

**THE INFLUENCE OF SOCIAL CONTEXTUAL FACTORS ON THE HEALTH
OUTCOMES OF RURAL WOMEN**

by

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People living in rural America face unique social circumstances that often prevent them from achieving optimal health status. Economic instability significantly contributes to higher rates of chronic disease and poor mental health among rural residents. The social conditions associated with “rurality” are gendered with rural women bearing the brunt of social and psychosocial detriments to their health. Income, education, role responsibilities, living circumstances and personal and community health resources are among the main areas challenging rural women today. The psychosocial stressors that result from the demands of rural life affect rural women’s mental health, functioning and behavior. Considering the social context of individual rural areas in the light of health behavior interventions is essential to increasing their potential effectiveness. Health campaigns targeting smoking, nutrition and physical activity- chronic disease risk factors- can no longer be indifferent to social circumstances. Without recognition of the unique social context and experiences of rural women, the solutions implemented to meet health care needs in rural areas have little hope of achieving success. The examination of rural social contextual factors is of utmost importance and public health significance as intervening to improve social circumstances may result in decreased incidence of some diseases in rural women.

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1.0 INTRODUCTION

In his book, *Rural Health in the United States*, Ricketts (1999) asserts, “The rural people and resources of the United States have shaped the nation’s economy, stimulated its development, and played an important role in its politics, social structure, and character” (p. 7). The agriculture and manufacturing sectors of rural America contributed to the nation’s economy by creating tremendous employment opportunities during much of the twentieth century. In recent years, the decline in agricultural employment and the nation-wide increase in low-wage employment without health benefits have resulted in extreme hardship for rural Americans.

In addition to undergoing substantial shifts in local economies, people living in rural America face unique social circumstances that often prevent them from achieving optimal health status. The geography and intrinsic characteristics of rural locations have frequently been blamed for the majority of rural residents describing their health as fair or poor. This paper argues, however, that rural location per se does not cause poorer health outcomes. Rather, many of the social determinants of poor health are rampant in most rural areas across the United States. Further, the social conditions associated with “rurality” are gendered with rural women disproportionately suffering more than men from higher rates of poverty and lower rates of education as well as other social and psychosocial detriments to their health (Simmons, Anderson & Braun, 2008; Wathen & Harris, 2007).

It is important to acknowledge that many of the social contextual factors negatively impacting the health outcomes of rural women are also applicable to urban women. Rural America, however, is distinguished by a unique combination of social contextual factors which are worthy of exploration distinct from the social contextual factors impacting urban dwellers. At the time of the 2000 census, the United States had an estimated 59,061,387 “rural” people, over half of whom were women (Census, 2000). In addition, the rural population of the U.S. is distributed evenly across the regions of the country and living on 75% of the nation’s land (Ricketts, 1999; O’Brien & Denham, 2008). Identifying and addressing the negative impact of social contextual factors on rural women’s health outcomes will reveal optimal points for health and human service interventions. Health promotion interventions designed for rural residents in the United States must take into account social contextual factors. In her chapter “Health Behaviors in a Social Context,” Emmons (2000) argues that:

Although the need for interventions that address the social context may be less apparent in the predominantly white, middle-income populations in which many intervention models have been developed and tested, they are critical in interventions that target lower-income and ethnically diverse populations (p. 259).

Therefore, addressing the detrimental health effects that women endure as a result of social contextual factors is important in populations that are low income, such as rural populations and/or ethnically diverse populations, such as inner city populations. Others have suggested that the worst health outcomes in the nation are found among residents of these two very diverse, geographic designations (Ricketts 1999; Verheij, 1996). While some programs have been implemented, rural America is often forgotten by public health researchers and professionals.

Rather than placing an emphasis on the rural-urban variations in health outcomes, this paper sheds light on key social factors impacting the health outcomes of rural American women

and identifies potential points for intervention. In regard to rural and urban differences in health outcomes, Hoggart (1990) wrote:

I do not mean that there are no differences between (most) rural and urban places, but rather that in the main these are generated by the uneven presence of some known causal factor 'X', as opposed to either rurality or urbanity. The obvious follow-up point is that for theory to progress we should focus on 'X' (p. 251).

While many of the health outcome and social epidemiological data in this paper are rural-urban comparisons, it is not the intention to compare health outcomes across the rural-urban spectrum, but rather describe the health realities of rural women.

This paper describes the impact of social determinants on health experiences and health outcomes of rural women in the United States. A literature review was conducted with the objectives of: (1) identifying social contextual factors associated with rurality and how they impact the health of rural residents; (2) exploring rural women's conceptualizations of health and health care experiences including seeking health information; and (3) identifying potential long-term health impacts of stress induced by social factors in this population.

Rural is a term that is frequently used but infrequently defined in precise and meaningful terms (Ricketts, 1999; Boeckner, Pullen, Walker, Oberdorfer & Hageman, 2007). Visions of rural America range from scenic, pristine environments to areas of densely populated, isolated and underserved people. The majority of rural America is neither of these extremes and must increasingly be recognized as representing a variety of ethnic, cultural and socioeconomic entities of America (Boeckner et al., 2007).

Because no universal definition of "rural" exists, population density is most often used as an indicator (O'Brien & Denham, 2008). In addition to population density, geographic regions, and physical, economic and social environments are commonly used as vague indicators of rurality. Social influences, in particular, have largely been used to distinguish rural from urban

living (Dew, Elifson & Dozier, 2007). In their exploration of a universal understanding of what constitutes a “rural” area, O’Brien and Denham (2008) noted that “The term rural is loosely used with marginal agreement about its meaning as it refers to frontier, remote, or isolated areas, but conceptualizations tend to be vague, imprecise, and subjective” (p. 335). Difficulties in defining rurality notwithstanding, the U.S. Department of Agriculture’s (USDA) definition of rural or nonmetropolitan areas is widely accepted. Thus, rural or nonmetropolitan areas are defined as open country and settlements with fewer than 2500 residents (USDA, 2004).

2.0 METHODS

Literature was identified primarily using the PubMed database. Key search terms were ‘women’s health,’ ‘rural’ and ‘United States.’ This initial search produced a large number of studies describing various health statistics and practices of rural women in the United States. Due to the volume of articles available, emphasis was placed on articles published between 2006 and 2009.

A second literature search was undertaken to gather outcome data on chronic disease among rural women. Literature was gathered through the PubMed database. Key search terms were ‘women,’ ‘chronic disease,’ ‘rural’ and ‘United States.’ Due to the limited amount of literature that resulted from this search, it was necessary to expand the key terms to include for specific chronic disease outcomes within ‘diabetes’ and ‘cardiovascular disease.’ The literature on chronic disease outcomes in rural women is limited and as a result the search was broadened by eliminating ‘rural’ from the key terms and then reviewing the literature on chronic disease in women in the United States to find articles relevant to rural women in particular.

Lastly, a review of *Journal of Rural Health* issues yielded some important literature excluded in prior searches. Issues published from 2006 to 2009 were considered and included when relevant to the objectives of the literature review.

3.0 RESULTS

3.1 SOCIAL CONTEXTUAL RISK FACTORS ASSOCIATED WITH RURALITY

Rural America was once thought to be immune to many of the hardships associated with urban life. There was a time when the vulnerabilities of poverty, unemployment and family decomposition were all but absent in the pristine outlying areas of the United States. Dew and colleagues (2007) have suggested the presence of a buffering effect in rural areas in which “the traditional family in rural America has historically served as a protective influence that decreases the probability of negative or undesirable outcomes among its members” (p.17). Changes in economic, social and living circumstances over the past thirty years have begun to impact many aspects of rural living across much of America. Today, the population of rural America is largely Caucasian and older with the majority of people in the age range of 45 to 64 years of age (O’Brien & Denham, 2008). Socially, many rural areas are characterized by high poverty rates, low educational attainment, and few employment possibilities (O’Brien & Denham, 2008).

Although rural residents engage in behaviors that are less healthy than behaviors of urban populations, there is reason to believe that the social determinants of income, education, occupation, and neighborhood play a larger role in health than individual behaviors (Benedict et al., 2007; Smith, Humphreys & Wilson, 2008). Appel, Giger and Davidhizar (2005) define contextual risk factors as “circumstances or variables beyond the control of the individual that

may serve to increase morbidity and/or mortality” (p.317). The role of social contextual factors in health behaviors and outcomes has been demonstrated (Appel, Giger & Davidhizar, 2005; Bloom, 2001; Rogers, 1997; Emmons, 2000). Social contextual factors include such circumstances as income, education, role responsibilities, living circumstances and personal and community resources (Emmons, 2000).

The Economic Research Service (2005) reported that poverty rates in rural America (21.2 percent) exceeded urban rates (14.3 percent) due in part to recent economic declines and high unemployment in rural areas. For instance, a study by Benedict and colleagues (2007) illustrates the emerging income disparity between urban and rural areas in North Carolina. Compared to urban residents, those living in rural counties have not fared well in terms of employment, income and poverty indicators. Between 1996 and 2002 urban employment increased by 28 percent compared to 16 percent in rural areas. O’Brien and Denham (2008) add that 47 percent of the families living in rural areas have a family income 200 percent below the poverty level. Compared to urban children under the age of 18 (21 percent), a greater proportion of rural children the same age live in poverty (23 percent) (Ricketts, 1999). In addition, generational poverty is much more common for rural families than urban families (Simmons et al., 2008b).

Much of the poverty facing rural America today has been attributed to increased rates of unemployment. Research has demonstrated that even in families with two full-time workers rural households are more likely than urban households to be near-poor or poor (Ziler, Coburn, Loux, Hoffman & McBride, 2003). Rural communities typically have a large number of low-wage and small business employment opportunities. These employers are often unable to provide health care coverage, resulting in a higher rate of uninsured rural residents (24 percent) compared to urban residents (18 percent) (Lichtenstein, Sharma & Wheat, 2005; Simmons et al., 2008b).

Worse, rural residents eligible for Medicaid are less likely to be covered by the benefits than their urban counterparts (Lichtenstein et al., 2005).

In addition to the faltering rural economy and likelihood of being uninsured, family decomposition is a recent and worsening problem in rural America. Like many Americans, residents of rural areas are experiencing increases in divorce rates and number of single parent households (McGranahan, 2003). Family decomposition has been linked to low parent-child bonding and lack of parental monitoring (Room, 2005). In addition, family decomposition is increasing psychosocial stress for many rural individuals.

One component of rural living that has remained constant is low educational attainment. People living in rural areas are less likely have to have completed high school or entered college than their urban counterparts (O'Brien & Denham, 2008). Thirty eight percent of rural residents report having completed some college as compared to 50 percent of urban residents in the United States. An even greater variation is observed in the percentage of individuals receiving a bachelor's degree or higher. While 25 percent of people living in urban areas have a bachelor's degree or higher, only 15 percent of people living in rural areas have completed the same level of education (Ricketts, 1999).

3.2 HEALTH IN RURAL AMERICA

A study by O'Brien and Denham (2008) demonstrated that rural residents consistently describe their health as poorer than do their urban counterparts. In addition to self-reported health data, mortality data are often used to gauge the general health of population. A plethora of studies has been undertaken with the objective of identifying whether urban or rural residents of the United

States experience higher rates of mortality, and the research reveals a mixed picture. Wathen and Harris (2007) have demonstrated that populations living in rural areas of the United States have shorter life expectancies than those residing in urban areas. Others have suggested that high mortality in rural areas is concentrated specifically in Appalachia, the South and in certain counties in the Midwest and Southwest United States. A number of other studies have shown that when mortality rates are standardized by gender and age, rural areas experience modest, if any, increases in mortality rates. Although mortality rates may not differ significantly between rural and urban areas, rural areas similar in population size to urban places have a bigger burden of end-of-life related health service as demonstrated by crude death rates (Ricketts, 1999).

In addition to adult mortality, infant mortality is a major marker of the general health of a population. Rural areas may bear much of the brunt of inequality surrounding infant and child mortality in the United States. Data consistently show that although the United States has the most advanced perinatal technology in the world, infant death rates here exceed those in other developed nations. In 2002, the U.K. had a child mortality rate of six per 1,000 live births and the U.S. had a rate of eight per 1,000 live births (Green, 2007). The World Health Organization (WHO) reported that while the United Kingdom (U.K.) spent 7.7 percent of its Gross Domestic Product (GDP) on health care expenditure in 2002, the U.S. spent 14.6 percent. With the most advanced technology and the highest health care expenditure in the world, a higher rate of child mortality suggests that technological advances and financial resources are not equitable across the country.

Many inequalities in health outcomes in the U.S. exist between races and/or genders including infant mortality. It is well-known that the African American population suffers from disproportionately higher rates of infant mortality than the white population living in the United

States. Hale and Druschel (1989) found that rural residency further exacerbates this disparity as the association between African American race and increased risk of postneonatal mortality is greater among rural residents. Studies comparing rural and urban birth outcomes reveal mixed results. This variation has been largely attributed to methodological differences between studies (Ricketts, 1999). The Health Resources Services Administration (1992) reported that infants born in rural areas die at a greater rate than the standards of infant mortality set by the Surgeon General. In a comparison of South Carolina and Massachusetts, Baker and Kotelchuck (1989) observed differences in birthweight-specific mortality and attributed this finding to the rural and urban difference between the two populations they were studying.

Additional studies have indicated that higher rates of postneonatal, or infant, mortality are due to reduced access to routine care in rural areas (Larimore & Davis, 1995; Larson, Hart & Rosenblatt, 1992). In contrast, a study conducted among women in Central Pennsylvania suggests that rural residence is a significant predictor of poor birth outcomes even after controlling for access to and utilization of prenatal care (Hillemeier, Weisman, Chase & Dyer, 2007). The authors further indicate that there are other aspects of residence that are determining preterm birth and low birthweight risk in rural communities. Their findings also shed light on the variation in birth outcomes within the three types of rural areas designated by the Office of Management and Budget; large rural cities/towns, small rural towns, and isolated small rural towns. Hillemeier and colleagues (2007) observed a protective effect of rurality at work as demonstrated by more favorable birth outcomes in the most densely populated rural areas.

In addition to evidence that rural populations suffer from high mortality rates, studies have demonstrated that people living in rural areas have a higher prevalence of chronic disease including cancer, cardiovascular disease and diabetes (Eberhardt, Ingram & Makuc, 2001;

Gosschalk & Carozza, 2003; Smith et al., 2008; Higginbotham, Moulder & Currier, 2001; Liff, Chow & Greenberg, 1991; Slifkin, Goldsmith & Ricketts, 2000). Higher crude all-causes mortality rates reported for rural areas demonstrate the disproportionate burden of chronic disease in this portion of the U.S. population (Higginbotham, Moulder & Currier, 2001; Gosschalk & Carozza, 2003).

Some studies have shown little or no difference between cancer incidence in rural and urban populations (Higginbotham, Moulder & Currier, 2001). Others have demonstrated that the overall incidence and mortality rates of malignant neoplasms are higher in urban residents compared to rural residents (Liff et al., 1991). Most studies of rural-urban differentials in the incidence of cancer have revealed widespread variation in different types of cancer (Smith et al., 2008). Cervical, prostate, melanoma and skin cancers are more commonly associated with rural residence, whereas breast, lung, stomach and lymphoma cancers are more prevalent in urban areas (Smith et al., 2008).

Research suggests that although the incidence rates of cancer in rural and urban populations may not differ tremendously, rural residents are diagnosed at more advanced stages of cancer (Gosschalk & Carozza, 2003). Even if rural residents have a lower adjusted rate of cancer than urban residents, this advantage is offset by higher cancer-related death (Gosschalk & Carozza, 2003). One of the objectives of the Healthy People 2010 cancer goal is to increase the proportion of cancer survivors who are living five years or longer after diagnosis (U.S. Department of Health and Human Services, 2000). Thus, it seems that identifying the populations most at risk of not surviving five or more years after cancer diagnosis is essential to meeting this objective. Moreover, cancer was the most frequently rated priority by rural hospitals

and tied with obesity and nutrition as 10th and 11th among Healthy People 2010 focus areas rated as rural health priorities (Gosschalk & Carozza, 2003).

It is well known that being diagnosed early improves the outcome for many types of cancer (Gosschalk & Carozza, 2003). Several studies have suggested that compared to urban cancer patients, rural cancer patients are disadvantaged. Higginbotham, Moulder and Currier (2001) demonstrated that there is a significant difference in stage of disease at initial diagnosis for rural and urban residents. Using urban and rural age-adjusted incidence rates for all persons for all cancers, they showed that rural residents have 1.21 times the odds of having late-stage cancer at the time of diagnosis as compared to urban persons. Liff and colleagues (1991) found that residents living in 10 rural Georgia counties were twice as likely to have late-stage cancers as those living in the city of Atlanta. Similarly, a Texas study demonstrated that in urban residents, a larger proportion of cancers were diagnosed at the premalignant stage (Gosschalk & Carozza, 2003). Late-stage diagnosis is common in rural areas and as a result, people living in rural areas have a decreased chance of surviving cancer (Gosschalk & Carozza, 2003; Smith et al., 2008).

In addition to high rates of cancer mortality, rural areas are plagued with some of the highest rates of heart disease deaths in the United States. Eberhardt and colleagues (2001) demonstrated that the highest rate of heart disease mortality in men occurs in the most rural counties of the South. They note that although the incidence of heart disease has declined over the past thirty years, the decrease has not been observed in all subgroups. Specifically, people residing in the rural South and Appalachia are more likely to have and die from heart disease than many people living in urban areas (Barnett & Halverson, 2000; Barnett & Halverson 2001)

Wing (1988) suggests that heart disease has changed from a disease of the privileged to one of the disadvantaged and marginalized populations in the United States.

Diabetes mellitus affects over 16 million people in the United States, and the overall prevalence of diabetes is between 17 and 29 percent higher in rural areas than urban areas (Smith et al., 2008; Koopman, Mainous & Geesey, 2006; O'Brien & Denham, 2008). Moreover, diabetes ranks as the third highest rural health concern (O'Brien & Denham, 2008). Compared to their urban counterparts, rural minorities are at a higher risk of being diagnosed with diabetes (Koopman et al., 2006). While it has been well established that some ethnic and racial groups are at higher risk for diabetes, O'Brien and Denham (2008) emphasize that the highest burden of diabetes resides largely among the white populations, many of whom live in rural areas. Compared to the copious literature focusing on racial disparities, little attention is paid to differences across geographic locations, and O'Brien and Denham (2008) call for research centering upon the knowledge, beliefs, and general state of the white adult population.

The health-related quality of life (HRQOL) of people with diabetes is lower than in the general population (Quandt et al., 2007). This is due largely to the complications of diabetes that often result in reduced physical functioning and a change from normal activities. Uncontrolled or poorly controlled diabetes can result in high blood pressure, stroke, nervous system disease, dental disease and amputations (O'Brien & Denham, 2008) In addition, people with diabetes have an increased risk of retinopathy, renal disease and heart disease (Koopman et al., 2006). In addition to complications, diabetes can lower an individual's HRQOL because it is a self-managed disease (Quandt et al., 2007). In other words, successfully managing diabetes requires changes in lifestyle including monitoring diet, engaging in physical activity, using medications and monitoring glucose levels. For many patients the burden associated with self-management

can impact their HRQOL (Quandt et al., 2007). Research indicates that physical impairment associated with diabetes may be a bigger problem in rural than urban communities (Quandt et al., 2007). Compared to urban patients who have access to sidewalks or public transportation that help keep them mobile, rural residents with diabetes may feel more impaired since walking and driving are crucial to daily activities (Quandt et al., 2007).

Diabetes often results in end state renal disease (ESRD). In a study by Fan and colleagues (2007), rural counties comprised 29 percent of the population but 36 percent of all ESRD patients. Higher rates of mean adjusted incidence rates of ESRD were observed in both African American and white individuals in rural counties compared to urban counties. Specifically, residents of rural counties are approximately two times more likely to have ESRD than urban residents.

Some studies have found that the prevalence of depression is somewhat higher in rural populations compared to urban populations (Hillemeier et al., 2008; Edwards & Tudiver, 2008). Other research has shown that the prevalence of mental health disorders is similar in rural and urban areas, suggesting that other risk factors may be more powerful than geographical place (Smith et al., 2008). Many researchers have attributed factors other than place of residence to predicting mental health and substance abuse problems in adolescents and children, demonstrating that depression and anxiety disproportionately affect poor people (Ricketts, 1999; Smith et al., 2008). Additionally, the impact of socioeconomic deprivation is more strongly associated with higher rates of suicide than rural residence at all levels of population density and all age groups (Smith et al., 2008). Suicide deaths are commonly used as a measure of the prevalence of mental illness because suicide represents an extreme reaction to stressful situations. Suicide death rates are higher among rural males 15 to 19 years old and overall, rural

children and adolescents exhibit a higher rate of suicide than their urban counterparts (Ricketts, 1999).

Rural residents generally engage in behaviors that are less healthy than behaviors observed in urban areas and they are less likely than urban residents to adopt changes in behaviors (Smith et al., 2008; Pearson & Lewis, 1998). Major lifestyle issues contributing to poorer rural health status include poorer nutrition, elevated rates of smoking, lower physical activity and higher alcohol consumption compared to many urban areas (Smith et al., 2008). Greater incidence of these less healthy behaviors in rural areas has resulted in a higher prevalence of overweight and obesity and an increased burden of chronic diseases (Simmons et al., 2008b; Boeckner et al., 2007).

3.3 RURAL WOMEN'S HEALTH OUTCOMES

Research has indicated that for some types of cancer, women are more susceptible than men and may be more likely to die. The Society for Women's Health Research (SWHR) (2009) has suggested that among nonsmokers, women are more likely to develop lung cancer than men. Research demonstrates that after exposure to environmental carcinogens, nonsmoking women are more susceptible to DNA damage resulting in small cell lung cancer than men. This could be one of the reasons that rural women experience high rates of lung cancer. Rural adults and adolescents have the highest self-reported smoking rates in the country (Hutcheson, Greiner, Ellerbeck, Jeffries, Mussulman & Casey, 2008; Northridge et al., 2008). In the United States, Kentucky and West Virginia are among the top five states for high prevalence of adult smoking. The lung cancer rate for women in central Appalachia, which includes these two states, is 43%

higher than the rate for the women in the rest of the United States (Wingo et al., 2008). Regardless of whether they themselves are smokers, rural women are at a high risk for lung cancer because of the increased prevalence of cigarette smoking in many rural areas.

Bladder cancer is another type of cancer that may be more deadly in women than their male counterparts. Research undertaken at the University of Rochester demonstrated that women are between 80 and 114 percent more likely to die from the bladder cancer than men (Katz & Steinberg, 2009). This difference in mortality between genders is noteworthy since men are three times more likely than women to get the disease. Surprisingly, age, tumor type and stage of the disease upon diagnosis accounted for only 30 percent of the difference in the survival rate between women and men. The researchers speculate that differences in cancer biology between the sexes and choice of treatment may account for another portion of this difference (Rickey, 2009). In a report to the nation on cancer and survival, Jemal and colleagues (2004) demonstrated that there was an increase in incidence in bladder cancer among females from 1970-2001. Wingo and colleagues (2008) demonstrated that Appalachian women have a higher incidence rate for urinary bladder cancer compared to women living in the rest of the United States.

In addition to the burden of cancer that American women experience, heart disease is a primary health concern for rural women. As the leading cause of death in women in the United States, heart disease kills over 500,000 women in the United States each year and claims over 50,000 more women than men (SWHR, 2009). Women are more likely than men to have a second heart attack within a year of the first one (SWHR, 2009). Women in the United States bear a significant burden from cardiovascular disease, and rural women specifically suffer tremendously from cardiovascular disease. Heart disease and stroke have been identified in the

top five rural health priorities (Gamm & Hutchison, 2003). A greater proportion of individuals suffer from high blood pressure, obesity and dying of obstructive pulmonary disease in rural areas (Simmons et al., 2008b). Specifically, rural black women experience the highest heart disease mortality in the United States (Smith et al., 2008; Taylor, Hughes & Garrison, 2002).

Risk factors for heart disease include hypertension, high cholesterol, diabetes, smoking and obesity (Feresu, Zhang, Puumala, Ullrich & Anderson, 2008). Dyslipidemia in women is often unrecognized, resulting in their receiving suboptimal preventative care for heart disease (Roddy, Walker, Larsen, Lindsey, Shurmur & Yates, 2007; Schaubel et al., 2000; Schulman, Berlin & Harles, 1999; Taylor et al., 2002). In many cases, symptoms of cardiovascular disease are not detected until a serious event or death occurs (Feresu et al., 2008). Thus, screening for heart disease in women is imperative to prevent morbidity and mortality associated with this disease. The presence of hypertension in particular is higher among women than men and increases with age (Feresu et al., 2008). Compared to urban women, rural women experience higher rates of risk factors for hypertension and cardiovascular disease (Eberhardt et al., 2001; Edwards & Tudiver, 2008).

Like cancer and cardiovascular disease, diabetes is a serious problem facing rural women in the United States. Research has demonstrated that rural women in the U.S. face a greater risk of dying from diabetes than urban women (Wathan & Harris, 2007). In examining the double disadvantage for minorities who reside in rural areas, Koopman and colleagues (2006) demonstrated that Hispanic women suffer disproportionately from diabetes, having twice the prevalence of Hispanic men.

For many chronic diseases, such as cardiovascular disease and some types of cancers, preventative screening services allow physicians to detect disease symptoms and signs before

they have progressed. Data from the Centers for Disease Control and Prevention (CDC) have demonstrated that rural women receive fewer preventive services than urban women (Roddy et al., 2007). Similarly, Mobley and colleagues (2008) found that minority populations living in isolated areas tend to have lower probability of mammography use.

Research has consistently shown that, regardless of place or residence, women report higher levels of mental distress than men (Hillemeier et al., 2008). Moreover, among women, depression is the leading cause of disease-related disability (Jesse, Dolbier & Blanchard, 2008). Nationally, the lifetime prevalence of major depressive disorders in women is 16.2 percent (Kessler, Berglund & Demler, 2003). Research specifically on depression in rural women paints a bleak picture of the emerging public health concern. Hauenstein and Boyd (1994) found that 41.4 percent of rural women in a South Carolina sample experienced clinically significant depressive symptoms. Similarly, Carruth and Logan (2002) found that among a sample of rural women from Louisiana, the prevalence of depression was 24 percent. It has been suggested that rural women experience higher levels of comorbid depression as a result of the high prevalence of chronic conditions and poor physical health (Hillemeier et al., 2008; Simmons, Braun, Charnigo, Havens & Wright, 2008a).

Nearly 15 percent of all women in the United States experience major depressive disorders during pregnancy, making it an important health concern across the country (Jesse, et al., 2008). Jesse and colleagues (2008) have demonstrated that depression during pregnancy disproportionately affects rural women. Similar to the circumstances of cancer, rural women are often diagnosed later in the course of their disorders when they are experiencing more advanced symptoms requiring intensive intervention (Jesse et al., 2008).

Domestic, or intimate partner violence, is a substantial concern for rural women. Research has demonstrated that 45.8 percent of rural women experience domestic violence (Burke, O'Campo & Peak, 2006). Women who are abused experience unique stressors that non-abused women do not. In addition to increased levels of stress, anxiety and depression, rural women who are abused encounter barriers to safety (Bhandari et al., 2008). Rural women are more severely abused and have worse physical and general health than urban women (Bhandari et al., 2008).

In a study of mostly white rural Midwestern women, Boeckner and colleagues (2007) found that only 20 percent of the women fell into a normal weight category. Several studies have demonstrated that obesity is more prevalent among rural women (Eberhardt et al., 2001; Olson & Bove, 2006; Sobal, Troiano & Frongillo, 1996). Worse yet, women are less successful at quitting smoking and experience more severe withdrawal symptoms than their male counter parts. The SWHR (2009) has found that compared to men, smoking has a more negative effect on cardiovascular health in women.

Research has demonstrated that a higher proportion of women suffer from conditions that may not directly cause death (SWHR, 2009). This evidence is compelling because, since women live an average of seven years longer than men, women may suffer longer and endure a higher rate of disability and functional impairment (Boeckner et al., 2007; SWHR, 2009). Auchincloss and Hadden (2002) report similar findings that any additional years lived by rural residents are primarily inactive.

3.4 RURAL WOMEN'S CONCEPTUALIZATIONS OF HEALTH

Some research has demonstrated that low income individuals are more likely to consider physical aspects alone when defining health (Emmons, 2007). In contrast, Wathen and Harris (2007) demonstrated that rural women conceptualize health as more than simply the absence of illness. They define it as including aspects of nutrition, exercise, childbearing and childrearing. Meadows, Thurston and Berenson (2001) demonstrated that rural women's health beliefs derive from popular, professional and folk sectors:

The popular health care sector is made up of common beliefs of laypeople, non-specialists and nonprofessionals. It is a complex array of factors composed of beliefs and activities at the individual, family, social network, and community levels. It is in the popular sector where women and other laypersons first define illness and from which decisions are made to enter (or not enter) other sectors . . . The professional sector is made up of medical and other health professionals, health educators, and researchers. The allopathic traditional culture in this sector . . . embraces an ideology of scientific rationality, superior legitimacy, biology as fact, and physician as expert (p. 451).

Wathen and Harris (2007) demonstrated that women depend on the popular and professional sources when seeking health information, but that many women are relying more heavily on the popular sector as they increasingly lack access to formal health care providers. In addition to reliance on the popular sector, many women indicate that they use the folk sector and rely on more natural ways to address health problems (Wathen & Harris, 2007).

3.5 RURAL WOMEN'S NAVIGATION OF HEALTH CARE AND HEALTH

INFORMAITON

In recent years, investigators have criticized the way that "women's health issues are treated as if they are identical to men" (Etowa, Bernard, Oyinsan & Clow, 2007, p. 350). Women experience

distinctive physical processes throughout their lifetime including childbearing and menopause. In the past, such processes have been viewed as biomedical events but more recently are being viewed within a social context. Importantly, research has demonstrated that in considering health outcomes, social and psychosocial determinants of health are more important for women and behavioral determinants are more important for men (Wathen & Harris, 2007). Moreover, the social conditions associated with “rurality” are gendered, with rural women disproportionately suffering more than men from higher rates of poverty and lower rates of education as well as other social and psychosocial detriments to their health (Simmons et al., 2008b; Wathen & Harris, 2007).

Research has consistently shown that populations with the worst health status also suffer from the highest poverty rates, regardless of residence (Smith et al., 2008). Many studies have found no variation in rural and urban health status for certain diseases after controlling for variables associated with socioeconomic status (Smith et al., 2008). For instance, a Florida study on infant death revealed that rural residence was not associated with increased risk of infant death after accounting for low income (Ricketts, 1999). Other investigators have indicated that local economic conditions in many rural areas play a crucial part in observed urban-rural differences in health problems (Auchincloss & Hadden, 2002).

A number of unhealthy behaviors and conditions have been associated with socioeconomic disadvantage including poor nutrition, high rates of smoking, low levels of physical activity, high alcohol consumption and increased psychosocial stress (Smith et al., 2008). The socioeconomic gradient in obesity that is observable among women nationally is also apparent in rural areas with socioeconomically disadvantaged women bearing the greatest burden of obesity (Pearson & Lewis, 1998). Results from NHANES IV and other studies have

demonstrated that higher-income women have a substantial advantage over lower-income women in maintaining a healthy weight (Feresu et al., 2008; Boeckner et al., 2007). A representative sample of the U.S. population was asked about fruit and vegetable consumption in 1989-1991. Results demonstrated that those with household incomes less than \$10,000 consumed an average of 3.6 servings of fruits and vegetables per day compared to 4.8 servings among those with incomes above \$50,000 (Emmons, 2000). While 28.9 percent of the higher income group met the Healthy People 2000 goal for fruit and vegetable consumption, only 16.3 percent of the low income group met the recommended of five or more servings per day (Emmons, 2000).

You don't need to know much about impoverished neighborhoods to see the absurdity of choosing to go Atkins or macrobiotic....Poor people are more likely to have unhealthy habits because fast food and cigarettes are abundant and cheap in their neighborhoods and healthy alternatives tend to be limited (Epstein, 2003, p. 80).

Food security is a central indicator of nutritional status. Food insecurity is defined as “whenever the availability of nutritionally adequate and safe food or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain” (Olson & Strawderman, 2008). Olson and Strawderman (2008) demonstrated that food insecurity is more common in rural areas. A higher prevalence of overweight and obese women has been observed among those living in food insecure households (Olson & Stawderman, 2008; Townsend, Peerson, Love & Murphy, 2001). Thus, food deprivation among rural women can result in overeating and ultimately obesity.

In addition to poor nutrition, it has been demonstrated that additional risk factors associated with chronic diseases such as lower physical activity, are more prevalent among lower socioeconomic status groups (Emmons, 2000). As such, chronic disease morbidity and mortality are disproportionately high among groups with low socioeconomic status (Emmons, 2000).

Feresu and colleagues (2008) have demonstrated that low-income women have a significantly higher risk of heart disease and death than women with higher incomes. Cancer morbidity has also been associated with socioeconomic status (Emmons, 2000). In the case of diabetes prevalence in rural areas, socioeconomic and lifestyle factors have been found to be stronger risk factors than rurality (Smith et al., 2008; Feresu et al., 2008). Further, results from the 2000 Behavioral Risk Factor Surveillance System (BRFSS) show that women with diabetes are twice as likely as women without diabetes to have an annual household income of \$25,000 or less (Feresu et al., 2008). Additionally, socioeconomic status has been identified as an independent risk factor for renal disease (Fan et al., 2007).

Kessler and colleagues (2003) have demonstrated that compared to those earning more than three times the poverty level, people living at the poverty threshold are more likely to be diagnosed with major depressive disorders. Others found that lack of financial resources increased the likelihood of depression in rural black mothers (Brody et al., 1994). Further, chronic depressive disorders are a barrier to employment and long term economic security among low-income rural women (Jayakody & Stauffer, 2000).

Many studies have demonstrated that variation in health status across the nation is a result of socioeconomic factors impacting access to and use of health care services (Smith et al., 2008; Koopman et al., 2006; O'Brien & Denham, 2008). Historically, rural residents have experienced problems accessing care and have adversely suffered increased vulnerability to the consequences of poor access (Koopman et al., 2006). People living in rural areas of the United States are less likely to have health insurance or access to providers or specialty care (O'Brien & Denham, 2008). Twenty four percent of rural residents are uninsured compared to 18 percent of urban residents (Simmons et al., 2008b), with some estimates of the rate of uninsured rural women as

high as 30 percent (Simmons et al., 2008b). Worse yet, only 20 percent of uninsured people in rural areas have access to employer-sponsored health insurance (Feresu, et al., 2008). Of the 20 percent that does have access, many are unable to receive coverage because of the cost of premiums (Feresu et al., 2008).

Simmons and colleagues (2008b) suggest that having health insurance is a significant enabling factor for accessing physician services for low income rural women. In addition, having a regular source of health care is an enabling factor for low income rural women. Research has suggested that in addition to increasing health care utilization, having a usual source of care increases the likelihood of patients utilizing preventative services (Simmons et al., 2008b). Given the high rate of cancer mortality in rural areas, this finding may be of particular importance.

Persistent or generational poverty is much more common for rural families, and many of the illnesses associated with poverty are more severe in rural areas (Simmons et al., 2008b). Research has demonstrated that adults who were poor as children are more prone to stroke, kidney disease and hypertensive heart disease compared to those who never lived at or below the poverty line (Epstein, 2003). It is also possible that “illness can trap poor families in cycles of disease, death and poverty for generations” (Epstein, 2003, p. 100).

In addition to the relationship between income and poor health outcomes, it has been demonstrated that an inverse relationship exists between education and behavioral risk factors, specifically in the case of cardiovascular disease (Davey Smith et al, 1998; Feldman, Makuc, Kleinman & Cornoni-Huntley, 1989; Kaplan & Keil, 1993). For example, smoking prevalence is more than three times higher among those with fewer than 12 years of education compared to college graduates (Emmons, 2000). In addition to smoking, physical activity patterns have been consistently related to educational level (Emmons, 2000).

Feresu and colleagues (2008) demonstrated that less educated rural women were more likely to be obese, have hyperglycemia, high blood pressure and high total cholesterol. In addition, others have demonstrated that women with less education are less likely to receive health screenings (Roddy et al., 2007).

It has been suggested that women who reside in rural areas may disproportionately suffer adverse health outcomes as a result of their enormous role responsibilities. Perry, Rosenfeld and Kendall (2007) described the responsibilities of rural women as follows:

Rural women head large, multigenerational households and live in homes that are isolated from their neighbors. Rural culture relies on traditional gender roles in which the burden of caring for family members, neighbors in need, and community needs falls to the female head of the house. Rural women increasingly work outside the home, frequently requiring long commutes, yet rural culture still demands that women fulfill traditional female roles. These demographic and geographic characteristics of rural life create hardships for rural women attempting to fit exercise into their lives. Rural women have reported a greater lack of role models and social support and a greater burden from caregiving duties compared to urban and suburban women (p. 297).

Adverse health outcomes of rural women have been attributed to the traditional gender roles and associated burdens that they experience as rural women (Wathen & Harris, 2007). Women are the main users of health care services. Additionally, traditional roles dictate that rural women are responsible for the mental, emotional and physical health of their families and communities (Wathen & Harris, 2007). It has been suggested that the health experiences of women in rural areas are often complicated by the stress they experience from multiple roles (Price, Storey & Lake, 2008). O'Brien and Denham (2008) have suggested that rural women have a greater tendency toward sedentary lifestyles because they have enormous caregiving responsibilities (O'Brien & Denham, 2008; Eyler & Vest, 2002; Wilcox, Castro, King, Housmann & Brownson, 2000). When asked why little attention was paid to nutrition and exercise, one woman responded that there were "too many other things worry about" (Epstein, 2003, p.98).

Research has demonstrated that balancing family and self is a significant barrier for rural women beginning a walking program. Perry and colleagues (2007) note that, “The women in this study found this issue the most challenging to overcome because it struck at the heart of their identity and values as mothers, wives, and women” (p. 311). The feeling of being overwhelmed in rural areas is often compounded by isolation (Perry et al., 2007). Whereas female caregivers in urban areas may be able to use nearby facilities for assistance with child and elderly care, rural women are unlikely to have any relief. Rural women’s expectations of and beliefs about their roles as wives and mothers in traditional rural culture has been described as a “powerful force” at work in their lives.

In addition to forming rural women’s expectations about gender roles, traditional rural culture also influences their beliefs about privacy (Bhandari et al., 2008). The pressure that rural women feel as a result of these rural cultural norms may impact the likelihood that they will seek care for depression. Research has shown that women may be hesitant to share depressive symptoms with their providers because of social stigma, lack of trust, dissatisfactions with the healthcare system and not wanting help (Jesse et al., 2008).

Because of the substantial influence of one’s social environment on health outcomes, considering the living circumstances of rural women is imperative for understanding the health disparities they experience. Of the numerous components included within ‘living circumstances,’ this section will focus primarily on family unit, physical environment and neighborhood.

It has been well established that family environment can impact health behaviors and health outcomes. Alverson and Kessler (2008) note that families and the living circumstances they embrace are often either health-enhancing or health-damaging:

Families provide the primary structure of health promotion within society, with the origins of healthy behaviors formulated in the family unit. Family health includes

interactions within a household and within the surrounding environments. These interactions affect the family's ability to obtain, sustain, and regain health. Any significant event or change in one family member affects all members in varying degrees. Family health includes the system interactions, relationships, and processes that result in either health-enhancing or health-damaging lifestyles (p.182).

In addition to the family unit, the physical environments of one's living circumstances can significantly impact health behaviors and ultimately, health outcomes. Rural areas frequently lack community parks, recreations centers and health clubs, which are associated with physical activity (Casper et al., 2001; O'Brien & Denham, 2008). Rural residents have a lower likelihood of seeing others modeling positive social behavior such as exercise, which may be detrimental to their health.

The Neighborhood Deprivation Index (NDI) is a summary measure used to characterize neighborhood-level deficiencies (Winkleby, Sundquist & Cubbin, 2007). Four variables are commonly used in the calculation of the index: low education status, low income, unemployment, and social welfare recipient (Winkleby, Sundquist & Cubbin, 2007). Additional variables that have been used include measures of housing values, presence or absence of private transportation, prevalence of single parenthood, and proportion of foreign-born people (Winkleby, Sunquist & Cubbin, 2007). The index resulting from the four main variables was divided into three groups: within one standard deviation (SD), below one SD from the mean (low deprivation) and above one SD from the mean (high deprivation), with higher scores reflecting more deprived neighborhoods. Winkleby and colleagues (2007) used the NDI to determine inequalities in the incidence of cardiovascular heart disease (CHD). The results demonstrated that the age-standardized CHD incidence was as much as 1.9 times greater for high- versus low-deprivation neighborhoods (Winkleby et al., 2007). Additionally, the one-year case fatality from CHD was higher in high- versus low-deprivation neighborhoods. After testing for gender

differences, the researchers found that the effects were stronger for women than men. Neighborhood deprivation and use of the NDI may be of particular importance as additional work has suggested that living in a deprived neighborhood affects the cardiovascular health of women to a greater extent than men (Winkleby et al., 2007).

According to *Healthy People 2010*, “the health of an individual is nearly inseparable from that of the larger community” (U.S. Department of Health and Human Services, 2000). Interactions with family, neighbors, coworkers and others in their environment have the potential to impact health (Alverson & Kessler, 2008). In addition to personal and social resources, community resources have the potential to significantly influence health outcomes. Rural America is widely considered to be medically underserved (O’Brien & Denham, 2008). The Kaiser Commission defines medically underserved as “a region where provider shortages exist and citizens are likely to have poorer health outcomes” (O’Brien & Denham, 2008, p.339).

Community medical resources, or lack thereof, are a particular concern for rural women. In interviews conducted by Wathen and Harris (2007), many rural women reported that in the event of an acute health situation they would not use hospital emergency services. Rather, they responded that they would self-medicate, rely on information in home remedy books, or wait until the morning to call their family doctor. Many of the women in this study commented on the lack of locally available services, and nearly half of the women reported that other aspects of rural living such as distance to services, maintaining confidentiality and having little confidence in local health care providers impacted their help-seeking experiences (Wathen & Harris, 2007).

In addition to experiencing trouble with availability of community medical resources, many rural women have indicated that they face challenges in their relationships with physicians (Wathen & Harris, 2007). Their primary concerns include physicians’ lack of care, interest, time

taken and competence. Many women reported enlisting the help of others, including nurses and other female hospital staff, to “run interference” with doctors, encourage physicians to take their concerns seriously, or help the women avoid doctors they dislike (Wathen & Harris, 2007). One common theme among the women in this study was their desire for care and respect to be expressed in the exchange of information between provider and patient. When describing the process they go through to obtain health information, nearly 70 percent of women commented on the quality of their relationships with their service providers (Wathen & Harris, 2007).

Rural women consider a wide range of health information sources including lay expert advice to be important. Women supplement medical information they receive from physicians with alternative options. Rural women use health information to (1) manage their own and their family’s medical care; (2) get reassurance about diagnoses; and (3) prepare for doctors’ appointments (Wathen & Harris, 2007).

Wathen and Harris (2007) describe various principles of health information seeking, one being that “any need for help or information is situationally-based and dependent on a particular context, such as living in a rural area” (p. 641). They reported that living in a rural area impacts the choice of sources that women typically consult and those in which they have confidence. For example, some women reported using pharmacists or veterinarians as sources of health information. Women had a lot of confidence in pharmacists because they were viewed as experts on medication. Additionally, many women reported that pharmacists went above and beyond their duty to make sure their patients fully understood the prescribed medication and/or treatment. In contrast, some women indicated a distrust of rural doctors and mental health counselors, saying that they were poorer quality (compared to city doctors), and questioning their education. Most of the women in the study by Wathen and Harris (2007) reported that they had

and would continue to rely on friends and family members for information and advice about their health. Many women discussed how important it was for them to have access to information from other women like themselves who had been through similar experiences. This finding is consistent with other studies of women's information-seeking behaviors. Specifically, many studies have demonstrated that women coping with breast cancer put a high importance on talking with other women who underwent similar experiences (Wathen & Harris, 2007). Additionally, challenges with physicians notwithstanding, all of the women reported that they had in the past or would in the future depend on physicians to provide them with health information (Wathen & Harris, 2007).

Rural women base the success of information exchange largely upon a common understanding between information provider and information seeker about the problem. A common theme that emerged from the study by Wathen and Harris (2007) was women's appreciation of expressions of concern. One woman indicated that although she thinks her doctor is not as educated as those in more urban areas, "at least he takes his time. He is awfully gentle and very concerned. If I had any issue he would talk it over. So I appreciate him." (Wathen & Harris, 2007 p. 645). Women value willingness on the part of the formal provider to offer respect, support and concern. When respect and care are absent in relationships with providers, women are likely to seek assistance from others with whom they have a personal connection and perceive to be more caring and concerned (Wathen & Harris, 2007). Nearly all of the women interviewed by Wathen and Harris (2007) directly associated a provider's degree of care and respect with a successful information exchange. Moreover, the women generally linked their satisfaction with health outcomes to the context of the discussion of health information.

Whether in interactions with their physicians or others, rural women place put a high value on personal contact. O'Brien and Denham (2008) demonstrated that rural women were more likely to seek advice or medication from a family member than a professional medical provider. Women described the value of having a nurse in their family or circle of friends. Wainer (1998) describes this experience as follows:

Rural people live within defined communities where everything is connected. They are comfortable with the familiar and are not experienced in dealing with impersonal service delivery. They are accustomed to assessing the quality of information/service on the basis of being able to locate the provider in their social context and personal history. Rural people need to know their health provider in order to be able to trust them...These characteristics affect the experience of referral to a regional or urban center for health care and underpin the strong preference rural people have for locally provided health care (p. 82).

Rural women who do not have a personal connection with someone whom they are confident relying on for health information are increasingly turning to the Internet. There are numerous concerns associated with the use of e-health services including the fact that many rural and/or poor individuals do not have access to the technology required to use the Internet. Additionally, there is a concern about health literacy as well as seeking and finding health information by many individuals of disadvantaged populations (Wathen & Harris, 2007). In addition to not having access to the Internet, or having minimal health literacy, many individuals experience information overload when turning to the World Wide Web for health information (Wathen & Harris, 2007). Even if women are able to overcome the barriers associated with e-health resources, research has demonstrated that physicians often disregard such information (Wathen & Harris, 2007). Concerns about the interaction of formal health care providers and informed patients have been explored (Wathen & Harris, 2007). While e-health sources have been demonstrated to be useful and efficient, the majority of such resources lack connection with rural women's lived realities (Wathen & Harris, 2007).

As a result of the challenges rural women face in finding health information and care, they often place a huge emphasis on self-reliance in their health experiences (Wathen & Harris, 2007; O'Brien & Denham, 2008). Interviews administered by Wathen and Harris (2007) revealed that self-reliance and being prepared to deal with health situations that might arise was a dominant theme among rural women. The women's main reasons for relying on themselves in the event of a health situation were convenience, necessity, and not wanting to bother the doctor.

In a study by O'Brien and Denham (2008), rural women were likely to wait until their role performance as mother or wife was severely altered before visiting a doctor. While convenience is a major theme, other underlying issues such as travel distance, burdening her spouse, and little confidence in the hospital services were noted. One woman in this study described how she and her daughter had taken a CPR class upon moving to the country because being able to respond to and administer care in an emergency situation were necessities when living in a rural area. Other women reported taking care of themselves to avoid bothering their doctors or tying up the emergency room. One woman reported that after breaking her arm, she didn't visit the hospital because there was "no reason to make a big drama about it" (Wathen & Harris, 2007 p. 643). Another woman described her experience after waking in the night with chest pains:

I was kind of going through the motions of trying to take care of it myself...it was a lot easier than having to get in the truck, it was easier than having to wake my husband up to take me into the hospital to have them have me sit there for three hours and do nothing for me. So it was easier to let my husband sleep and to try to work through the symptoms with my Doctor's Book of Home Remedies (Wathen & Harris, 2007, p. 643).

3.6 THE LASTING HEALTH IMPACTS OF STRESS INDUCED BY SOCIAL FACTORS

Psychosocial stressors resulting from acute or chronic demands associated with living in poverty and enforcement of traditional gender roles affect rural women's mental health, functioning and behavior (Hillemeier et al., 2008). Poor mental health and functioning can impact physical health including both acute and chronic diseases. Research has demonstrated that rural women experience elevated rates of psychosocial stress and lower rates of self-esteem compared to urban women (Hillemeier et al., 2008).

Simmons and colleagues (2008a) tested competing theories of social causation and social selection to determine the relationship between economic status and depression in a sample of low income rural women. The authors state that the social causation theory suggests "the conditions associated with growing up and living in poverty, including frequent stressful life events, limited social and economic resources and other demographic disadvantages, produce greater risk for mental health problems" (p. 293). They explored whether the social causation theory or the social selection theory is a better theory to explain the relationship between economic status and depression in rural, low income women. In contrast to the social causation theory, the social selection theory asserts that individuals experience poverty as a result of mental illness. The researchers found economic status (poverty level, employment status and self-rated economic sufficiency) to be a social contributor to mental health status, supporting the causation model as a better model approximating the relationship between economic status and depression (Simmons et al., 2008a). Neff and Husaini (1987) further indicate that urban dwellers are presented with more opportunities and freedom than people living in rural areas. The authors

suggest that the lack of opportunities and freedom in rural areas stimulates a learned helplessness ultimately resulting in elevated rates of depression among rural residents.

The lasting impacts of economic and role stress on rural women is demonstrated in their health behaviors. Alverson and Kessler (2005) describe the lives of many rural women as follows:

Their everyday life is fraught with facing uncertainty and vulnerability. These individuals often lack healthcare and are constrained by multiple barriers erected by the healthcare system. Being underserved and uninsured is, in essence, an experience of 'living on the edge' (p. 184).

Rural women's experience of "living on the edge" or moment-to-moment means that they may not be able to think beyond the most immediate needs that they and their family are facing for survival. Therefore, these women experience great difficulty fostering positive health behaviors (Alverson & Kessler, 2005). Worse yet, rural women are increasingly engaging in negative health behaviors, such as smoking, as coping mechanisms.

Psychosocial stressors experienced by rural women have been examined in the context of smoking behaviors and smoking cessation interventions. Graham (1994) suggests that different dynamics drive smoking habits of low income women compared to middle and upper income women. She identified four spheres of influence for smoking habits of low income women; everyday responsibilities, material circumstances, social support and social networks, and personal health resources. The author concluded that low income women are smoking as a means of coping with the immediate demands of their circumstances, namely caretaking responsibilities and economic pressure. In the words of Emmons (2000), "having to care for more, while simultaneously living on less, provided the context in which relatively few women attempted or succeeded at smoking cessation" (p. 248). The same circumstances of "living on the edge" often impede rural women's ability to eat nutritiously and maintain healthy levels of physical activity.

Researchers have theorized that chronic stress may result in overeating and the subsequent health outcome of obesity. Epstein (2003) describes the biological process:

Abdominal fat cells can temporarily inhibit the brain from making corticotrophin-releasing factor, reducing feelings of stress and anxiety. If this theory is correct, it could explain how the stress of poverty creates a biological urge to overeat, thus putting poor people at greater risk of obesity and its consequences- diabetes, heart disease, stroke and certain types of cancer (p. 98).

It has been suggested that stress is the ‘miasma’ of the 20th century (Epstein, 2003). Similar to the miasma that was once thought to cause cholera in city slums, stress has been described as the following: “you can’t see it, you can’t really measure it, but it floats over certain people, especially the poor, and makes them sick” (Epstein, 2003, p. 80). Stress hormones results from people feeling frustrated, frightened or angry. Constant exposure to stress hormones impairs the immune system and damages the brain and other organs (Epstein, 2003). In addition, psychosocial stress has been suggested to increase poor birth outcomes (Chikani, Reding, Gunderson & McCarty, 2005). This may be one of the reasons that rural children experience poorer health outcomes than urban children and often grow up facing the same psychosocial stressors and health hardships as their parents.

4.0 DISCUSSION

Meeting the health needs of rural American women requires recognition of the social environment and contextual risk factors present in their daily lives. Income, education, role responsibilities, living circumstances and personal and community health resources are among the main challenges facing rural women today. The interconnectedness of these factors presents a challenging environment for both female residents of rural areas and health professionals working in rural areas.

Rural women and women in general, frequently serve as gatekeepers for their families and communities and Alverson and Kessler (2008) suggest that successful health promotion in rural areas will result from targeting the concerns of these women. Some of the literature included in this paper resulted from qualitative interviews with rural women in which they described their perceptions of immediate health threats impacting their families, communities and themselves. The insight gained from these women's keen awareness of their family and community health threats is invaluable to the process of improving the social circumstances in rural America.

As a result of rural women sharing their experiences, researchers can begin to better understand unique ways of life in rural America and the impact they have on the women who live there. Most rural women identify with traditional rural culture in which their identity is largely defined by their role as wife and mother. They are often the primary caretakers for large,

multigenerational households and they bear the brunt of the burden associated with navigating the health care system. Often, being isolated from community resources further compounds the stress that rural women as geographic isolation typically results in limited or no available services to assist in caretaking of children or elderly family.

Because of their tendency to put the health needs of their family before themselves, rural women are extremely vulnerable. They commonly deprive themselves of the family's limited financial resources as well as personal time for themselves. Their caretaking responsibilities consume many of the hours in a day that other, less burdened women may spend exercising, planning meals or socializing with other women. Being deprived of time for such positive experiences may result in mental distress among rural women. The increased prevalence of chronic disease in rural women demonstrates the need for nutrition and exercise interventions targeting the barriers that rural women have indicated such as time, social support and lack of self-efficacy (Eyler & Vest, 2002). It is imperative that health interventions in rural America be designed with women's roles and responsibilities in mind. Without careful attention to the daily burdens that rural women experience, physical activity, nutrition or other educational interventions stand little chance of sustainability.

Considering the association between psychosocial stress and negative health behaviors and the growing prevalence of chronic disease in the United States, more attention must be paid to the psychosocial stress experienced by rural women (Hillemeier et al., 2007). Clinical trials have demonstrated that interventions to reduce psychological distress improve outcomes for patients with cardiovascular disease (Friedman, 1986; Frasure-Smith, 1985). The number and degree of stressors that rural women experience often result in anxiety, depression and drug abuse. Economic strife and family decomposition have been most closely linked with increased

rates of mental illness and drug abuse (Dew et al., 2007). Simmons and colleagues (2008) have suggested that a circular feed between economic status and depression is at play in rural areas:

Given the endemic poverty in rural areas, chronic poverty and the associated physical and mental stressors may contribute to biologically based changes in the brain that produce depression. In turn, depression negatively affects behaviors necessary for productive work, thus contributing to limited employment and continued poverty (p. 296).

The greater likelihood of poverty in rural areas and lack of mental health resources make issues of psychosocial stress and rural women's mental health all the more pressing. Treatment of mental health concerns in rural women is further complicated by characteristics such as self-reliance, which deters many women from seeking medical services and treatment for mental illness and substance abuse. Additionally, Robertson and Donnermeyer (1997) found that rural residents are significantly more likely to indicate social stigma as a reason for not accessing mental health systems. Lastly, the limited mental health facilities in rural areas are often designed after urban models (Arons, 2000). This is problematic given the vast differences between urban and rural environments. Many researchers have called for more high quality and culturally congruent mental health services in rural America (Hauenstein, 2003; Spoth 1997; Rosenblatt, Casey & Richardson, 2002). Gender and culturally appropriate services and facilities are essential to improving rural women's mental health status.

A similar recommendation for gender and culturally appropriate programs has been recommended by Taylor and colleagues (2002) regarding cardiovascular heart disease in rural women. Taylor and colleagues further emphasize the importance of comprehensive programs and suggest that "consideration must be given to designing long-term strategies that take into account the influence of socioeconomic status and cultural beliefs on individual perceptions of health and willingness to adopt lifelong behavioral modifications" (p. 550). Conducting qualitative surveys and focus groups with rural women across the United States will help public

health professionals become more aware of the unique needs in this population and the most effective means through which to meet their needs. Dew and colleagues (2007) further recommend conducting an assessment of social capital in rural areas in order to identify a community's readiness to respond to a particular problem.

Improvements in economic opportunities are central to improving health in rural areas (Simmons et al., 2008). Collier (1993) notes that:

Rural areas and people are still subject to decisions made far away in the economic and political centres. Rural people are still separated from these centres by important differences in ways of living, being, seeing, and thinking (p. xvii).

Others have suggested that rural women are often ignored in the policy process (Armstrong & Armstrong, 1999; Fuller, 1999). Auchincloss and Hadden (2002) maintain that local policy planners have the responsibility to identify geographic areas where improvements in local economic conditions could lead to measureable improvements in health. Continued research in the area of rural women's health will help to increase awareness for this important area that must be increasingly reflected in economic policies impacting rural America. Additionally, Blumenthal and Kagen (2002) call for collaboration between government and private agencies in the areas of health, education, employment, housing, and transportation in rural areas. By its nature, interconnectedness of social contextual factors impacting health in rural areas requires close collaboration between government and private agencies in order for improvements to occur and sustainability to be achieved.

Lastly, rural communities can vary significantly in respect to population characteristics such as income and minority population as well as community resources such as health care providers. Controlling for such variation between rural areas is imperative to our understanding of the impact of rurality on health outcomes and further, to guide future interventions and policy

in rural America. Protective effects of rurality have been identified but this effect may only hold true in the more densely populated rural areas (Hillemerier et al., 2007). Larson and colleagues (1997) observed variation in birth outcome patterns within types of rural areas. It has been suggested that advances in employment, education, transportation and medical resources since the mid-1980s have resulted in advantages for women living in more densely populated rural areas while women in the most isolated rural areas have experienced no comparative advantages in risk reduction (Hillemeier et al., 2007). Hartley (2004) brings our attention to the challenge in responding to behavioral risk factors among rural populations because they have been found to be regionally diverse.

There is a danger in using a simple dichotomous rural-urban classification scheme because it ignores variation across diverse settings. Rather, a multidimensional classification system such as the rural-urban commuting area codes (RUCA) based on the size of cities and towns as well as commuting patterns should be used. Future rural health research should follow the recommendations of either, The Office of Management and Budget or the Washington, Wyoming, Alaska, Montana and Idaho (WWAMI) Rural Health Research Center. The Office of Management and Budget divides rural areas into three categories: large rural cities/towns, small rural towns and isolated small rural towns. The WWAMI incorporates the 33 codes of the RUCA into four levels: urban-focused areas, large rural city-focused areas, small rural town-focused areas and isolated small rural town-focused areas (Hillemeier et al, 2007).

There is no “one size fits all” intervention or policy that will improve rural women’s health outcomes. The findings in this paper support the notion that place-specific contexts and resources, not rurality per se, are impacting health outcomes for rural American women. Because rural women are shaped by their social environment, the use of a social ecological framework is

essential to improving rural women's health outcomes. The importance of targeting multiple levels of intervention has been highlighted elsewhere. Emmons (2000) has suggested:

The importance of targeting multiple levels of intervention has been highlighted in the social ecological model, which posits that effective and lasting health behaviors change at the individual level requires interventions that target the individual; the individual's environment, social relationships, and communities; and governmental policies (p. 244).

Clearly, diverse social forces combine to ultimately shape people's daily lives and experiences. For health promotion interventions to be successful, these forces must be considered and targeted. For instance, in establishing a walking program for rural women, Perry and colleagues (2008) suggest:

A social ecological framework would also include sociocultural, environmental, and policy influences on physical activity promotion. The intrapersonal and interpersonal motivators were not sufficient for many of these rural women to overcome the complex barrier of balancing family and self. This barrier could be addressed by altering public policy to reduce the burden of family responsibilities experienced by rural women. Potential policy initiatives that could be instituted by local governments include mandating and providing funds for employers to provide exercise facilities at work sites. (p.313).

Public health professionals must open their eyes to the health needs of rural women in America. Meeting the needs of rural American women requires recognition of the social environment and contextual risk factors present in their daily lives. Responding to these factors at the individual, community and policy levels is imperative to improving the health outcomes of rural women.

5.0 LIMITATIONS, RECOMMENDATIONS AND CONCLUSIONS

This literature review has highlighted that people living in rural America face adverse health outcomes and that rurality, in and of itself, does not cause poorer health outcomes. The goal of this paper was to demonstrate that rural women in America face unique challenges in regard to the social contextual factors surrounding them. Income, education, role responsibilities, living circumstances and personal and community health resources of rural women gravely impact their health outcomes and those of their family. Unfortunately, facing and overcoming challenges to health caused by social circumstances in rural areas is a grueling process for rural women, a process that takes a huge toll on their bodies.

Limitations of this review should be considered in interpreting the findings. This review did not include studies from all of the rural counties in the United States. The large number of counties in the United States that are considered rural makes it difficult to find literature on women's health outcomes in all of these areas. Due to remoteness and minimal exposure, the health outcomes and social environments of many rural areas of the United States remain unknown to public health researchers. The majority of literature on rural women's health outcomes is based on findings from study populations from Appalachia, the South and some areas of the Midwest. Much of this review reflects findings specific to these populations.

These limitations notwithstanding, this review provides a thorough glimpse of the social factors impacting women's health outcomes in rural America. Considering the social context of

individual rural areas in the light of health behavior interventions is essential to increasing their potential effectiveness. Health campaigns targeting smoking, nutrition and physical activity- chronic disease risk factors- can no longer be indifferent to social circumstances. Without recognition of the unique social context and experiences of rural women, the solutions implemented to meet health care needs in rural areas have little hope of achieving success. Successful health promotion will include the concerns that individuals have for themselves, their families and their communities.

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