important factor to consider when developing programs aimed at weight loss. We propose that emphasizing the physiological benefits of weight loss may be ineffective because the results are too futuristic. For those strapped by financial constraints and an abundance of life stressors, losing weight is the least of their concerns although they feel social pressures to do so.

Emphasizing the psychological benefits of weight loss may be more effective than talking about preventing chronic diseases. Focusing on more immediate benefits such as improved self-esteem and decreased stress will probably be more effective.

Understanding the causes and consequences of obesity is central to its treatment and prevention. Scant research exists documenting perceptions of weight from the experience of the overweight person. Additional research with larger samples is necessary to confirm patterns identified in this research as well as to identify additional themes that may not have emerged. Future research should also examine males' perceptions of body size since women placed a great deal of emphasis on males' preferences when evaluating their appearances.

Future studies should examine the importance of having a significant other and men's preferences for body weight.

**Table 1. Interview questions.**

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In general, what do you think makes a person healthy?

In general what do you think makes a woman attractive?

- How much does weight have to do with attractiveness?
- How important is attractiveness to you?

What do you think causes a person to be overweight?

How do you feel about your body size?

Why do you think people want to loose weight?

- Have you tried to loose weight before?
  - What are the reasons you have or haven't tried to loose weight?
  - Why do you think some people are unable to loose weight?
-

**Table 2.** Selected characteristics of limited income women (N=25).

<i>Characteristics</i>	<i>N</i>	<i>%</i>
Employment status		
Full-time	8	32
Part-time	2	8
Homemaker	1	4
Unemployed	14	56
Annual household income		
<\$10,000	15	60
\$10,000-\$14,999	7	28
\$15,000-\$19,999	2	8
\$20,000-\$24,999	1	4
Health insurance status		
No	15	60
Yes	10	40
	<i>Mean</i>	<i>SD</i>
Age (yr)	31.52	6.04
Education level (yr)	11.58	1.54
Body Mass Index (kg/m <sup>2</sup> ) <sup>a</sup>	33.96	6.04
<i>BMI categories</i>	<i>N</i>	<i>%</i>
25-29.9	5	21
30-34.9	10	42
35-39.9	6	25
40+	3	13

<sup>a</sup>BMI calculated using self-reported height and weight measures. One participant refused to report weight (N=24)

**Table 3.** Perceptions of health and attractiveness of different body sizes in limited income women (N=25).

<i>Classification</i>	<i>Number (%)</i>
<b>Most Healthy</b>	
Category 1 <sup>a</sup>	6 (24)
Category 2 <sup>b</sup>	12 (48)
Category 3 <sup>c</sup>	7 (28)
<b>Most Attractive</b>	
Category 1	6 (24)
Category 2	15 (60)
Category 3	4 (16)
<b>Least Healthy</b>	
Category 1	18 (72)
Category 2	0 (0)
Category 3	7 (28)
<b>Least Attractive</b>	
Category 1	15 (60)
Category 2	0 (0)
Category 3	9 (40)

<sup>a</sup>Category 1 is composed of contour drawings 1-3, skinny

<sup>b</sup>Category 2 is composed of contour drawings 4-5, acceptable

<sup>c</sup>Category 3 is composed of contour drawings 6-9, too much weight

**Table 4.** Perceptual measures of body weight in limited income women (N=25).

<i>Perceptual measures of body weight questions</i>		<i>Number Responding (%)</i>
OBS <sup>1</sup>		
	Category 1 <sup>a</sup>	0 (0)
	Category 2 <sup>b</sup>	0 (0)
	Category 3 <sup>c</sup>	25 (100)
ABS <sup>2</sup>		
	Category 1	0 (0)
	Category 2	4 (16)
	Category 3	21 (84)
CBS <sup>3</sup>		
	Category 1	0 (0)
	Category 2	0 (0)
	Category 3	25 (100)
LTB <sup>4</sup>		
	Category 1	4 (16)
	Category 2	16 (64)
	Category 3	5 (20)
ATB <sup>5</sup>		
	Category 1	1 (4)
	Category 2	10 (40)
	Category 3	14 (54)

<i>Discrepancy Measure</i>	<i>Mean Score ± SD</i>
Desirable Weight Discrepancy Score(DWD) <sup>6</sup>	3.36 ± 1.52
Achievable Weight Discrepancy Score(AWD) <sup>7</sup>	-1.16 ± 1.28

<sup>1</sup>OBS, Which figure(s) do you consider overweight?

<sup>a</sup>Category 1 is composed of contour drawings 1-3, skinny

<sup>b</sup>Category 2 is composed of contour drawings 4-5, acceptable

<sup>c</sup>Category 3 is composed of contour drawings 6-9, too much weight

<sup>2</sup>ABS, Which figure is the average size of most women you know?

<sup>3</sup>CBS, Which figure looks most like you?

<sup>4</sup>LTB, Which figure would you like to be?

<sup>5</sup>ATB, Which figure do you think you could achieve?

<sup>6</sup>DWD=CBS-LTB

<sup>7</sup>AWD=ATB-LTB

**Table 5.** Body dissatisfaction in limited income women (N=25).

<i>Body Dissatisfaction Parameter</i>	<i>Number Responding (%)</i>
<b>Weight:</b>	
I wish I was:	
A little thinner	12 (48)
A lot thinner	13 (52)
No different	0 (0)
A little heavier	0 (0)
A lot heavier	0 (0)
<b>Height:</b>	
I wish I was:	
A little shorter	0 (0)
A lot shorter	0 (0)
No different	15 (60)
A little taller	7 (28)
A lot taller	3 (12)
<b>Physical Status:</b>	
I think I am:	
Very skinny	0 (0)
A little skinny	0 (0)
Neither skinny nor fat	5 (20)
A little fat	12 (48)
A lot fat	8 (32)



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## CHAPTER VI

### SUMMARY AND CONCLUSIONS

#### Summary

One of the purposes of this research was to elucidate reasons for the disparate occurrence of heart disease in limited income women. An ethnographic approach was taken to gain emic perspectives and cultural definitions of heart disease risk factors and obesity. A purposeful sample of obese limited income women was recruited to participate in this study. The sample was limited to Caucasians because ethnicity was considered to be a factor influencing cultural definitions of heart disease and obesity.

The researcher met with participants in their home a minimum of three times. Four 1-day weighed food records, 24-hour dietary recalls, in-depth interviews, in-home observations and Q-sorts were the methods used to identify social and cultural factors impacting heart disease risk and obesity. This study relied on data triangulation using both qualitative and quantitative methods to obtain information on heart disease risk factors and obesity. Combining methods allowed for a better understanding of factors influencing health and helped build content validity. The use of a number of approaches lead to more depth and detail and allowed the researcher to validate one piece of information against another.

In-depth interviews and in-home observations proved particularly useful in gaining insight into the daily lives of women in this study. Being in the home allowed for

a better understanding of household dynamics and allowed the researcher to contextualize the information being shared.

Findings from this research indicate that financial constraints were at the crux of poor health. Limited income women in this study were forced to prioritize basic necessities of living such as food, clothing, shelter, and childcare in lieu of attending to personal health needs. Participants were aware of the fact that their health was poor, however, they were frequently faced with financial crises that caused them to be stressed and depressed. Major concerns expressed by women included inadequate finances to pay bills, the welfare of their children and stressful relationships.

Participants in this study also had limited social support. Observations in households revealed chaotic living situations. Women were often the only caregiver for children and many of the children had problems as well. Some children had been sexually abused and others had been diagnosed with behavioral disorders. Most women in this study were the only caregivers for their children and they were generally responsible for the maintenance of the household. Taking care of children and attending to frequent family crises were considered exhausting.

Women seldom took part in scheduled physical activities because they perceived their household responsibilities as exhausting. Turbulent relationships with family members and significant others were also a source of stress and exhaustion. Mental exhaustion prevented them from engaging in physical activities for the sake of health improvement. Women often expressed a desire to shut themselves off from the rest of the world either in their rooms or in front of the television. Engaging in physical activities was perceived as another form of work. For these women, life was work and

they seized opportunities to relax and escape from life's pressing problems. Escape from life's problems manifested itself in unhealthy behaviors such as decreased physical activity and disordered eating behaviors.

Findings from this study revealed that stress and depression coupled with social isolation and loneliness lead to disordered eating behaviors. Women often turned to food in an attempt to cope with various life stressors. Women tended to develop unhealthy relationships with food perhaps because other relationships were lacking. Food was emotionally gratifying, although the gratification was only temporary. The excess accumulation of weight caused more stress and depression for women because they were penalized socially. Women in this study experienced social repercussions such as disdainful comments, discrimination, and unequal access to men because of their weight.

Eating for these women could also be considered an affordable form of entertainment. Women seldom possessed the resources to engage in leisure activities or purchase nice clothing. Dining at a fast food restaurant could be considered a means of treating oneself. Eating out lessens the work load and provides an opportunity to get out of the house and away from the stress of everyday life.

Women in this study had little power to change their behaviors because they were strapped with problems superceding their nutritional and health needs. Women in this study did not perceive themselves as being able to make health changes because of numerous barriers that were out of their control and coming from the outside world. For these women, everyday challenges were perceived as higher priorities than the distant possibility of developing chronic diseases.

## Conclusions

Correcting the disparity in the prevalence of heart disease requires more than changing individual health behaviors. Traditional health education strategies will have little impact on improving the health of limited income women unless the context within which women make health choices is taken into consideration. Exacting changes in health behaviors such as improved food intake and increased physical activity are not priorities for women faced with financial strain and limited social support. Although women in the current study were aware of the importance of maintaining a healthy weight, increasing physical activity, and eating healthy, they did not possess the resources, either financial or emotional, to put these recommendations into action. Teaching limited income women to cope with stress is encouraging them to settle for their current life circumstances (Travers 1997). System based changes to improve the financial situation of limited income women are necessary. An improvement in financial situation might lessen stressful situations and unhealthy relationships which are often formed to improve financial situations and decrease loneliness. Economic enhancements, such as increasing minimum wage and requiring employers to offer healthcare coverage are two suggestions that would not only aid in reducing social stressors but also address the issues of health and economic disparities.

This research suggests that public health awareness campaigns do not work to the extent of decreasing problems among limited income populations. Many Americans become aware of a problem, such as obesity or heart disease, and can recite the risk factors associated with the maladies. However, the application is only possible if they possess the resources to make the recommended changes. In order to improve the health

of limited income obese individuals there needs to be improvement in their social strata. In addition to minimum wage hikes and healthcare, opportunities to obtain an education beyond learning the importance of eating “five a day” are crucial for decreasing health and economic disparities. Through education an individual increases their marketability and improves their ability to obtain gainful employment. Limited income women in this study perceived many problems as emanating from forces beyond their control. Advancement in social responsibility on the part of educators is necessary to improve the financial situation of limited income individuals. It is important for health professionals and researchers to become involved in their communities and be cognizant of governmental affairs. Putting research into practice is necessary to decrease health and nutrition disparities that exist in communities. Becoming knowledgeable about tax dollars expenditures and the allocation of funding to programs is necessary to effect change. Educational efforts on the part of nutrition professionals should not be limited to educating others. Educators should become aware of policies and programs affecting those in educational and research programs and knowledge gained from research and educational efforts needs to be applied. If research remains on paper, the disparities in health will remain. Being civically responsible with the knowledge gained from research efforts is necessary. Nutrition educators and researchers can provide experiential testimonials when policies affecting their programs are at stake.

Limited income women in this study felt powerless to improve their condition as indicated by their life concerns and their putting other’s needs before their own. It is important for educators to address environmental factors impacting the health of limited income individuals instead of making only prescriptive recommendations.



Empowerment programs that are responsive to the needs of limited income women are necessary. Action research for social change is an approach that could ameliorate the disparate occurrence of heart disease in limited income women. Limited income women need to be empowered to develop the independence to overcome or change their situation (Arnold et al. 2001). Nutrition educators, researchers, and Cooperative Extension Service educators should examine their roles as advocates.

Cooperative Extension Service's presence at the county level provides an opportunity for promoting sustainable change. Cooperative Extension Service educators at the county level should be an important part of promoting change within their communities. Cooperative Extension Service professionals involved in public deliberation programs should work with limited income women to increase their confidence in the ability to organize and respond to social injustice. The educator should serve as a facilitator who helps direct the thinking of limited income women about ways to overcome social injustices that impact their communities.

Stress in the lives of limited income women in this study was compounded by social expectations of thinness. Health professionals need to combat societal pressures to conform to physiologically unhealthy ideals. Media outlets, such as magazines, television, and the movie industry continue to spread propaganda-like message equating thinness and "beauty" with power, money, personal satisfaction, and outright success. The average American is fat, yet we are continually bombarded with images of beautiful people. The quest for the perfect body is viewed as a panacea for all that is wrong in life. Prosperity is not only symbolized in material resources, but also physical assets. When

limited income women are faced with images so far from their own, feelings of self loathing and depression surmount.

Current health promotion efforts targeting obesity are of concern. Being obese and poor relegates women to the bottom of the socioeconomic strata. With so much attention being placed on the deleterious aspects of obesity, those who are fat will likely be further discriminated against. Employers are likely to avoid hiring obese individuals because of expected poor health. Current health promotion efforts may result in further stigmatization of the obese and launch them farther downward economically. Rather than targeting obesity as the malady, health promotion efforts should focus on lifestyle changes such as increased exercise and dietary improvement.

Educational programs combating the stigmatization of obesity are necessary. Programs should begin in preschool and be included as part of the curriculum just as math or reading. Many Cooperative Extension Service programs across the nation have developed educational programs aimed at improving the character of children. The incorporation of body size acceptance should be included as an integral part of these programs.

“It is time to recognize their struggle, understand their challenges and support their need for lifelong efforts to achieve better health” (NCEH 2002). The needs and challenges faced by individuals and communities do not segregate along discipline lines (ECOP 2002). Educators should be aware of community resources and refer individuals to programs that can enhance their economic situations. Educators also have an opportunity to strengthen collaborations with other disciplines to develop holistic programs targeting physiological, psychological, social and environmental factors

influencing health behaviors. Programs targeting heart disease and obesity prevention among limited income women need to be crossdisciplinary and address strategies for coping with life stressors and improved social support if significant health gains are to be made.

Cooperative Extension Service programs have an opportunity to improve the health of limited income populations because of the diverse areas of expertise located at the county level. Programs targeting improved nutritional status, like the Expanded Food and Nutrition Education Program and Food Stamp Nutrition Education Program, should coordinate with other Cooperative Extension Service programs at the county level to offer limited income populations a wider array of programs depending on their needs. Impact areas targeting money management, family resiliency, and public deliberation would be beneficial in improving the situation of limited income audiences. Cooperative Extension Service educators should consider integrating program efforts to offer a wider array of services to limited income audiences than traditional nutrition education programs.

### Recommendations

Despite the small scale of this study, several suggestions seem appropriate for future research and practice.

1. Additional research with larger sample sizes is necessary to examine social reasons for the increased prevalence of heart disease and obesity in limited income women to verify the findings of this research.

2. Communities are not confined to one ethnic group. Research including cross sections of communities is necessary to understand the impact of culture on health disparities so that preventive programs can address the entire community rather than one ethnic group.
3. Longitudinal research is necessary to establish the physical, psychological, emotional and social consequences of being fat and poor.
4. Participatory action research at the local level is necessary to empower limited income women to affect social change within their communities.
5. Interventions taking a holistic approach to health should be developed and tested. Programs simultaneously targeting economic improvement and health improvement should be explored.
6. Educational programs need to be developed to combat the stigma of obesity. These programs should begin during early childhood so that children are not socialized to discriminate against obesity.

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APPENDICES

APPENDIX A  
PERCEPTIONS OF FRUIT, VEGETABLE, AND GRAIN INTAKE  
RECRUITMENT ANNOUNCEMENT



## How Women Choose Food

### Women Needed For Oklahoma State University Research Project

Would you like to tell us why you choose the foods you do?

**If so, you will receive \$25.00 and information about the foods you eat.**

If you are a woman between the ages of 18 and 44, you can participate in research about food choices conducted at Oklahoma State University. To participate, you cannot be pregnant or have a disease that affects what you eat. We want to know what you think about food, and we need you to participate in focus group interviews. The reason that we are doing this study is to find out why women choose the foods they do. We also want to know how women wish to receive information about healthy eating. The group interview is simple and easy and takes about 1-½ hours of your time. We have babysitters if you need one. Appointments for interviews are being made for the next few weeks.

Volunteers will receive \$10.00 for finishing the group interview and completing a food frequency questionnaire. Refreshments will be served after the interview. You will receive \$15.00 more when you finish a food diary. You will also receive nutrient information about the foods you eat.

The group interview will be videotaped. The information that you give us will be confidential. This study has been approved by the Institutional Review Board for Protection of Human Subjects at Oklahoma State University.

Thank you for interest. For more information or to volunteer for the project, please call someone below.

Gail E. Gates, Ph.D., RD  
Principal Investigator  
Department of Nutritional Sciences  
Oklahoma State University  
(405) 744-5032

Christy Russell  
Research Assistant

APPENDIX B

PERCEPTIONS OF FRUIT, VEGETABLE, AND GRAIN INTAKE CONSENT FORM



# Consent to Participate in Research

## Factors Influencing Folate Intake in Women

I \_\_\_\_\_, voluntarily agree to participate in the above fitted research. The Oklahoma Center for the Advancement of Science and Technology and the College of Human Environmental Sciences at Oklahoma State University sponsor this research.

I understand that:

- (1) The purpose of the study is to find out what influences the food intake of women.
- (2) I will participate in a focus group interview about influences on my food preferences and choices.
  - (a) The interview will take about 1 to 1 1/2 hours.
  - (b) I will allow the researcher to videotape my interview.
  - (c) The tape of the interview may be transcribed.
- (3) I will complete a food frequency questionnaire at the beginning of the study that will ask me to recall my typical food choices;
- (4) I will receive \$10.00 for finishing the focus group interview and completing the food frequency questionnaire.
- (5) I will record my daily food intake for four days
- (6) I will receive \$15.00 for completing the four day food record.
- (7) All records are confidential. My name will not be used in any reports or data records at the end of the study. All information obtained about me as an individual will be considered privileged and held in confidence.
  - (a) Videotapes of the interviews will be viewed by the project director or her authorized representatives. Tapes will be filed in the project directors office until completion of the study when they will be destroyed.
- (8) I volunteer to take part in this study.
  - (a) I have the right to withdraw from this study at any time by contacting the researchers.
  - (b) I may stop participating in the study at any time without penalty or loss of benefits that I am otherwise entitled to receive.
- (9) This research is beneficial in that it provides information about the effects of nutrition education on food habits of women; and

(a) the information gained from this study may provide information useful in helping women choose nutritionally adequate diets;

- (10) If I need more facts about the study I may contact Dr. Gail Gates at (405) 744-5032. I may also contact Gay Clarkson at the office of University Research Services, 305 Whitehurst, Oklahoma State University, Stillwater, OK 74078 at (405) 744-5700.

I have read and fully understand the consent form. I sign freely and voluntarily. A copy has been given to me.

Date \_\_\_\_\_

Time \_\_\_\_\_

Subject Name (please print) \_\_\_\_\_

Signed \_\_\_\_\_

Permanent Address \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

I certify that I have personally explained all parts of this form to the subject before requesting the subject to sign it.

Signed \_\_\_\_\_  
(project director or her authorized representative)

Printed name \_\_\_\_\_  
(project director or her authorized representative)

APPENDIX C

PERCEPTIONS OF FRUIT, VEGETABLE, AND GRAIN

INTAKE IRB FORM

OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD  
HUMAN SUBJECTS REVIEW

Date: 09-11-97

IRB#: HE-98-007

Proposal Title: IMPROVING FOLATE INTAKE IN YOUNG WOMEN

Principal Investigator(s): Gail Gates, Kathy Keim

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE APPROVAL PERIOD.

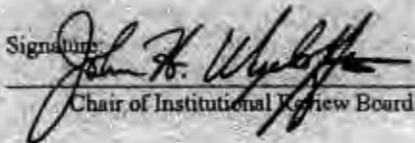
APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.

ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

---

Comments, Modifications/Conditions for Approval or Disapproval are as follows:

Signature:

  
Chair of Institutional Review Board

Date: September 16, 1997

APPENDIX D

PERCEPTIONS OF FRUIT, VEGETABLE, AND GRAIN INTAKE DEMOGRAPHIC  
QUESTIONNAIRE

Demographic Information

1. During the past year, have you taken any vitamin or mineral supplements? (circle number)

- 1 NO
- 2 Yes, fairly regularly
- 3 Yes, but not fairly regularly

2. If yes, circle the supplement that best describes what you take. (circle number)

- 1 Multivitamin
- 2 Vitamin C
- 3 Vitamin E
- 4 Folic Acid
- 5 Other, specify \_\_\_\_\_

3. \_\_\_\_\_ ft \_\_\_\_\_ in Current height in feet and inches

4. \_\_\_\_\_ Current weight in pounds

5. \_\_\_\_\_ Age in years

6. How satisfied are you with your current weight? (Circle number)

1 VERY SATISFIED    2 SATISFIED    3 UNSATISFIED    4 VERY UNSATISFIED

7. Which of the following describes your current diet? (Circle number)

- |                           |                        |
|---------------------------|------------------------|
| 1 Normal/General          | 6 High Fiber           |
| 2 Weight reduction        | 7 Diabetic             |
| 3 Weight gaining          | 8 Vegetarian           |
| 4 Low fat/Low cholesterol | 9 Other, specify _____ |
| 5 Low salt/Low sodium     |                        |

8. List the people who lives in your household.

Relationship

Age

---

---

---

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9. Which of the following describes your current student status? (Circle number)

- 1 Full-time student
- 2 Part-time student
- 3 Not a student

10. What is the highest level of education that you have completed? (Circle number)

- 1 Elementary School (grades 1-6)
- 2 Some High School
- 3 High School Graduate /GED
- 4 Some Technical School/Some College
- 5 Technical School Degree
- 6 College Graduate
- 7 Graduate School

11. Which of the following describes your current work status? (Circle number)

- 1 Employed full-time
- 2 Employed part
- 3 Homemaker
- 4 Unemployed

12. What is your race? (Circle number)

- 5 White
- 6 Black
- 7 Asian/Pacific Islander
- 8 American Indian/Alaska Native
- 9 Other

13. Are you of Hispanic Origin? (Circle number)

- 1 Yes
- 2 NO

14. Which represents your income from all sources over the past year? (Circle number)

- |                     |                       |
|---------------------|-----------------------|
| 1 Under \$10,000    | 5 \$25,000 - \$29,000 |
| 2 \$10,000 - 14,999 | 6 \$30,000 - 34,999   |
| 3 \$15,000 - 19,999 | 7 \$35,000 - 49,999   |
| 4 \$20,000 - 24,999 | 8 \$50,000 and over   |

15. Which of the categories comes closest to describing the paid work that you do?

- 1 Professional or Technical
- 2 Manager, officer or proprietor
- 3 Clerical or sales worker
- 4 Service worker or other similar job

Other, specify \_\_\_\_\_

APPENDIX E

1999 FEDERAL POVERTY GUIDELINES



## 1999 HHS Poverty Guidelines

Size of Family Unit	48 Contiguous States and D.C.	Alaska	Hawaii
1	\$ 8,240	\$10,320	\$ 9,490
2	11,060	13,840	12,730
3	13,880	17,360	15,970
4	16,700	20,880	19,210
5	19,520	24,400	22,450
6	22,340	27,920	25,690
7	25,160	31,440	28,930
8	27,980	34,960	32,170
For each additional person, add	2,820	3,520	3,240

**SOURCE:** *Federal Register*, Vol. 64, No. 52, March 18, 1999, pp. 13428-13430.

Available at: <http://aspe.hhs.gov/poverty/99poverty.htm>

APPENDIX F

ETHNOGRAPHY OF HEART DISEASE RISK FACTOR RECRUITMENT

ANNOUNCEMENT



**Women needed to tell us about their health.**

**You will receive \$75 and information about your health if you participate.**

If you are a woman between the ages of **25 and 44**, you can participate in research about health risks at Oklahoma State University. To participate, **you cannot be pregnant nor have a disease that affects what you eat.** Your opinions are important to us. We want to know what you think about certain diseases, and we need you to participate in interviews. The reason that we are doing this study is to find out why women are at risk for certain diseases. We also want to know how women would like to receive information about healthy eating. The interviews are simple and easy and many have said that they are even fun.

To receive the \$75, you will meet with the interviewer at least three times. You need to participate in all of the interviews to receive \$75. In the first interview we will ask you questions about certain diseases and your activity level. You will also keep a food diary that requires you to weigh your foods for 4 days. We will provide you with information about the foods you eat. Finally, we will ask you to tell us about your body size and participate in another interview about where and how you purchase foods. When you have completed everything you will receive \$75 cash.

The interviews will be tape-recorded. The information that you give us will be confidential. This study has been approved by the Institutional Review Board for Protection of Human Subjects at Oklahoma State University.

Thank you for interest. For more information, please call:

Stephany Parker  
Oklahoma State University  
(405) 744-6821  
(405) xxx-xxxx (after 5 p.m.)

or Kathy Keim, Ph.D., RD  
Department of Nutritional Sciences  
(405) 744-8293

**Interview date and time:** \_\_\_\_\_

APPENDIX G

ETHNOGRAPHY CONSENT FORM

## Oklahoma State University

### Individual's Consent to Voluntary Participation in a Research Project

I, \_\_\_\_\_, voluntarily consent to participate in the study entitled: Understanding Health Risk Factors in Low Income Women, sponsored by The Oklahoma Nutrition Education Program and the College of Human Environmental Sciences at Oklahoma State University.

1. **PURPOSE:** The purpose of this study is to learn about nutrition and health influences that affect the development of chronic disease.
2. **PROCEDURE(S) AND DURATION:** I will meet with the researcher at least three times. If I agree, all of the meetings will be in my home. I will be weighed and measured by the researcher. During the first visit, I will be asked to sort pictures of women of different body types according to my beliefs and preferences. I will also be asked to weigh and record foods that I eat for four days. I will be given measuring cups, spoons, and beanbag measures to assist me. During those four days a researcher will either visit my home or call me to make sure that I am not having any problems with the scales. I will always be aware of the times that the researcher will visit my home. She will not drop by unannounced on any occasion.

During the second visit with the interviewer, I will be asked questions about my health. She will then show me pictures of foods and I will give her my opinions about those foods. This interview will take about 2 ½ hours. After this interview, the interviewer may call me to ask additional questions about the answers that I have given if anything is unclear to her.

During the third visit, I will be asked about my food habits. The interviewer will show me pictures of foods again and I will be asked to give my opinions and sort the foods based on the questions that she asks me. This will take about 2 ½ hours. After this interview, the interviewer may call me to ask additional questions about the answers that I have given if anything is unclear to her.

3. **BENEFITS:** I will receive \$75.00 for completing all interview and food records. I understand that I will not receive any of the money until I have completed all parts of the study. I will receive information about my dietary intake at the end of the study if I would like this information. A trained nutritionist will explain the information from the analysis to me. This research is beneficial in that it provides information about health risks experienced by women. The information gained from this study may be useful in helping women choose nutritionally adequate diets that are beneficial in decreasing chronic disease risk

4. **ALTERNATE TO PARTICIPATION:** I have the right to withdraw from this study at any time by contacting the researchers. I may stop participating in the study at any time without penalty or loss of benefits that I am otherwise entitled to receive.

**I understand that by signing this consent form I have not waived any of my legal rights or released this institution for liability or negligence.**

I understand that records from this study will be held confidential and that I will not be identified by name in any report or publication resulting from this study. My food records will be reviewed and analyzed by the project director or her authorized representatives. Food records will be filed in the project director's office until completion of the study when they will be destroyed.

I understand that if I have questions about this study, or need to report adverse effects, I may contact Dr. Kathy Keim at (405) 744-8293. If I have any question about my rights as a research subject, I may contact Sharon Bacher at the Office of University Research Services, 305 Whitehurst, Oklahoma State University, Stillwater, OK 74078 at (405) 744-5700.

5. **SIGNATURES:** I have read this consent form and understand its contents. I freely consent to participate in this study as described herein. I will receive a copy of this consent form.

Date \_\_\_\_\_ Time \_\_\_\_\_

Participant's Name (Please Print) \_\_\_\_\_

Participant's Signature \_\_\_\_\_

Permanent Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

I certify that I have personally explained all parts of this form to the subject before requesting the subject to sign it.

Signature \_\_\_\_\_ (Project Director or Authorized Representative)

Printed Name \_\_\_\_\_ (Project Director or Authorized Representative)

APPENDIX H

INSTITUTIONAL REVIEW BOARD APPROVAL FORM

Oklahoma State University  
Institutional Review Board

Protocol Expires: 10/10/01

Date : Wednesday, October 11, 2000

IRB Application No HE00126

Proposal Title: UNDERSTANDING HEALTH RISK FACTORS IN LOW INCOME WOMEN

Principal  
Investigator(s) :

Stephany Parker  
315 HES  
Stillwater, OK 74078

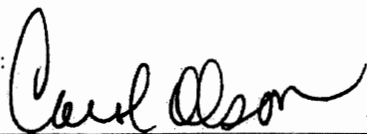
Kathryn Keim  
421 HES  
Stillwater, OK 74078

Reviewed  
and Exempt **Continuation**

Approval Status Recommended by Reviewer(s) : Approved

---

Signature :



Carol Olson, Director of University Research Compliance

Wednesday, October 11, 2000

Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.



APPENDIX I

ETHNOGRAPHY DEMOGRAPHIC QUESTIONNAIRE

Demographic Information  
To be administered by an interviewer

1. What is the highest grade or year of school you have completed? \_\_\_\_\_
2. Which of the following describes your current student status? (Circle number)
  - 1 Full-time student
  - 2 Part-time student
  - 3 Not a student
3. Which of the following describes your current work status? (Circle number)
  - 1 Employed full-time
  - 2 Employed part-time
  - 3 Homemaker
  - 4 Unemployed
4. Which of the categories comes closest to describing the paid work that you do? (Circle number)
  - 1 Professional or technical
  - 2 Manager, officer or proprietor
  - 3 Clerical or sales worker
  - 4 Service worker or other similar job
  - 5 Other, specify \_\_\_\_\_
  - 6 Not applicable, unemployed
5. Which represents your income from all sources over the past year? (Circle number)

1 Under \$10,000	5 \$25,000 - \$29,999
2 \$10,000 - \$14,999	6 Over \$30,000
3 \$15,000 - \$19,999	
4 \$20,000 - \$ 24,999	
6. \_\_\_\_\_ ft \_\_\_\_\_ in Current height in feet and inches
7. \_\_\_\_\_ Current weight in pounds
8. \_\_\_\_\_ Age in years

9. During the past year, have you taken any vitamin or mineral supplements? (Circle number)

- 1 NO
- 2 YES, fairly regularly
- 3 YES, but not regularly

10. Which supplement best describes what you take? (Circle number)

- 1 Multivitamin
- 2 Vitamin C
- 3 Vitamin E
- 4 Folic Acid
- 5 Other, specify \_\_\_\_\_

11. How satisfied are you with your current weight? (Circle number)

- 1 Very satisfied
- 2 Satisfied
- 3 Unsatisfied
- 4 Very unsatisfied

12. Which of the following describes your current diet? (Circle number)

- |                           |                        |
|---------------------------|------------------------|
| 1 Normal/General          | 6 High Fiber           |
| 2 Weight reduction        | 7 Diabetic             |
| 3 Weight gaining          | 8 Vegetarian           |
| 4 Low Fat/Low Cholesterol | 9 Other, specify _____ |
| 5 Low Salt/Low Sodium     |                        |

13. Do you smoke? (Circle number)

- 1 NO
- 2 YES

14. If yes, how many cigarettes do you smoke per day? \_\_\_\_\_

15. How long have you smoked? \_\_\_\_\_

16. During the past month, have you had at least one drink of any alcoholic beverage? (Circle number)

- 1 NO
- 2 YES

17. During the past month, how many days did you drink any alcoholic beverages on average? \_\_\_\_\_

18. On the days when you drank, about how many drinks did you drink on average? \_\_\_\_\_

19. How many times during the past month did you have 5 or more drinks on an occasion? \_\_\_\_\_

20. During the past month, did you participate in any physical activities? (Circle number)

1 NO

2 YES

21. List the people who live in your household.

<u>Relationship</u>	<u>Age</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

22. What is your race/ethnicity? (Circle number)

1 White

2 Black

3 Native American or Alaskan Native

4 Hispanic

5 Other \_\_\_\_\_

23. Do you currently receive Food Stamps? (Circle number)

1 NO

2 YES

24. How long have you received Food Stamps?

25. What is the \$ amount of the Food stamp allotment? \_\_\_\_\_

26. Do you currently have health insurance? (Circle number)

- 1 No
- 2 Yes

27. Do you receive Medicare benefits? (Circle number)

- 1 No
- 2 Yes

28. Household food security scale.

1. In the last year did you or other adults ever cut the size of your meals or skip meals because there wasn't enough money for food?
2. (If yes) How often did this happen? Almost every month, or in only 1 or 2 months?
3. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money to buy food?
4. In the last 12 months, were you ever hungry but didn't eat because you couldn't afford food?

Now I'm going to read you 2 statements that people have made about their food situation. For these statements, tell me whether the statement was often, sometimes, or never true for you or other members of your household.

1. The food that I/we bought just didn't last, and I/we didn't have money to get more.
2. We couldn't afford to eat balanced meals.

APPENDIX J

24-HOUR RECALL FORM



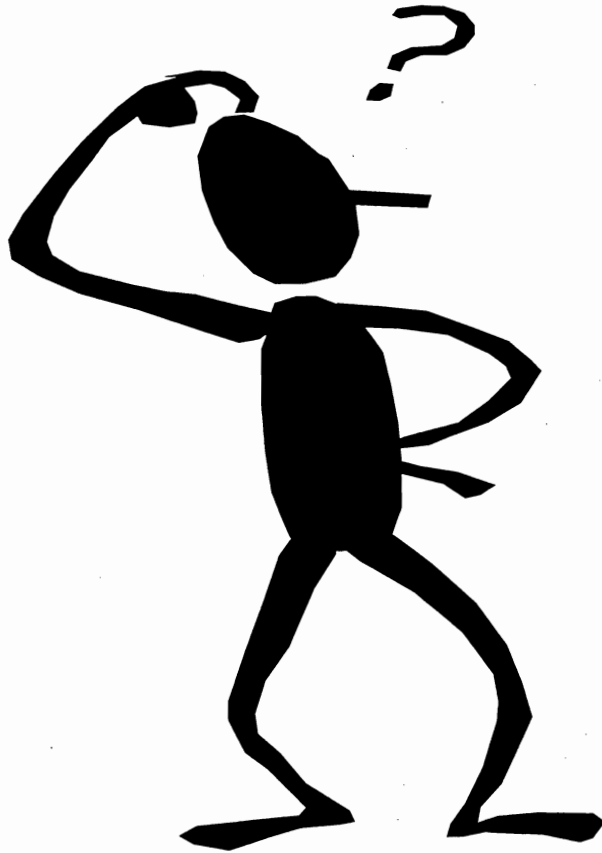




APPENDIX K

WEIGHED FOOD RECORD INSTRUCTIONS AND FOOD DIARY

## Food Diary Directions



## Directions for keeping your food diary

We would like you to weigh all of the foods and drinks that you consume. If you eat out, you do not have to weigh your foods unless it is convenient for you. You will write down those foods and estimate portions using the directions in this booklet.

Everything you put in your mouth and swallow is important to record. This includes all meals, snacks, nibbling, candy, drinks (including alcohol), everything. Record in your diary immediately after having a meal, snack, or drink.

Also be very specific when you record what you eat and drink. Describe every item and how it was prepared.

- ❖ **Record one item per line**
- ❖ **Be specific about how it was prepared**
  - .write fried, baked, broiled...- not just chicken
- ❖ **Be very specific when describing the item**
  - Write whole milk, skim milk, 2%...- not just milk
  - Write wheat, white, etc...-not just bread
  - Record the name brand when you know it (i.e. snickers candy bar)

### Directions for how to use the scales

1. Turn the scale on.
2. Put your plate on the scale.
3. Press the "On/Off button".
4. Put the first food on the scale.
5. Record the amount in the "How much served?" column on the food record.
6. Put the next food on the plate.
7. Record the amount in the "How much served?" column
8. Continue in this way until you have recorded all foods you plan to eat.
9. It is important for you to weigh leftovers, follow the instructions for leftovers if you do not eat everything on your plate.

### Recording amounts not eaten

1. Put a paper plate on the scale and press the "on/off button".
2. Scrape the first food not eaten onto the empty plate.
3. Record the amount in the "How much left?" column.
4. Press the "on/off button".
5. Scrape the next food not eaten onto the plate.
6. Record the amount in the "How much left?" column.
7. Continue this way until you have recorded all left overs.

### Recording foods eaten away from home

1. If you eat out, you should use the estimator bag and tips for estimating sheet.
2. The deck of cards should be used for estimating meats, fish, chicken, and cheese. The cards are the size of a 3 ounce serving.
3. Use the measuring spoons for estimating jelly, syrup, butter, gravy, salad dressing, ketchup, mustard, and other toppings.
4. Use the measuring cups and bean bags to estimate amounts for vegetables, rice, noodles, cereal, soup, stew, casseroles, icecream, jello, and canned fruits.
  - ❖ The green bean bag is 1 cup
  - ❖ The red bean bag is  $\frac{1}{2}$  cup
  - ❖ The black bean bag is  $\frac{1}{4}$  cup.

### Recording Fast Foods

1. If you eat out at McDonald's, Burger King, Long John Silvers, Whataburger, etc. tell us what size you ate in the column 2 marked "How much served?". See the example on the next page.

### Directions for how to use the scales

1. Turn the scale on.
2. Put your plate on the scale.
3. Press the "On/Off button".
4. Put the first food on the scale.
5. Record the amount in the "How much served?" column on the food record.
6. Put the next food on the plate.
7. Record the amount in the "How much served?" column
8. Continue in this way until you have recorded all foods you plan to eat.
9. It is important for you to weigh leftovers, follow the instructions for leftovers if you do not eat everything on your plate.

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1. Put a paper plate on the scale and press the "on/off button".
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4. Use the measuring cups and bean bags to estimate amounts for vegetables, rice, noodles, cereal, soup, stew, casseroles, icecream, jello, and canned fruits.
  - ❖ The green bean bag is 1 cup
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### Recording Fast Foods

1. If you eat out at McDonald's, Burger King, Long John Silvers, Whataburger, etc. tell us what size you ate in the column 2 marked "How much served?". See the example on the next page.

# Food Diary



## My Diary of What I Eat And What I Drink

ID # \_\_\_\_\_

Date \_\_\_\_\_

Name \_\_\_\_\_

We would like to know what kinds of foods you eat and what you drink. For the next 4 days, please write down everything that you eat and drink. Be sure to tell us the amount that you eat and drink. Use the scales to measure what you eat and drink and follow the directions that are in the "Food Diary Directions" booklet.

Remember to be very specific when recording. We really appreciate your cooperation.

If you ever have trouble with the scales be sure to call me at home or work.

Thanks,

Stephany Parker

Work#: (405)xxx-xxx

Home#: (405)xxx-xxxx





Day 2 Date: \_\_\_\_\_ Day of the week: \_\_\_\_\_

I ate and drank this:	How much served?	How much left?

Day 2 Date: \_\_\_\_\_ Day of the week: \_\_\_\_\_

I ate and drank this:	How much served?	How much left?

Continue on next page if needed.





Day 4 Date: \_\_\_\_\_ Day of the week: \_\_\_\_\_

I ate and drank this:	How much served?	How much left?

Day 4 Date: \_\_\_\_\_ Day of the week: \_\_\_\_\_

I ate and drank this:	How much served?	How much left?

Continue on next page if needed.

APPENDIX L

LEADING CAUSE OF DEATH Q-SORT INSTRUCTIONS

Name: \_\_\_\_\_

Participant number: \_\_\_\_\_

Date: \_\_\_\_\_

**Directions:**

1. Ask the participant what they think is the leading cause of death for women in Oklahoma.
2. Next ask the participant what the leading cause of death for men in Oklahoma is.
3. Give the participant the cards with the top 9 causes of death for women and have them sort the cards from 1 most people die from this to 9 the least number of women die from this.
4. Record the number on the back of the card in the table below.

	1	2	3	4	5	6	7	8	9
Response									

APPENDIX M

TRICHOTOMOUS FOOD SORT PROTOCOL

Name \_\_\_\_\_

Subject Number \_\_\_\_\_

Date \_\_\_\_\_

Trichotomous Food Sort

1	2	3	4	5	6	7	8	9
Low Fat	High Fat	Not Sure	Low Choles	High Choles	Not Sure	Low Folate	High Folate	Not Sure

APPENDIX N

WEIGHT VALUATIONS FORM

Name \_\_\_\_\_

Subject # \_\_\_\_\_

Date \_\_\_\_\_

### Response Form Weight Valuation

Height \_\_\_\_\_

Weight \_\_\_\_\_

Calculated BMI \_\_\_\_\_

Show participant each card individually and record responses.

Card Number	Participants description of body weight
1	
2	
3	
4	
5	
6	
7	
8	
9	

Record the number on the back of the card in the order that the subject rates the drawings

	Most								Least
1. Healthy									
2. Attractiveness									

Put an (X) in the column that corresponds with the number on the back of the card.

Question	1	2	3	4	5	6	7	8	9
3. Best size									
4. Overweight									
5. Average size									
6. Looks like you									
7. Which could you achieve?									
8. What size would you like to be?									

**Body Satisfaction. Circle the response:**

1) I wish I was: a) a little thinner b) a lot thinner c) no different d) a little heavier e) a lot heavier

2) I wish I was: a) a little shorter b) a lot shorter c) no different d) a little taller e) a lot taller

3) I am: a) very skinny b) a little skinny c) neither skinny nor fat d) a little fat e) very fat



VITA 2

Stephany Paige Parker

Candidate for the Degree of

Doctor of Philosophy

Dissertation: UNDERSTANDING HEALTH RISKS IN LIMITED INCOME WOMEN

Major Field: Human Environmental Sciences

Biographical:

Personal Data: Born in Kingsmountain, North Carolina, on August 16, 1969, the daughter of John David Parker and Mary Jane Beck.

Education: Received a Bachelor of Arts degree in Anthropology May 1992 from the University of Georgia; received Master of Science degree in Nutritional Sciences from Oklahoma State University in August 1997; completed the requirements for the Doctor of Philosophy degree in August 2002.

Professional Experience: United States Peace Corps Volunteer, Health Sector, Jamaica, West Indies, 1994 to 1996; Assistant Nutrition Education Specialist, Community Nutrition Education Programs, Oklahoma Cooperative Extension Service, Oklahoma, 2000 to present.

Professional Memberships: American Anthropological Association and Society for Nutrition Education.