PERCEIVED HEALTH STATUS OF FARM/RANCH WOMEN

by

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ABSTRACT

Farming and ranching can be a very rewarding lifestyle but can also be detrimental to the health of those who work in the industry. A wealth of research exists on the risks of agricultural work, yet there is little on the actual health status of farmers and ranchers, especially women. This study was a secondary analysis of data generated from a post-intervention survey of rural women with chronic illnesses who participated in the Women to Women (WTW) computer-based project at Montana State University during the past decade. The purpose of this study was to contribute to the body of research about the health status of farm/ranch women living with chronic illness. The aims were to: (a) critically examine the literature regarding farm/ranch women's health; (b) describe the self-reported health of a group of farm/ranch women living with chronic illness; and (c) compare the health status of farm/ranch women with the health status of non-farm/ranch women.

Data were collected using a paper and pencil questionnaire, developed to assess perceived general health status, health as it relates to chronic illness, and health problems related to farm/ranch living and work. All participants answered questions related to perceived health status, and from those questions, two scales were developed. The farm/ranch women also completed questions specifically related to illness or injury more common among farmers and ranchers.

Results of this study were similar to previous research findings that farm/ranch women have a positive perception about their health status and, in addition to their chronic illness, some had illnesses or injuries related to living and or working on a farm or ranch. Few of these women however, attributed their health problems to the farm or ranch life. Little difference was found in the results of the health status of farm/ranch women when compared with that of non-farm/ranch women.

CHAPTER 1

INTRODUCTION

Farming and ranching represents a lifestyle characterized by work that never seems to end. It has clear advantages and benefits as a way of life, but can also be detrimental to the health of those who work in the industry (Bolwerk, 2002). Farmers, ranchers, and their families not only work the land, but they also live and play there (National Safety Council Farmer Health, 2009). Farming and ranching can be described as a "cradle to grave industry" (Reed, 2004, p.361) as children on farms and ranches are often recruited to help with farm labor while in elementary school and principal farm operators continue working well into their advanced years. The average age of U.S. farm operators was 57.1 in 2007, an increase from 55.3 in 2002. The number of farm operators 75 years and older also grew by 20per cent from 2002 to 2007 (U. S. Department of Agriculture, 2009a). Few farmers and ranchers ever completely retire, and many continue to perform tasks until physically unable (Amshoff & Reed, 2005). Additionally, farming and ranching allow for little vacation time, and there are countless stressors related to uncontrollable circumstances such as weather and market prices.

Not only is farming and ranching time consuming, but the occupation also carries increased risks for health hazards and injury. Agriculture repeatedly ranks among the most dangerous jobs in the United States. Farm occupations ranked second in total number of annual occupational fatalities in 2002 (U.S. Department of Labor, Bureau of Labor Statistics, 2002). In 2007, 411 agriculture workers died from a work related injury. Every day, over 240 agricultural workers suffer from an injury that prevents them from

working for a given period of time, and 5 per cent of those injuries result in permanent impairment (NIOSH, 2009). Injuries and illnesses in agriculture result from a variety of causes, and the unique environment and production of each farm or ranch means there is no standard for risk exposure for those that live, work, and play there. In general, expected categories for risk exposure are machinery and equipment, chemicals, livestock, cumulative trauma, elemental exposure, and/or farm-related stress (Reed, 2004).

Despite the hardships and risks of the business, the 2007 Census of Agriculture counted 2,204,792 farms nationwide, a 4 per cent increase from the 2002 Census (U. S. Department of Agriculture, 2009b). Along with a rise in total farm numbers, it was reported in the 2002 census that there was a significant rise in the number of women farmers, both in terms of total number and the percentage of principal operators. Thirty per cent or over 1 million of the total 3.3 million U.S. farm operators counted in the 2007 census were women. That was a 19 per cent increase from 2002. The number of women that were principal operators on a farm or ranch increased almost 30 per cent from 237,819 in 2002 to 306,209 in 2007 (U. S. Department of Agriculture, 2009c).

While women comprise the fastest growing segment of the agricultural population, they are also the first to seek off-farm jobs, primarily to provide health insurance for the family (Reed et al., 1999). Women often fill multiple roles on farms and ranches serving as housewives, business managers, reserve labor, and still manage to juggle off-farm employment, plus additional family responsibilities (Gallagher & Delworth, 1993). Nearly half of the farm women in one southern research study characterized themselves as farm homemakers, yet regularly participated in farm labor including field related chores, animal handling, machinery operations, and farm

management. The women that classified themselves as homemakers reported an injury rate similar to the women who saw themselves as farm workers (Reed et al., 1999). Women who participated in farm work only intermittently are at higher risk for unintentional injury and illnesses because they are unaware of and/or unfamiliar with the exposure and safety hazards inherent in the work (McCoy, 2002). Most farm/ranch women who contributed more than periodic hours to farm work stated they were aware of the health hazards and dangers associated with agriculture occupations; however, because of time and stress, safety precautions are not always a priority (Bowlerk, 2002).

In addition to the nature of farm/ranch work, the amount of time women spend working on the farm or ranch can also affect their risk of injury (Carruth et al., 2001). Women have anatomical and physiological differences that include, but are not limited to shorter stature, less upper body strength, and higher risk of osteoporosis (Engberg, 1993). These differences may contribute to women being more likely than men to be: injured with large animals; run over and killed by farm/ranch machinery; suffer an injury that requires hospitalization from machinery; and suffer fractures after age 60 (Dimich-Ward, 2004). Moreover, farm/ranch women are at greater risk to suffer an injury if they have disorders that impair mobility, decrease alertness, or decrease sensory acuity. All of these can occur as a result of a chronic health condition (Carruth et al., 2001).

Farm/ranch women with chronic health conditions face additional unique challenges in not just managing their day-to-day life, but also their health. Distance to health services, travel limitations, and related costs result in burdens that affect the farm/ranch women's healthcare decisions (Winters, Cudney, Sullivan, & Thuesen 2006). Healthcare costs, even for those with private medical insurance or Medicare, caused some

farmers and ranchers to delay seeking medical and dental care (Reed et al., 2008). Rapid turnover rates of rural healthcare providers, access to healthcare specialists, and dealing with health insurance issues are also problematic for farm/ranch women attempting to manage their chronic illnesses (Cudney, Sullivan, Winters, Paul, & Oriet, 2005; Winters et al., 2006). Living with chronic illness can result in fatigue, pain, and feelings of depression, fear, and anger. In addition to dealing with the multitude of physical and emotional symptoms chronic illness creates, farm/ranch women also experience guilt associated with being limited in their ability to meet the many responsibilities of home, family, and work (Sullivan, Weiner, & Cudney 2003; Winters et al., 2006).

Purpose

Numerous research investigations have been conducted to explore the health risks associated with working on a farm or ranch; however, there is very limited research on the actual and perceived health status of farmers and ranchers, especially women. Thus, the purpose of this study was to contribute to the body of information about the health status of farm/ranch women living with chronic illness. By understanding factors that influence the health of farm/ranch women, healthcare providers who care for these women will be better able to meet the special needs of this group. It is important for health care providers to consider all aspects of farm/ranch women's lives so that adequate education and treatment may be provided to ensure better chronic illness management and avoidance of other illnesses and injuries to which an agricultural lifestyle places them at risk. The specific aims of this study were to: (a) critically examine the literature regarding farm/ranch women's health; (b) describe the health of a group of farm/ranch

women living with chronic illness; and (c) compare the health status of farm/ranch women with the health status of rural non-farm/ranch women.

CHAPTER 2

REVIEW OF LITERATURE

As part of this study, participants were asked to state their primary chronic illness and list additional chronic illnesses from which they suffered. Those illnesses identified as most commonly experienced by the participants were thoroughly investigated in the literature. While there is limited research available that relates specifically to chronic illness in farm/ranch women, data regarding the management of chronic illness, specific health risks of farming and ranching, perceived health status of farmers and ranchers, and the positive aspects associated with farm/ranch living were found and assessed.

Chronic Illness Management

Chronic diseases are the most widespread and costly of all health problems worldwide (Centers for Disease Control Chronic Disease, 2008). They cause pain and suffering in those afflicted, create major limitations in people's activities of daily living, and can decrease quality of life (Centers for Disease Control Chronic Disease, 2008; Centers for Disease Control, 2009). Many of the chronically ill do not have optimal control of their disease. Therefore, one of the major challenges facing the United States healthcare system is meeting the needs of individuals who are chronically ill, so they can better self manage their health condition (Rothman & Wagner, 2003).

Effective management of chronic illness depends upon many factors. However, a key factor that individuals continually rated as very important in chronic illness management was a productive working relationship between the ill person and healthcare

provider that is based on trust and clear communication (Fox & Chesla, 2008). In this partnership, the task of the individual with a chronic condition is to be a responsible self-manager. Being proactive and responsible requires providing complete and accurate information to the provider, requesting explanations of diagnosis and treatment plans as needed, and making an effort to understand and follow through with that information (Civaner & Arda, 2008). Murray and colleagues (2009) found that people with chronic illnesses have multiple needs with regard to healthcare management compliance. These needs include clear and concise information about their illness and treatment options, social support, and behavior change guidance.

According to Sullivan, Weinert, & Cudney (2003), chronic illness management in rural women included living with the physical and emotional symptoms of fatigue and sleep disturbances, pain, depression, fear, discouragement, frustration, loneliness and isolation, guilt, distorted self image, and financial stress. These rural women stated they adapted to these physical and emotional symptoms of chronic illness through the use of humor, hope, and courage. Cudney, Sullivan, Winters, Paul, & Oriet (2005) also found that rural women had difficulties living with and managing chronic illness. These difficulties included carrying through with self-management programs, poor communication and relationships with health care providers, fear, and stressed family relationships. They also found that the women in their study were proactive in proposing self-prescribed ways of adapting to difficulties through the use of management strategies including setting goals, taking action, assuming responsibility, trusting their judgment, and using prayer. Winters, Cudney, Sullivan, & Thuesen (2006) reported that despite some rural women's positive attempts to self-manage their chronic illnesses, often social,

cultural, and economic stressors, the nature of the rural women's work, and distance and accessibility to quality healthcare hindered their ability to fully succeed in their management efforts.

Common Chronic Illnesses of Study Participants

Chronic illnesses commonly occurring in women in the United States, including the participants in this secondary analysis study, were investigated in the literature. Background information on multiple sclerosis, diabetes, arthritis, fibromyalgia, and depression, as well as rural applications, when available, were explored.

Multiple Sclerosis

There are estimated to be 400,000 people in the United States with multiple sclerosis. It is a debilitating disease that attacks the central nervous system causing symptoms such as fatigue, numbness, balance and movement problems, bladder, bowel, and sexual dysfunction, pain, as well as, cognitive and emotional changes. Symptoms can be mild or severe, may come and go, often progressing with time. While multiple sclerosis can be found in all parts of the world involving all ethnic groups, women, white people of European descent, people with a strong familial history and those between the ages of 20 and 50 are most commonly diagnosed. While the cause of the disease is still unknown, a combination of immunologic, genetic, geographic, and infectious factors may be involved (National Multiple Sclerosis Society, 2010; Mayo Clinic, 2010).

Diabetes

Diabetes is a chronic illness that can affect people of any age. It is a metabolic disorder characterized by elevated blood glucose. An estimated 23.5 million people, or 7.8 per cent of the United States population over the age of 20 years had diabetes in 2007 with approximately 11.5 million of this number being women (National Diabetes Information Clearinghouse, 2008). Diabetes in rural populations has a 17 per cent increased prevalence rate when compared to urban areas (Keppel, 2004). Diabetes in rural areas is further complicated by higher rates of obesity and increased rates of activity limitations secondary to chronic conditions (U.S. Department of Health and Human Services, 2010b).

If not treated and controlled, diabetes can have numerous additional health complications including heart disease, stroke, kidney failure, vision loss, and amputations. Eating healthy, being physically active, and routine medical care are essential to treating and controlling diabetes (American Diabetes Association, 2010). Rural communities often have fewer sidewalks, workout facilities, or exercise groups which can make being physically active more difficult. In addition, they often have much smaller or no grocery facilities, making it difficult to purchase fresh fruits and vegetables and select other healthy choices without traveling or incurring increased costs (Massey et al., 2010; Gamm et al., 2003).

Careful monitoring of blood glucose or hemoglobin A1C, blood pressure, and cholesterol can decrease the risk of diabetic complications (American Diabetes Association, 2010). In a study of rural healthcare providers compared with those in urban areas, Coon & Zulkowski (2002) determined that rural healthcare givers provided less

comprehensive care for their diabetic patients with multiple chronic conditions. They also concluded that diabetic education referrals were made less often and other routine diabetic recommendations, such as immunizations, eye exams, monofilament testing, and microalbumin to creatine ratios, were not documented. Andrus et al. (2004) also found that rural healthcare providers had fewer number of patients at goal A1Cs, LDL levels, and blood pressures. Those same rural providers conducted fewer diabetic screenings and preventive services when compared with urban healthcare providers. Diabetes management usually includes treatment teams made up of patient, primary care provider, nutritionist, diabetic educator, and other specialists that are pertinent to a particular individual's health background. In contrast, rural communities have a limited array of medical services which creates problems for both rural healthcare providers and residents in managing chronic illness (Gamm, et al., 2004).

Arthritis

According to the Centers for Disease Control (2009), arthritis is the most common cause of disability in the United States, affecting over 46 million, or 22 per cent of the population. Arthritis actually means joint inflammation, but the term is used to describe hundreds of diseases and conditions that affect the joint and surrounding tissues. Women compromise 60 per cent of those diagnosed, and 90 per cent of the most common types of arthritis, including osteoarthritis, rheumatoid, and systemic lupus, disproportionately affect women (Theis et al., 2007). Arthritis symptoms vary by type; however, in general, pain, stiffness, and fatigue are the most common. Risk factors for arthritis include age, gender, obesity, family history, physical injury, and occupation (Centers for Disease

Control, 2009). In a study by Kaplan et al. (1996), arthritis was more commonly self-reported by those living in rural areas, of lower income, and with less education.

Fibromyalgia

The prevalence of fibromyalgia in the United States is about 2 per cent, affecting an estimated 5.0 million adults in 2005, with the incidence being much higher among women than men (Centers for Disease Control Fibromyalgia, 2009). In addition, researchers worldwide have reported this condition more frequently in rural populations than in urban (Turhanoglu, et al., 2008). Fibromyalgia is defined as chronic widespread pain in 11 of 18 tender-point sites on digital palpation (Wolfe, et al., 1990) and has an immense impact on the overall health and quality of life of those living with the condition. Those with the disease reported difficulty from the time symptoms began, through diagnosis and health education, and into their current daily lives as they endured an often constant presence of symptoms. These symptoms included, but were not limited to pain, fatigue, disturbed sleep, depression, anxiety, cognitive impairment, disrupted family and friend relationships, social isolation, reduced physical activity, and loss of career and or leisure activities (Arnold, et al., 2008). In addition to physical symptoms, women with fibromyalgia must also deal with a healthcare network that lacks in fibromyalgia awareness, confidence, and diagnostic and treatment ability (National Fibromyalgia Association, 2007). Some women with fibromyalgia felt the complications associated with navigating the healthcare system actually exacerbated their chronic illness symptoms (France, Farrell, Kearney, and Myatt, 2008).

Respiratory Disease

Farmers and ranchers are at an increased risk for respiratory diseases as a result of exposure to grains, animals, dust, and other agriculture contacts (National Safety Council Farmer Health, 2009). For example, farmers and ranchers exposed to organophosphorus pesticides were at increased risk for asthma (Proskocil et al., 2008). Ransom (2005) found that on farms where pesticides were used, particularly organophosphate insecticides, allergic asthma among farm women was noted. Ransom (2005) also determined that exposure was not limited to those actually applying the pesticide, but family members could be exposed through washing the clothes of the person who applied the pesticide and/or disposing of empty containers. In contrast, Hoppin, Umbach, London, Henneberger, Kullman, Alavanja, and Sandler (2008) investigated information on 25,814 women as part of the Agricultural Health Study in Iowa and North Carolina and found that growing up on a farm was protective against both atopic and non-atopic (not caused by an allergen) asthma in women. Furthermore, in a study of a random sample of farmers compared to a random sample of rural and urban people in an adjacent region, a total of over 2,500 people, it was reported that farmers had asthma less often than the general population (Wijnand et al., 2004).

Depression

Depression is a common and debilitating illness. According to the World Health Organization (2010), depression can present as depressed mood, feelings of guilt or low self worth, disturbed sleep or appetite, low energy, and poor concentration. It can also lead to suicidal thoughts or actions. Depression affects over 20 million Americans and is

more common in women (National Institute of Mental Health, 2010). Eighty percent of those with depression reported their symptoms interfered with their ability to work, maintain a home, and be socially active, yet many still did not access medical care for their disease even though it is easily treatable (Pratt & Brody, 2008). It was reported in the literature that depression is more prevalent in rural areas and that mental health access in these areas is hampered by barriers including inadequate service funding, lack of qualified mental health personnel, geographical isolation, and transportation difficulties (Research & Training Center, 2007). Additional barriers to seeking mental health services in rural areas were fear about breeches in confidentiality and cultural stigmas (Hauenstein, 2003).

The risk of depression in older adults increased with the presence of other medical conditions, especially when normal functioning was decreased or limited such as with a chronic illness (National Institute of Mental Health, 2009). Carruth & Logan (2002) noted that Louisiana farm/ranch women with diminished health status had higher rates of depressive symptoms. They also found that involvement in farm/ranch work for greater than 20 years greatly increased the women's risk for depressive symptoms as did the stress from enduring the hazards and uncertainties of farming. High levels of stress, often associated with occupational hazards, lack of control with many aspects of the occupation, and financial burdens can have adverse effects on the mental health of those that live and work on farms and ranches (Amshoff & Reed, 2005; Mulder et al., n.d; Carruth & Logan, 2002)

Farm/ranch Hazards & Injury

Farmers and ranchers are exposed almost daily to environmental hazards including ultraviolet rays from the sun that can be harmful to skin and vision, loud noises that can damage their ability to hear, as well as, numerous other situations that can cause physical injury (National Safety Council Farmer Health, 2009). Carruth and colleagues (2001) conducted a population-based cross-sectional survey of 53 rural women in Texas and Louisiana in which it was reported that, in the 12 months prior to the interview, the women had experienced 64 farm related injuries. While many of the injuries were not serious, more than half of the women reported consulting a health care provider.

Despite the well-known and ongoing concern about the risks of these hazardous exposures and the increased risk for injury among agricultural workers, personal protective equipment (PPE) is rarely used (Quandt et al., 2006), even if it is owned or provided. Reasons stated by farmers and ranchers for the low rate of use included inconvenience, difficulty communicating while running equipment, and fear of missing important equipment noises (McCullagh & Robertson, 2009). Meeker, Carruth, & Holland (2002) studied 657 farm/ranch women and found that, when compared to women working on the farm/ranch more than 20 hours per week, women working just 1 to 20 hours per week were proportionately less likely to use PPE, with the exception of helmet use during all terrain vehicle operation and horse riding and therefore may be at greater risk for preventable illnesses and injuries. Because farm/ranch women often perform intermittent physical labor in addition to their other farm/ranch roles, they may not be as familiar with equipment, machinery, exposure hazards, or the need for PPE use, and,

therefore, may be placed at higher risk for preventable illness or injury (McCoy, Carruth, & Reed, 2002).

Perceived Health Status

To determine rural dwellers' perceptions of their health status, Amshoff and Reed (2005) sampled 725 farmers in Kentucky. The mean number of chronic health conditions among the sample was 2.3 and 21 per cent of the sample reported a work related injury in the past 12 months. However, 32 per cent reported their health as excellent or very good. Nearly 60 per cent of participants in a study by Reed et al. (2008) indicated their health was "good" or "very good," even though they had an average of 2.4 to 3.0 current health conditions. Similarly, Bowlerk (2002) found the majority of the 657 Louisiana farm/ranch women interviewed ranked their overall health as "good" or "very good." It was reported in the literature that rural dwellers, specifically farmers and ranchers, felt their overall health was good even though they suffered from multiple chronic illnesses. One explanation for this phenomenon is that in rural areas health is often viewed as the ability to work, and that rural dwellers put their health needs after work needs (Long & Weinert, 1989).

Positive Aspects of Farm, Ranch, and Rural Living

While it was found in the literature that poor health outcomes are often associated with living in rural areas, positive aspects of rural living were reported in some rural health studies. Winters, Cudney, Sullivan, & Thuesen (2006) observed that some rural women attributed the presence of farm animals and wildlife, availability of outdoor

recreation, peace and quiet, gardening, and family cohesiveness as quality aspects of rural living that positively influenced their health and well being. Bowlerk (2002) agreed, that while there were increased physical and emotional health risks associated with farm work, this environment also promoted the benefits of family cohesion, commitment and dedication to work, and motivation for success. The participants in the Bowlerk study added that rural living also encouraged them to get outdoors in the fresh air, and increased their physical activity and enjoyment of the pleasant surroundings. Thurston and Meadows (2003) observed that rural women in Alberta, Canada, associated their overall health and well-being with the symbols of rural living such as clean air, slower-paced lifestyle, presence of wild life, the beauty of nature, open space, and knowing the people around you. These Canadian women, however, did feel burdened by the lack of medical services and healthcare specialists in their rural communities. In another study of 725 Kentucky and South Carolina farmers, 70 per cent stated that they found great personal satisfaction with their farm work, and 43 per cent defined good health as the ability to work (Amshoff & Reed, 2005).

Review of Literature Conclusion

An extensive investigation of chronic illnesses, specifically those most commonly reported by the study participants, was completed to gather general information and gain insight on the effects chronic illness can have on farm/ranch women. In addition, valuable facts were obtained about specific health risks women face when living and working on a farm or ranch. Regrettably, however, the results of this research literature review yielded fragmented and missing information on the actual health status of this

population. In fact, there is little to no research on the health status of farm/ranch women in the Northern Rocky Mountain region of the United States. The majority of the research discussed in this chapter regarding the health of farm/ranch dwellers (with a focus on women) was diverse in geographical location, ethnicity, and background. These studies were conducted on Caucasian women in the Western provinces of Canada, women of different ethnic backgrounds in Australia, immigrant and migrant women farm workers in California, African American women in the South Eastern United States, and Caucasian women in the Appalachian and Great Lakes Regions. A single specific geographical area or ethnic background was not found to be the topic of any substantial amount of research regarding the health status of women in agriculture. Because the research was limited to specific geographical locations, and persons with specific cultural backgrounds, it is not possible to generalize the results to all farm/ranch women. There is a lack of research on the current health of farm/ranch women, especially those residing in the Northern Rocky Mountain region. This lack of research should be addressed to supply information to healthcare providers to aid in their understanding of the health status of farm/ranch women and thus provide better overall care, as well as to enable individuals to better self-manage their chronic illness.

CHAPTER 3

METHODS

This study was a secondary analysis of data generated from a post-intervention survey of rural women with chronic illnesses who had participated in the Women to Women (WTW) computer-based project at Montana State University College of Nursing during the past decade. The purpose of the WTW intervention was to provide a virtual self-help support group and web-based health information to assist rural women to better manage and adapt to their illnesses. Requirements for participation in the WTW project included having a diagnosis of a chronic health condition and residence in a rural area, or small town, or on a farm/ranch at least 25 miles outside of a town with a population of 12,500 or more (Winters, Cudney, Sullivan, & Thuesen, 2006). As part of the continuous, longitudinal WTW project, a follow-up study was initiated to determine the effectiveness of WTW; further test the effectiveness of *My Health Companion*,© a portable, written, personal health record that was initiated in the study's final phase; and gather specific health information about farm/ranch women. Participation in this sub-project required the women to complete a questionnaire that contained questions about their current health, their perceptions of the project's long term effectiveness, and, for those who lived on farms and ranches, health related to the farm/ranch life-style. The data gathered in the sub-project related to farm/ranch women's health were the basis for this study.

Description of Participants

The Women to Women research team contacted women, by letter, who had participated in the intervention groups of the project from 1995 to 2005 to determine their willingness to participate in the sub-project. A total of 63 women participated and of these, 21 self-reported living on a farm or ranch and were placed in the farm/ranch women study group. The remaining women were considered non-farm/ranch women. While the farm/ranch women were the primary focus of this study, the entire sample of 63 women was used for some segments of the data analysis. Information regarding participant demographics, data collection methods, and data analysis are described below.

Farm/Ranch Women Group

All 21 farm/ranch women in the study were Caucasian. The average age was 57.5 years. Nineteen of the women were married with seven having dependent children under the age of 18 living in their household. Education was defined as total number of years in school completed with participants averaging 14.9 years in school. Income varied slightly within this group with seven reporting an annual income between $25,000 and $34,999; three between $35,000 and $44,999, and four reporting an annual income greater than $75,000.

Multiple Sclerosis was the most common primary chronic illness (n=6); diabetes was next (n=5), followed by arthritis (n=4), and fibromyalgia (n=3). The remaining three participants listed their primary chronic illnesses as lupus (n=1), urinary problems (n=1), or ankylosing spondylitis (n=1). For those with multiple illnesses, the most common additional conditions listed included arthritis, hypertension, cancer, and obesity. The

mean number of years since the onset of their primary chronic illness symptoms was 23.1 years, and the mean number of years since diagnosis was 19.8

Non Farm/Ranch Women Group

Of the 42 non-farm/ranch women, 38 were Caucasian, three were American Indian or Alaskan Native, and one reported to be more than one race. Their mean age was 60.2 years and their average education was 14.6 years. Twenty-six of these women were married, six were widowed, and four were divorced. Eight had dependents under the age of 18 living in the household. Fourteen of the women in this group reported an income between $25,000 and $44,999 and eight women reported an annual income of less than $15,000.

Among non-farm/ranch women, multiple sclerosis was the most commonly reported chronic health illness (n= 13), followed by diabetes (n=8), fibromyalgia (n=7), arthritis (n=6), and cancer (n=3). The remaining non-farm/ranch women stated one of the following as their primary chronic health problem: stroke, kidney failure, dysautonomia, chemical sensitivity, or neurological. For those with additional chronic illnesses, the most commonly reported were hypertension, asthma, and arthritis. The mean number of years since the onset of the primary chronic illness symptoms was 22.9, and the mean number of years since diagnosis was 18.2. The detailed demographic characteristics for both the farm/ranch and the non-farm ranch participants are presented on Table 1.

Table 1. Participant Characteristics

Characteristic	Farm/Ranch (N=21)	Non-Farm/Ranch (N=42)
Age	57.5 (sd=7.07)	60.2 (sd=7.68)
Education	14.9 years (sd=2.38)	14.6 years (sd=2.29)
Years since onset of symptoms	23.1 (sd=10.37)	22.9 (sd=11.97)
Years since diagnosis	19.8 (sd=10.06)	18.2 (sd=9.75)
Race		
Caucasian	21	38
American Indian/Alaska Native		3
Mixed Race		1
Marital Status		
Married	19	26
Divorced		4
Separated		2
Widowed		6
Never Married	1	2
Common Law		1
Living Together	1	1
Income		
Less than $14,999	1	8
$15,000 to $25,000	2	4
$25,000 to $34,999	7	7
$35,000 to $44,999	3	7
$45,000 to $54,999	1	5
$55,000 to $64,999	1	6
$65,000 to $74,000	1	3
Over $75,000	4	2
Primary Chronic Illness		
Arthritis	4	6
Diabetes	5	8
Multiple sclerosis	6	13
Fibromyalgia	3	7
Cancer		3
Lupus	1	
Urinary Problems	1	
Stroke		1
Kidney Failure		1
Dysautonomia		1
Chemical Sensitivity		1
Neurological		1
Ankylosing spondylitis	1	

Data Collection

The Women to Women research team developed the questions contained in the mail questionnaire based on their past experience and evidence from the literature (see Appendix A for Women to Women Project Questionnaire). Specific questions from the questionnaire for use in this secondary analysis were chosen by the researcher based on the concepts most prominently found in the literature review described in Chapter One, and to meet the second aim of this study, "describe the health of a group of farm/ranch women living with chronic illness." The questions for this secondary analysis related to quality of life and general health, physical health issues related to chronic illness, impact of chronic illness on activities of daily life, and health status specific to farm/ranch participants. To further help describe the health status of farm/ranch women living with chronic illness, some of the items were combined to form the Physical Health Issues Scale and the Chronic Illness Impact Scale.

General Health Status

To gain insight into the women's perception of their general health status, results from two questions in the questionnaire were analyzed. The first, "How would you rate your quality of life at the current time?" was scored on a 10 point scale, ranging from 1 (*poorer than most*) to 10 (*better than most*). The second question was, "How would you rate your health today as compared to one year ago?" Participants also scored this question on a 10 point scale, ranging from 1 (*much worse)* to 10 (*much better*).

Physical Health Difficulties

Additional questions were analyzed to gain insight into the difficulty participants had with each of the following common physical health issues: vision, hearing, mobility, chronic pain, fatigue, coordination, climbing stairs, holding items, and breathing. participants indicated the degree of difficulty on a five-point scale: 1 (*no difficulty)* through 5 (*great difficult)y*. In addition to examining each potential health issue question individually, the nine items were combined to develop the Physical Health Issues Scale. Item responses were summed for a total score with a potential range of scores from 9 to 45. Higher scores indicate greater perceived difficulty with physical health issues secondary to chronic illness. Chronbach's alpha for this scale was 0.83**.**

Chronic Illness Impact on Daily Life

Study participants rated the impact their primary chronic health problem had on the following eight activities of daily life: household cleaning, recreational activities, participating in activities with friends and family, attending church service or bible study, being present at community events, being active in organizations, having sexual intercourse, and going shopping. Responses were rated on a 6-point scale: 0 (*not applicable*), 1 (*small impact*), through 5 (*great impact*). In addition to examining the responses for each activity individually, the eight items were combined to develop the Chronic Illness Impact Scale. Scores could range from 0 to 40 with higher scores indicating a personal perception of greater chronic illness impact on many aspects of daily life. Chronbach's alpha for this scale was 0.91. A ninth individual item, the impact chronic health has on performing farm/ranch responsibilities, was also assessed. This

item however, which was not applicable to the non-farm/ranch women participants, was omitted from the Chronic Illness Impact Scale so that scores for the farm/ranch women and the non-farm/ranch women could later be compared.

Health Concerns Related to Farm/Ranch Life

In addition to the items discussed previously, a series of health status questions were analyzed for the specific purpose of examining common health concerns of women with chronic illness who lived on farms or ranches. The first question was, "In the past twelve months, have you had any illness or trauma that you suspect might have been related to the farm/ranch environment?" If participants answered *yes*, they were asked to describe the illness or trauma. The next question was, "How would you compare your health to women your age who are not farm/ranch women?" Possible answers were: *a lot better*, *better*, *about the same*, *worse*, and *a lot worse*.

Further assessment of health conditions directly associated with living and working on farms and ranches was conducted by examining questions related to the incidence of skin conditions, hearing loss, breathing problems, and injuries. Each question was in a *yes* or *no* format. If they answered *yes* to experiencing any of the listed health conditions, they were given the opportunity to describe their specific health concerns and to clarify whether they considered their health condition to be related to living or working on a farm or ranch.

CHAPTER 4

RESULTS

In this section, the results of the data analysis related to the second aim of this study are reported. The second aim was "to describe the self-reported health of farm/ranch women living with chronic illness." The topics reported on include quality of life, general health status, physical health issues associated with chronic illness, impact of chronic illness has on activities of daily life, and specific health risks associated with living and working on a farm or ranch. In addition, results related to the third aim of the study, "to compare the health status of farm/ranch women to the health status of non-farm/ranch women," are presented.

Quality of Life and General Health Status

Overall, the farm/ranch participants reported a positive quality of life and considered their health today to be the same if not slightly improved from their health one year ago. The mean of the scores on, "How would you rate your quality of life at the current time?" was 6.86 of a possible 10 with a standard deviation of 2.14, indicating that the 21 farm/ranch respondents considered their quality of life to be at least the same to better than most. The mean for the question, "How would you rate your health today as compared to one year ago?" was 6.29 of a possible 10, standard deviation 1.79. Therefore, the women felt their health had moderately improved during the past year.

Physical Health

Eight common physical health issues were assessed to determine how disabling chronic illness can be for the participants. Of the eight individual physical health issues, rated on a scale of 1 (*no difficulty)* through 5 (*great difficulty*), the farm/ranch women rated "difficulty with fatigue" the highest with a mean score of 2.86, standard deviation 1.19, and "difficulty with breathing" the lowest with a mean score of 1.52, standard deviation 0.98. The score for each of the eight items can be found on Table 3. Individual item responses were summed to determine a total Physical Health Issue Scale score. The farm/ranch women's scores on this scale ranged from 9 to 35 (possible range 9-45) with a mean score of 20.28 and standard deviation 7.07. The farm/ranch women's mean score on each individual item was less than 3 and the mean score on the Physical Health Issue Scale was near the lower end of the possible range. According to these results, the participants did not report any considerable difficulty with these particular physical health issues.

Chronic Illness Impact

Of the eight activities the farm/ranch women rated on a scale of 0 (*not applicable*), 1 (*small impact*), through 5 (*great impact*), the women indicated their chronic illness had the greatest impact on their ability to fulfill farm/ranch responsibilities (mean score = 2.81) and doing recreational activities (mean score = 2.76). They considered attending church and being active in an organization such as 4H or other women's leagues to be least impacted by their illness with a mean score of 1.71 for each.

In addition to looking at each item individually, the cumulative Chronic Illness Impact Scale was used. Women's scores for each activity were totaled and ranged from 2 to 40 (possible range was 0-45) with a mean score of 19.23 and a standard deviation of 11.06. The farm/ranch women acknowledged their chronic illness had some impact on their activities of daily living.

Health Status Concerns Specific to Farm/Ranch Participants

The results of the questions that were asked to better understand the health issues common to those living and working on farms and ranches provided illuminating information. In response to the query about whether they had any illness or trauma that they suspected might have been related to the farm/ranch environment, 5 of the 21 farm/ranch women answered "yes." Their illness or trauma experiences included stress, depression, contusions, joint stiffness, joint swelling, and back pain. When asked to compare their health to women who did not live on farms or ranches, 9 of the 21 women rated their health as "about the same" and 8 rated their health as "worse" or "a lot worse" than women their age that were not farm/ranch women.

The assessment of the women's experiences with the hazards of farm/ranch living yielded varied responses. A tally of skin conditions reported within the past twelve months included 11 with excessive dryness, 4 with a rash, 1 had skin cancer, 1 a sore, and 1 had no skin problems. Of the 11 women that had one or more skin problems, 6 felt their skin condition was a result of exposure to sun, chemicals, or other substances on the skin. However, those 6 women felt those exposures may or may not have been related to living and working on a farm/ranch. Five of the women experienced hearing loss, but none

associated it with working on a farm or ranch. Four of the farm/ranch women participants reported breathing problems with none attributing their breathing difficulties to working on a farm or ranch. See Table 2 for a summary of the health information directly related to living and working on a farm/ranch.

Table 2. Health conditions Farm/Ranch Women

Question	**Result**
	Frequency
Farm/ranch related trauma	Yes = 5
Skin problem ?	No skin problem = 8 Rash = 4 Sores = 1 Excessive Dryness = 11 Skin Cancer = 1
Skin conditions related to sun, chemicals, or other substances?	Yes = 6
Hearing loss?	Yes = 6
Is your hearing loss related to working on the farm/ranch?	No = 6
Breathing problems?	Yes = 4
Is your breathing problem related to working on the farm/ranch?	No = 4

Health Status of Non Farm/Ranch Women

The third aim of this study was to compare the health status of farm/ranch women to that of rural non-farm/ranch women. The non-farm/ranch women's responses were analyzed and independent t tests were used to determine statistical difference between their scores and those of the farm/ranch women. A descriptive comparison of the two groups results are listed below and a summary can be found in Table 3.

The mean score for the non-farm/ranch women on the quality of life question was 6.38, standard deviation 2.12. This score is very similar to the farm/ranch women's mean score of 6.86. The scores for the two groups on quality of life were not significantly different (p=.443). The mean score for non-farm/ranch women on the health status question was 5.81, standard deviation 2.05. While the farm/ranch women's score was slightly higher, there was no significant difference (p=.349). Both groups of women indicated they perceived a good quality of life and their health to be improved from one year ago.

On the Physical Health Issues Scale, non-farm/ranch participants' scores ranged from 10 to 40 with a mean score of 22.88 and a standard deviation of 6.81. In comparison, the farm/ranch women's scores were slightly lower and ranged from 9 to 35 with a mean score of 20.28. While the farm/ranch women perceived slightly less difficulty with physical health problems related to their chronic illnesses when compared to non-farm/ranch women, their scores were not significantly different (p=.173).

On the individual items from the scale, however, neither group of women rated any of the physical health issues very high, indicating their chronic illness did not cause great difficulty with any one area of physical health. When reviewing the scores of the individual issues, the non-farm/ranch women were similar to the farm/ranch women in that they both rated difficulty with fatigue the highest, with non-farm/ranch women's mean score being 3.26 with a standard deviation of 1.10. Both groups of women had the least difficulty with hearing as the farm/ranch women had a mean score of 1.57 and a standard deviation of 0.81 and the non-farm/ranch women had a mean score of 1.86 standard deviation of 0.97.

The non-farm/ranch women's scores on the Chronic Illness Impact Scale ranged from 0 to 39 with a mean score of 20.02 and a standard deviation of 9.96. In comparison, the farm/ranch women's mean score was 18.80, slightly higher than the non-farm/ranch women's score. Higher scores on this scale indicated a personal perception of greater impact on activities of daily living as a result of a chronic illness, however there was no significant difference (p=.673) between the two groups.

In examining individual activities, the non-farm ranch women rated household activities as being impacted the most by their chronic illness with a mean score of 3.07 and a standard deviation of 1.58. Interestingly, the farm/ranch women related the greatest impact of their chronic illness on completing farm/ranch duties, an activity of daily living not applicable to the non-farm/ranch women. Overall, the highest scores for both groups were all less than 4, with many averaging 2 or 3, which indicated the women actually perceived their chronic illness to only have a minor impact on the activities which were assessed. See Table 3, 4, and 5 for more detailed results of the comparison of non-farm ranch and farm/ranch women scores.

Table 3. Health Status Results

Assessed Characteristic	**Farm/Ranch Mean (SD)**	**Non Farm/Ranch Mean (SD)**	**Significance**	**Measurement**
Quality of Life	6.86 (2.14)	6.38 (2.12)	0.427	0-10 Higher Better
Current health status	6.29 (1.79)	5.81 (2.05)	0.369	

Table 4. Assessed Characteristic Results

Assessed Characteristic	Farm/Ranch Mean (SD)	Non Farm/Ranch Mean (SD)	Significance	Measurement
Vision	2.05 (1.02)	2.31 (1.15)	0.365	1-5 Higher being worse
Hearing	1.57 (0.81)	1.86 (0.97)	0.225	
Mobility	2.38 (1.11)	2.81 (1.33)	0.185	
Chronic Pain	2.71 (1.45)	2.95 (1.43)	0.541	
Fatigue	2.86 (1.19)	3.26 (1.1)	0.202	
Coordination	2.29 (1.00)	2.45 (1.15)	0.558	
Climbing Stairs	2.57 (1.24)	2.81 (1.33)	0.489	
Holding Items	2.33 (1.3)	2.48 (1.21)	0.685	
Breathing	1.52 (0.98)	1.95 (1.05)	0.119	
Physical Health Issues Scale	20.28 (7.07)	22.88 (6.81)	0.173	9-45 Higher being worse

Table 5. Chronic Illness Impact

Measured Activity	Farm/Ranch Mean (SD)	Non Farm/Ranch Mean (SD)	Significance	Measurement
Household cleaning	2.62 (1.53)	3.07 (1.58)	0.281	1-5 Higher being worse
Recreational activities	2.76 (1.67)	2.93 (1.45)	0.699	
Participating in activities with friends and family	2.57 (1.50)	2.88 (1.31)	0.427	
Attending church service or bible study	2.38 (1.52)	1.76 (1.69)	0.911	
Being present at community events	2.38 (1.62)	2.55 (1.72)	0.71	
Being active in organizations	1.71 (1.76)	2.07 (1.82)	0.458	
Having sexual intercourse	2.57 (1.77)	1.9 (1.93)	0.18	
Going shopping	2.48 (1.47)	2.86 (1.4)	0.332	
Performing farm/ranch responsibilities	2.81 (1.53)	n/a	n/a	
Chronic Illness Impact Scale	18.80 (11.03)	20.02 (9.96)	0.673	0-45 Higher worse

Summary

The farm/ranch women had an overall positive perception about their health status and considered their quality of life to be at least as good to better than most. They also felt their health today was as good or better than it was one year ago. They perceived some difficulty with physical health issues related to their chronic illnesses with fatigue being the most severe. The major negative impact of their chronic condition on daily living was seen as their impaired ability to fulfill farm/ranch responsibilities. While, overall, the farm/ranch women had a positive perception of their health perception, over half the women felt their health was worse to a lot worse than other similar women that did not live on a farm/ranch. In general, when the results for farm/ranch women were compared to those of the non-farm/ranch women, there was little to no statistically significant difference in the perceived health status between the two groups. Therefore, with the exception of the impact chronic illness had on farm/ranch responsibilities, non-farm/ranch women perceived their health status similarly.

Some of the farm/ranch women reported illnesses or injuries that they associated with living and/or working on a farm/ranch, including stress, depression, contusions, joint stiffness, joint swelling, and back pain. Very few farm/ranch women reported having skin conditions, hearing loss, or respiratory problems, all common health problems associated with living and working on a farm/ranch. Those that did report such problems did not necessarily attribute the problems to living or working on a farm or ranch.

CHAPTER 5

DISCUSSION

The purpose of this study was to contribute to the body of knowledge about the health status of farm/ranch women living with chronic illness. The specific aims were to: (a) critically examine the literature regarding farm/ranch women's health; (b) describe the health of a group of farm/ranch women living with chronic illness; and (c) compare the health status of farm/ranch women with the health status of rural non-farm/ranch women. These aims were accomplished by completing a thorough literature review and examining select results from a post-intervention follow up questionnaire completed by women who had participated in the Women to Women computer intervention during the past decade. All participants resided in a rural area, had at least one chronic illness, and each faced unique challenges in managing her health.

The farm/ranch women were an important sub-group to examine because their rural residence and occupation could exacerbate existing medical conditions and potentially cause new ones. Their farm/ranch lifestyle also influenced how these women perceived their health and how they set their health-related priorities, often placing farm or ranch responsibilities ahead of their own health. Decisions such as this are not uncommon among rural inhabitants who often delay or avoid seeking medical attention for chronic illness or injury because of long distances to healthcare providers, high costs of care, or simply because of the belief that they are not ill enough to need healthcare.

Better Quality of Life than Most

Just as illness can have different meanings for people of various backgrounds and cultures, quality of life can also have different interpretations. Gill & Feinstein (1994) found that healthcare related quality of life can only be completely measured by the patient themselves. In general however, quality of life is multi-dimensional and can reflect overall enjoyment of life and wellbeing, as well as freedom from disease symptoms (Segen, 2002). Symptoms, discomfort, and physical limitations associated with having a chronic illness can negatively impact a person's quality of life. A case in point was a study by McCabe & McKern (2002) in which individuals with a chronic illness routinely reported a lower quality of life than comparison groups. Another factor that influences quality of life is social support. Individuals with chronic conditions who have good social support have better quality of life over time compared to those with poor social support (McCabe, Stokes, & McDonald, 2009; So, et al., 2009). Rural women however, especially those with significant illnesses, are often unable to access support services and therefore feel isolated (Bettencourt et al., 2007).

As seen in the literature, the numerous negative effects of having a chronic illness coupled with being a rural inhabitant could result in impaired quality of life. However, both the farm/ranch sample group and the non-farm/ranch sample group indicated that they considered their quality of life as good to better than most. One feasible explanation for the perceived high quality of life reported by the participant groups was the positive health and well-being effects of rural living as explained by Bowlerk (2002). It is also possible that the women in this study perceived their quality of life as being good because

of the support they received through their involvement with the WTW project, an intervention that has been documented to enhance the lives of isolated rural women living with chronic illness by providing them with health information and an encouraging support network. Regardless of the explanation, a high quality of life in most of the women is a reassuring finding because as an individual's quality of life and life satisfaction increase, healthy behaviors such as eating well and being active also increase; and illness symptoms such as fatigue, may decrease as well (Strine, et al., 2008).

Health Status Today

As a person with a chronic illness ages, it is expected their illness would progress and become worse. In fact, living with an incurable illness has been described by individuals as fearful and tiring -- a life characterized by escalating impotence and dependence (Ryan & Farralley, 2009). However, the farm/ranch women in this study rated their health to be as good today if not better than it was one year ago. The non-farm/ranch women also rated their health today as about the same to slightly better when compared to their health one year ago. The reason for this perception is unclear, but it is possible that their healthcare needs were being adequately met, their chronic illness was satisfactorily managed, and/or they were utilizing a new health intervention that had actually improved their health during the past year.

Self-care and lifestyle modification programs have been shown to improve stress, fatigue, and emotional and physical functioning in chronically ill patients (Malec, 2002). Weinert, Cudney, & Hill (2008) reported that computer-delivered interventions can improve social support, reduce loneliness, and enhance the ability of rural women to self-

manage and adapt to living with a chronic illness. Massey et al. (2010) also stated that using telemedicine, telephone help lines, web-based interventions, and community health advisors, while each have benefits and limitations, can help rural dwellers improve their chronic illness management. Time also allows individuals to improve their management of chronic conditions. Thus, past participation in the WTW study could have also aided all the women in this study to feel their health is the same to better than it was one year ago.

Fatigue

The farm/ranch women in this study reported fatigue as the most significant physical health issue related to their chronic illness. Fatigue is a common symptom associated with most chronic illnesses. Farm/ranch women that suffer from a chronic illness, but also participate in the endless responsibilities that accompany living and working on a farm/ranch, are at an even higher risk from suffering the consequences of fatigue. Women that are employed off the farm/ranch then come home and take care of house and parenting responsibilities, and later go on to manage or complete farm/ranch responsibilities experience what Gallagher and Delworth (1993) described as the "third shift phenomenon." Bolton (2000) described a new and different type of third shift, one she lightheartedly called the "endless shift," where the woman struggles with the stress of getting things done, balancing responsibilities, and role identity. Women that struggle with this third shift are frequently concerned with the stress of completing chores and meeting financial obligations in addition to having concerns about their own illness and

limitations, all the while not being able to share their concerns for fear of being a burden to the family (Gallagher & Delworth, 1993; Reed et al, 1999).

Chronic Illness Impacts Farm/ranch Responsibilities

Chronic illness affects farm/ranch work because the tasks can be very physically strenuous. Even paperwork duties require concentration, time, and can be stressful. For these reasons, it was not surprising to see why the women from this study rated farm/ranch responsibilities as being impacted the most by their chronic illnesses. The farm/ranch participants felt their chronic illness had the least impact on their involvement in community and service organizations. This may be because the women's involvement in the community and organizations was less physically and mentally demanding than other tasks such as farm/ranch duties. In fact many farm/ranch women categorized church activities and volunteering as their leisure time (Bolwerk, 2002).

Farm/ranch Injuries and Health Risks

Agricultural injuries and illnesses for women have been poorly documented or studied. This may be due in part because, historically, the women's role in farm/ranch work was not widely acknowledged and also because of the diversified positions women have on the farm or ranch (McCoy et al., 2001). Five of the farm/ranch women in this study reported physical injury or traumatic symptoms including back pain and stiff joints. The cause of these symptoms was unclear; however, both conditions could potentially be related to overuse, past injury, and/or arthritis, a commonly reported chronic illness among the women.

Stress and depression related to farm/ranch work have also been reported in the literature (Carruth & Logan, 2002; Amshoff & Reed, 2005). These conditions may have various causes. Numerous responsibilities, including those mentioned above in the context of the third shift phenomenon (Bolton, 2000), can easily place stress on farm/ranch women. The woman's perceived ability to carry out responsibilities, in addition to the burden of her chronic illness, can lead to stress and depressive symptoms. Such symptoms may also be caused, profoundly impacted, or exacerbated by an injury (Carruth & Logan, 2002). The reasons for these consequences could be grounded in the fact that those who live and work on farms and ranches often base their worth on the work they are able to do (Reed, 2004; Amshoff & Reed, 2005). In addition, the very nature of their work, rural living, long hours, and few days off, is already socially isolating (Bowlerk, 2002) and could contribute to feelings of depression.

According to Gaetano (2009), farm/ranch workers are at an increased risk for skin problems including sores, rash, excessive dryness, and cancer. With the exception of excessive dryness, relatively few participants in this study reported these conditions, and only six considered the conditions to be caused by sun, chemicals, or other substances that may only be potentially related to living on a farm or ranch. Unintentional chemical or sun burns are not uncommon among agricultural workers and are most often preventable; however, these burns are usually the result of stress and time constraints, which lead to improper safety techniques and or lack of precautions (Reed, 2007).

Noise-induced hearing loss in agricultural workers is also well documented (National Safety Council, 2005; McCullagh & Robertson, 2009). In fact, addressing this type of hearing loss was made a priority in *Healthy People 2010* (United States

Department of Health and Human Services, 2000). While little research can be found regarding the incidence and prevalence of hearing loss in farm/ranch women, it is known that hearing loss can be attributed to causes other than noise, including advanced age, genetics, infection, taking ototoxic medications, and trauma (National Institute on Deafness and Other Communication Disorders, 2009). In addition to the participants age, living and working on farms and ranches, put them at risk for hearing loss (Helzner et al., 2005). Five of the 21 farm/ranch women in this study reported hearing loss, yet none thought it was related to farm/ranch activities. It is possible the women actually attributed their hearing loss to old age, it is also possible the women were unaware the agricultural noise they are regularly exposed to can damage their hearing.

Agriculture workers are susceptible to multiple respiratory problems caused by the numerous exposures that are part of living and working on farms and ranches. These problems vary greatly from simple airway irritation to fatal asphyxiation (Grisson, Hetzel, & Stone, 2005). However, none of the farm/ranch women listed a respiratory related illness as their primary chronic health problem, and only one of the secondary chronic health problems, emphysema, was associated with respiratory symptoms. Breathing problems were reported by four of the participants, but none of them attributed these problems to their farm/ranch lifestyle. Based on these findings, it was assumed the breathing problems these farm/ranch women experienced were acute in nature, possibly only occurring during certain times of the year, or were not recognized as a severe health problem. Often common agricultural occupational related respiratory illnesses such as Farmer's Lung and Organic Dust Toxicity Syndrome go unrecognized or misdiagnosed until symptoms become severe or constant. Most symptoms of respiratory illnesses

associated with living and working on a farm/ranch resemble the flu or other common illnesses such as allergies because of the increase during specific seasons (Murphy, n.d). A lack of awareness regarding their residential and occupational health risks and/or reluctance to blame their health conditions on their lifestyle may contribute to the farm/ranch women denying the health condition is even possibly associated with where they live, work, and play.

Study Limitations

This study has several limitations, the most significant being the small sample size. The original small sample size of 63 was further broken down into two sub-groups, resulting in even smaller groups for data analysis. An additional limitation was that this study was a secondary analysis of data previously collected by the Women to Women Project research team, therefore no contact with participants was made for this study. Without participant contact, there was no opportunity for clarification of question responses. Also, the majority of the data were collected through questions that had "yes" and "no" answers and multiple choice responses. Therefore, because of the limited responses available, it is feasible the participants might have answered differently or in more detail had other options had been provided or if other possible answers had been presented.

Implications for Nursing

Suggestions for future research/interventions include: (a) repeating this study with a larger sample and comparing the results with those in a control group with similar demographics that did not participate in Montana State University's WTW Project; (b) implementing a telecommunication support network, similar to the Women to Women Project, for northwestern farm/ranch women and monitoring its effectiveness in improving perceived health status; and (c) exploring the incidence and prevalence of specific chronic illnesses among farm/ranch women to provide data that, at this time, is non-existent.

In a rural state such as Montana, healthcare providers must be keenly aware of the rural demographics and the potential health needs of not just rural women but specifically farm/ranch women. Rural healthcare providers should be knowledgeable about health risks associated with living and working on a farm/ranch as well as the challenges faced by farm/ranch women with chronic illness which include, but are not limited to isolation, healthcare access, healthcare costs, fatigue, pain, anger, and guilt. Armed with an understanding that farm/ranch women with chronic disease have unique needs, providers will be better equipped to provide optimum care for their clients, not only by helping them to better manage their chronic illness, but also by addressing health concerns that these women are more prone to encounter and, in turn, potential preventing injuries, skin conditions, hearing impairment, and respiratory disease.

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APPENDICES

APPENDIX A

WOMEN TO WOMEN PROJECT QUESTIONNAIRE

ENHANCING SELF CARE

HEALTH STATUS
(Weinert & Kinion)

For Q1 and Q2, please **CIRCLE** the number on a scale from 1 to 10 that represents your estimate of your health status.

Q1. How would you rate your quality of life at the current time?

Poorer than most									*Better than most*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*

Q2. How would you rate your health today as compared to one year ago?

Much Worse									*Much better*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*

Q3. What is your primary chronic health problem?

_____

_____

_____

Q4. The symptoms of my primary chronic health problem started in: _____ (year)

Q5. My primary chronic health problem was diagnosed in: _____ (year)

Q6. Have you ever been diagnosed with cancer?

a *No* If no, please skip to Q9

b *Yes*

Q7. If yes, what kind(s) of cancer?

_____

Q8. I was first diagnosed with cancer in: _____ (year)

Q9. Do you have any other health problems? If so, please list them below.

_____

_____

Difficulties associated with any of the following can be disabling. Please rate your experience in the **past six months** with each of them using a scale of "1" No Difficulty to "5" Great Difficulty.

		No Difficulty 1	*2*	*3*	*4*	*Great Difficulty 5*
Q10.	**a. Vision……**	1	2	3	4	5
	b. Hearing……	1	2	3	4	5
	c. Mobility……	1	2	3	4	5
	d. Chronic Pain……..……	1	2	3	4	5
	e. Fatigue……	1	2	3	4	5
	f. Coordination……	1	2	3	4	5
	g. Climbing Stairs……..…	1	2	3	4	5
	h. Holding Items……..……	1	2	3	4	5
	i. Breathing……...……	1	2	3	4	5

Chronic health problems can have an impact on many aspects of life. Please rate the impact in the **past six months** of your primary chronic health problem on each of the activities listed on the table below. Rate each on a scale from "1" Small Impact to "5" Great Impact. Mark "0" N/A if you never engage in that activity. Please **CIRCLE** the appropriate response.

			N/A *0*	*Small Impact* *1*	*2*	*3*	*4*	*Great Impact* *5*
Q11.	**a.**	**Household (cleaning, cooking, gardening, etc……...**	0	1	2	3	4	5
	b.	**Doing your favorite recreational activities……..…**	0	1	2	3	4	5
	c.	**Doing activities with friends and family…….……...**	0	1	2	3	4	5
	d.	**Attending church service/bible study, etc……**	0	1	2	3	4	5
	e.	**Attending community events (sports, parades, town meetings, county fair)…….…**	0	1	2	3	4	5
	f.	**Being active in organizations (4H, Women's League of voters, girl scouts) ……...**	0	1	2	3	4	5
	g.	**Having sexual intercourse……..… ….**	0	1	2	3	4	5
	h.	**Shopping/doing errands……..**	0	1	2	3	4	5
	i.	**Doing farm/ranch responsibilities (chores, keeping books)……..…….**	0	1	2	3	4	5

FARM/RANCH

The questions in this section are to be answered by only those currently living on a farm/ranch. ***If you do not live on a farm/ranch skip to page 20.***

Q1. In the <u>past twelve months</u>, have you had any illness or trauma that you suspect might have been related to the farm/ranch environment?

a No, *if no, please skip to Q3*

b Yes

Q2. If you answered "Yes," please describe the illness/trauma and what you think caused it?

_____
_____
_____
_____

CIRCLE the one best answer**.**

Q3. How would you compare your health to women your age who are not farm/ranch women? My health is:

a A lot better

b Better

c About the same

d Worse

e A lot worse

Q4. During the <u>past twelve months</u> have you had a skin problem? (**CIRCLE** all that apply.)

a No skin problem

b Rash

c Sores

d Excessive dryness

e Skin cancer

f Other, if other, please specify: _____

Q5. Did you see a health care provider for your skin problem?

a No

b Yes

Q6. Did any of the skin conditions you had in the <u>past twelve months</u> result from exposure to sun, chemicals, or other substances on your skin?

a No

b Yes

Q7. Have you ever had skin cancer?

a No

b Yes

Q8. Do you have hearing loss?

a No, *if no, please skip to Q11*

b Yes

Q9. Is your hearing loss related to working on the farm/ranch?

a No

b Yes

Q10. Please explain:

_____

Q11. Do you have breathing problems?

a No, *if no, please skip to Q14*

b Yes

Q12. Are your breathing problems related to working on the farm/ranch?

a No, *if no, please skip to Q14*

b Yes

Q13. Please explain:

_____

_____

Q14. Have you or any one in your family had an injury that can be directly related to a farm/ranch activity?

a No, *if no, please skip to the next page*

b Yes

Q15. Please describe the injury and the related farm/ranch activity:

_____
_____
_____
_____
_____
_____
_____