

Relationships between Social Connectedness and Spirituality and Depression and Perceived Health Status of Rural Residents

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Abstract

Purpose: A number of factors impact an individual's health, including the social, economic and physical environments surrounding the individual, as well as their personal characteristics and behaviors (World Health Organization, 2012a; United States Health and Human Services, 2011). Social factors, such as social norms, social support, and social interactions are known to have a strong impact on health, but are often omitted when looking at the overall health of an individual. Rural residents are vulnerable to poorer health outcomes because they often lack needed resources and have other risk factors for developing adverse physical and mental health outcomes. Lack of social resources in rural areas may lead to social isolation, which may contribute to poorer health outcomes observed in some of these residents. Little is known, however about the relationship of social determinants of health in rural residents and overall health outcomes. Therefore, the purpose of this research was to examine the relationships between 2 social determinants of health, social connectedness and spirituality, on the level of self-reported depression and perceived health in a rural population.

Sample: A convenience sample of rural residents in a western Colorado county.

Method: Self-reported survey data collection with hierarchical multiple regression analyses.

Findings: The more socially connected a person felt, the better they perceived themselves as physically and mentally healthy. Additionally, the more socially connected the individual felt the less depressive symptoms they reported. Spiritual perspective was not found to correlate significantly with either self-reported depression or perceived health.

Conclusion: We found that social connectedness is an important factor in the overall well-being of rural residents in this small convenience sample. This has significant implications for assessment of the health needs of rural residents and raises awareness of the need to provide opportunities for residents to become more socially active.

Keywords: Social connectedness, Spiritual perspective, Spirituality, Depression, Health, Rural populations, Vulnerable populations, Social determinants of health.

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Determinants of health are factors which affect the health of communities and individuals. According to Healthy People 2020, the determinants of health are personal, social, economic and environmental factors that influence health status (United States Health and Human Services [USHHS], 2011). These factors influence health considerably more than commonly thought of impacts on health such as access to health care and quality of health care services (World Health Organization [WHO], 2012a).

Social determinants of health involve the circumstances in which people live, grow, and work. Social circumstances are determined by distribution of resources, money and power.

Examples of social determinants of health include social norms, socioeconomic conditions, educational and job opportunities, social support and social interactions (USHHS, 2011). The lack of social resources of a population can impact health as much as the lack of environmental or material resources (Barr, 2008). Investigating the social determinants of health is important in order to gain understanding of disparities in health status (Marmot, 2005).

According to the World Health Organization (2012b) social determinants of health are the primary causes of health inequities. Health inequities are defined as “avoidable and unfair differences in health status” (WHO, 2012b, para. 1). The WHO Commission on Social Determinants of Health was created in 2005 to investigate what could be done to foster health equity. One of the conclusions made by the Commission was that for health equity to be assured, communities must be socially cohesive, must ensure basic access to goods, be designed to promote physical and psychological well-being, and must protect the natural environment (Marmot, Friel, Bell, Houweling, & Taylor, 2008).

While the Commission on Social Determinants of Health primarily focused on urban areas, the authors specifically noted that in order to assure equity between urban and rural areas the “exclusionary policies and processes that lead to rural poverty, landlessness and displacement of people from their homes” must be addressed and “sustained investments must be made in rural development” (Marmot et al., 2008, p. 1663). Rural public health policies to reduce disease and improve physical, mental, spiritual and social health will only succeed when the social determinants of health in rural areas are addressed as well (Marmot, 2005).

Rural communities in America comprise 19.3 percent of the United States population (United States Bureau of Census, 2010). These communities are diverse in demographic, economic, environmental and social characteristics. Rural populations are different than urban

areas in population density, cultural norms, and remoteness. Rural communities also differ from urban areas in health care needs, resources, and access to health care which can lead to increased vulnerability for developing poorer health outcomes (Institute of Medicine, 2005).

Rural areas tend to be composed of older populations with chronic diseases and disabilities and contain populations with higher rates of health risk factors such as obesity, smoking, substance abuse, lack of physical activity and fewer preventative health practices (Institute of Medicine, 2005; Leight, 2003). A majority of rural communities lack vital health care resources due to difficulty recruiting health care professionals, geographic distance which limits access to health care services, and lack of health care insurance. The lack of resources and the number of risk factors in rural communities increase the risk of poor physical, mental, and social health outcomes (Aday, 1994, 2003).

Social resources may also be compromised in rural inhabitants. Social determinants of health include support and social interactions (USHHS, 2011). Social support and social interactions relate to how connected an individual feels to friends, family and others in the community (USHHS, 2011; Lee, Dean, & Jung, 2008). Two social resources shown to positively predict mental, physical and social health in a variety of populations are social connectedness (Ashida & Heaney, 2008; Cacioppo & Hawley, 2003; Hill, 2006) and spirituality (Chester, Himburg, & Weatherspoon, 2006; Jesse & Reed, 2004; Jesse, Walcott-Mcquigg, Mariella, & Swanson, 2005; Daaleman, Cobb, & Frey, 2001). These social determinants have a strong impact on health, but are not often examined when looking at the overall health of an individual, particularly residents of rural communities.

Little is known about the contribution of social resources, such as social connectedness and spirituality, on U.S. rural residents' perceived mental and physical health. Understanding how

these social resources impact self-reported depression levels and perceived health of rural residents is an important first step to better understand the full complexity of health and disease of rural individuals and communities. An improved understanding of these complex attributes of health has the potential to allow rural health care providers and community leaders to better identify and address the unique physical, social and psychological health needs of persons within rural populations.

Social Connectedness

Social connectedness is described as the relationships between an individual and other people, communities and environments which promote a sense of trust, belonging and social identity (Hagerty, Lynch-Sauer, Patusky, and Bouswema, 1993; Lee et al., 2008; Mitchinson, Kim, Geisser, Rosenberg, & Hinshaw, 2008). Social connectedness refers to the overall quantity and quality of relationships that individuals experience (Mitchinson et al., 2008) and by influencing their actions in the social world, serves as a resource for physical, psychological and social well-being. The state of connectedness promotes “a sense of comfort, well-being and anxiety-reduction” (Hagerty et al., 1993, p. 293).

Previous research indicates that higher levels of social connectedness is related to higher levels of perceived health in older adults (Ashida & Heaney, 2008; Giummarra, Haralambous, Moore & Nankervis, 2007) and in young women in rural communities (Hinton & Earnest, 2009; Jackson, Unruh & Donahus, 2011). Social isolation, which is the opposite of social connectedness, has been associated with poorer self-reported health in young adults (Cacioppo & Hawley, 2003) and with increased mortality in men and women age 52 and older (Steptoe, Shankar, Demakakos, & Wardle, 2013). Individuals with low social connectedness are at higher risk for poor health outcomes due to decrease social resources and lower levels of self-rated

physical health (Aday, 2003; Lee & Robbins, 1998; Flaskerud & Winslow, 1998; Cornwell & Waite, 2009; Mitchinson et al., 2008).

Social connectedness in rural communities has not been studied extensively and some of the literature found negative effects of social connectedness in rural populations (Baernholdt, Jennings, Merwin, & Thornlow, 2010; Edwards & Cheer, 2007; Farmer, Lauder, Richards, & Sharkey, 2003; Lauder, Reel, Farmer, & Griggs, 2006). The negative aspects of social connectedness include lack of privacy, lack of autonomy and pressure to conform. Resistance to conformity can cause others to withdraw social connections from an individual which can lead to social isolation. Investigating the social relationships in a vulnerable population such as those living in rural communities can aid in understanding how this resource impacts the health status of the individual and the community.

Spirituality

Spirituality is an individual resource that is personal, subjective and unique and includes meaning or purpose of life, transcendence and connectedness to a higher being, self and others (Vance 2001). Carroll (2001) explains connectedness as a component of spirituality that “is associated with being in touch with self, others, God, and the universe” (p. 89). The connectedness in spirituality relates to a sense of trust in others or in a higher power and belonging (Campbell, Yoon, & Johnstone, 2010; Stranahan, 2001; Vance, 2001).

There are many ways people express their spirituality; individually through personal reflection and total seclusion and corporately through worshipping in faith communities. Faith communities afford a sense of belonging to its members and offer many people a sense of identity by providing a safe, loving and trusting environment. However, not all faith communities provide these benefits to their members. Some may cause feelings of guilt,

unworthiness, and isolation if members are unable to conform to the dogma of the religion (Krause & Bastida, 2011).

Spiritual perspective. Spirituality is a concept that is difficult to understand due to how abstract a concept it is. Spiritual perspective is one of many indicators of spirituality which can be used as a means to quantify and qualify it (Meyer, 2003). Spiritual perspective represents the importance spirituality plays in a person's life and involves expressions of spirituality such as mentioning spiritual matters, sharing joys and problems, reading spiritually related material, engaging in private prayer or meditation and expressions of spiritual values such as the importance of spirituality, forgiveness and spiritual guidance in decision making (Reed, 1987).

Spirituality, as objectively measured by the spiritual perspective scale (Reed, 1987), has been positively correlated to physical, psychological and emotional health in many populations. Persons with a high sense of spirituality demonstrate outcomes of a sense of peace, improved quality of life, a sense of well-being, and self-actualization (Bolletine, 2001; Coyle, 2002; Craig, Weinert, Walton, & Derwinski-Robinson, 2006; Meyer, 2003; Mok, Wong, & Wong, 2009). Spirituality research has also shown that a decrease in this attribute leads to depression and a decreased perception of health (Dailey & Stewart, 2007; Jesse et al., 2005; Jesse & Reed, 2004; Gibson, 2003).

Spirituality has not been extensively studied in rural populations however, the limited literature reveals rural individuals with active spiritual lives had higher levels of hope and lower levels of depression than those without active spiritual lives (Craig et al., 2006, Hinton & Earnest, 2009). These results are consistent with studies done in other populations.

Depression

According to the World Health Organization (2012c), depression is a common mental health disorder that negatively impacts physical, mental and social health in all populations. It is characterized by loss of interest or pleasure, depressed mood, low energy, poor concentration, feelings of guilt, disturbed sleep or changes in appetite. Depression can be a chronic and recurrent mental health problem which can cause significant impairment in a person's ability to function in everyday life. Depression may lead to suicide which is associated with approximately 850,000 tragic deaths every year (WHO, 2012c). Vulnerable populations, including rural populations, are at increased risk for depressive symptomatology (Gam, Hutchinson, Dabney, & Dorsey, 2003).

Depression is one of the most common mental health problems that occurs in U.S. rural populations. There are an estimated 2.6 million rural adults who are diagnosed with depression at any one time (Probst, Laditka, Moore, Harun, Powell, & Baxley, 2006). There are fewer resources and greater barriers to mental health care in rural areas (Kemppainen, Taylor, Jackson, & Kim-Godwin, 2009; Institute of Medicine, 2005; National Rural Health Association, 2010). Rural residents are more likely to experience adverse events that may increase the likelihood of depression than urban residents. In addition, the stigma of mental health disease, cultural beliefs, and the tendency of rural residents to self-treat often prevents proper diagnosis and acceptance of treatment of depression (Kemppainen et al., 2009). Adherence to treatment for depression is poor in the rural population. Because of these barriers, rural residents are at higher risk of undiagnosed and/or self-treated depression than urban populations and mental health outcomes for rural residents are poorer than the outcomes for urban residents (Probst et al., 2006).

Perceived Health

The World Health Organization defines health as “a state of complete physical, mental, and social well-being” (WHO, 1948, p. 1). Health is not just avoidance of disease or disease-related disabilities but includes cognitive and physical functioning and active engagement in society (Aday, 2003). Other definitions of health incorporate a more integral worldview about well-being and include death as a natural process of life (Dossey, 2008).

Health is a complex concept that can be understood from many different perspectives. The three primary perspectives of health are: (1) the patient’s self-perception of health, (2) a healthcare professional’s judgment, or (3) observed levels of functioning. An individual’s perception of their health is based on their subjective physical, mental and social well-being as well as self-reported symptoms. Individuals use a variety of criteria to rate their health such as ability to live independently and the ability to work or perform other activities of daily living (Aday, 1994, 2003).

Conceptual Framework

This study was guided by the Framework for Studying Vulnerable Populations (Aday, 1994, 2003). This framework has been used to study vulnerable populations such as homeless persons, refugees and immigrants, high-risk mothers and infants, and the chronically or mentally ill in empirically directed research assessing the relationships between resource availability, relative risk, and health status. The framework is based on the assumptions that increased resource availability and decreased relative risk leads to improved health status and poorer health status is related to lack of resources and increased relative risks (Aday, 1994, 2003).

Individual level resources identified in the framework are social status (i.e. prestige and power), social capital (i.e. social support), and human capital (productive potential). Social

connectedness and spiritual perspectives could be considered types of social capital resources. Lack of these resources may increase the vulnerability of an individual to poorer health outcomes. Application of the framework suggests that the presence of social connectedness and spiritual perspectives may have a positive impact on individual physical, psychological and social health needs. The ultimate results of the presence of these resources are individual wellbeing, as reflected by decreased depression and improved self-perception of health.

Depression and an individual's perception of health reflect the health status of the individual. It is expected that there will be an inverse relationship between both social connectedness and spiritual perspectives and the level of depression in rural inhabitants. Increased social connectedness and spiritual perspective is predicted to result in decreased vulnerability, decreased self-reported levels of depression and increase in self-reported health for rural residents.

Research Setting

The setting for this study was a rural county located in western Colorado. The county met the definition of rural based on the 2010 United States Bureau of Census's and the Omnibus Appropriations Bill of 2004 definitions of rural areas (United States Department of Agriculture Economic Research Service; 2003). The United States Bureau of Census (2010) identifies urban areas as either 1) urbanized areas of 50,000 or more people or 2) urban clusters of at least 2,500 and less than 50,000 people. Rural includes all population, housing, and territory not included within an urban area or cluster. Rural is considered open country and settlements of less than 2,500 residents (Institute of Medicine, 2005).

The Omnibus Appropriations Bill of 2004 broadened the rural area definition to "include any incorporated city or town of 20,000 persons or less" in order to increase the eligibility for

participation in the United States Department of Agriculture's Rural Broadband Grant and Loan Program (Institute of Medicine, 2005, p. 201). These two definitions allow consideration of cities and towns as well as the vast open areas in the county of interest.

The demographics of the county based on the 2010 census show a population estimate of 56,389 residents. This estimate was further broken down into six towns with populations of 9,566 in the most populated town and 1,079 in the least populated town. The population of the six incorporated towns totaled 33,583 residents (59.55%). The population of the unincorporated area of the county was 22,806 residents (40.44%). There were 2,947.56 square miles in the county which equated to 19.1 persons per square miles. There were no designated metropolitan areas in the county (United States Bureau of Census, 2011; Colorado Department of Local Affairs, 2010).

Method

This descriptive, cross-sectional study used standard survey methods of paper and pencil questionnaires for data collection. The two independent variables under consideration in this study were social connectedness and spiritual perspective. The two dependent variables were self-reported depression and perceived health.

Sampling

Institutional Review Board (IRB) approval was granted by the IRB of University of Northern Colorado (Protocol Number 391162-1). Convenience sampling was utilized to obtain the sample at three retail stores each in a different area of the county and at two other community events, a local health fair and a 5K run. The retail stores included a locally owned grocery store and two grocery stores that are part of a nationwide chain. Each store was located in a different town in the county and the community events were held in two different areas of the county.

Inclusion criteria were adults aged 18 years or older who had the ability to understand and read English; excluded were persons residing in nursing homes, prisons, or other non-residential settings. In an effort to avoid selection bias on the part of the researcher, each person who came by the data collection tables was asked to participate by the researcher. The only screening done was to ask if the potential subjects could read and understand English and were over the age of 18 years.

Subjects were given an informed consent letter describing the purpose of the study, the survey, and directions for completing the survey. A small table and chairs were set up in a quiet, comfortable area at the retail stores and community events for participants to sit while completing the survey. Participants were given time to thoughtfully answer the questionnaire without feeling rushed or stressed.

A traditional power analysis for regression indicated for an effect size of .20, a p -value of .05, seven regression predictors and power of .80, a sample of 70 was needed. After three months of data collection, 144 surveys were obtained.

Sample

More females (72.9%) than males (27.1%) participated in the study. The age ranges were fairly evenly distributed with younger adults, ages 18 – 50 years, comprised 47.9% of the sample compared with 52.1% of the participants were ages 51 years and older. The income data demonstrated that more than half of the participants (57.67%) reported annual incomes of \$51,000 or greater with 16% of the sample reported greater than \$100,000 annual incomes. In contrast, only 5% of the sample reported less than \$10,000 annual income.

Of the individuals who participated in the study, 86.81% were white and only 9.72% were Hispanic or Latino. In fact, the total percentage of non-white participants was only 13.18%. In

regards to residents of unincorporated and incorporated areas of the county, the sample was more evenly divided with 42.3% of the participants living in unincorporated areas and 57.7% living in incorporated areas.

Instrumentation

The survey consisted of five parts: a demographic questionnaire, the Revised Social Connectedness Scale (Lee, Draper & Lee, 2001), the Spiritual Perspectives Scale (Reed, 1987), the Center for Epidemiologic Studies Depression Scale – Revised (Eaton, Smith, Ybarra, Muntaner, & Tien, 2004) and the Short Form-12 Version 2[®] Health Survey (Ware, Kosinski, & Keller, 1996). Permission was obtained for use of all instruments from the scale developer and/or company except for the Center for Epidemiologic Studies Depression Scale – Revised which is available in the public domain. The Cronbach's α reliability coefficients for the four survey instruments used in the study ranged from .871 to .968 which indicated the instruments were internally consistent using an acceptable level of $\alpha = .8$ or greater.

Demographics. Demographic variables collected were: 1) age, 2) gender, 3) income level, 4) race/ethnicity, 5) length of time the subject had resided in the county, 6) how many family members lived within 30 miles of the subject, and 7) did the subject live in incorporated or unincorporated areas of the county. These 7 variables were collected to adequately describe the study sample.

Social Connectedness. The Social Connectedness Scale – Revised (SCS-R) measures social connectedness as a psychological sense of belonging or how the individual rates their closeness with others in the social environment. It reflects an independent sense of self and an individual's subjective awareness of others. The SCS-R does not measure belongingness such as group memberships or loss of specific relationships (Lee et al., 2001).

The scale consists of 20 items on a 6 point Likert scale (1 = strongly disagree to 6 = strongly agree). There are 10 positively worded and 10 negatively worded items. Examples of negatively worded items are “I feel like an outsider”, “I don’t feel related to most people” and examples of positively worded items are “I fit in well in new situations” and “I see people as friendly and approachable”. The negatively worded items were reverse scored and summed together with the positive items. The item scores were summed and a range of 20 to 120 is possible. A stronger sense of social connectedness is reflected in a higher score (Lee et al., 2001).

Spiritual Perspective. The Spiritual Perspective Scale (SPS) measures the subjects’ perceptions of the extent to which they hold spiritual beliefs and values and participate in spiritually-related activities. Spirituality is defined broadly so organized or non-organized expressions of spirituality can be used (Reed, 1987). The SPS is a 10-item scale which uses a 6-point Likert scale. Four items relate to the frequency of spiritual behaviors such as “How often do you engage in private prayer or meditation?” Two items under the frequency of spiritual behaviors express the social aspect of spiritual perspective. These are “In talking with family and friends, how often do you mention spiritual matters?” and “How often do you share with others the problems and joys of living according to your spiritual beliefs?” These item’s choices range from 1 = ‘Not at all’ to 6 = ‘about once a day’. Six items relate to spiritual beliefs, such as “My spirituality is a significant part of my life”. The belief items choices range from 1 = strongly disagree to 6 = strongly agree. Higher scores indicate a higher level of spirituality or spiritual perspective (Reed, 1987). All the responses were summed and the mean calculated for each participant.

Depression. The Center for Epidemiologic Studies Depression Scale – Revised (CESDS-R) is a revised version of the original scale developed by Radloff (1977) and designed to more reliably reflect the nine primary symptoms of a major depressive episode and general dysphoria according to the American Psychiatric Association’s DSM-IV criteria (American Psychiatric Association, 2000; Eaton et al., 2004). The CESDS-R items measure sadness (dysphoria), loss of interest (anhedonia), appetite, sleep, thinking/concentration, guilt/worthlessness, fatigue, movement and suicidal ideation (Eaton et al., 2004). Examples of items on the CESDS-R include “I could not shake off the blues”, “nothing made me happy”, “and I lost interest in my usual activities” as well as symptoms of depression. The CESDS-R consists of 20 items on a 5 point Likert type scale. Respondents are given instructions to identify how often they might have felt and behaved in certain time frames ranging from 0 = ‘not at all or less than 1 day’ to 4 = ‘nearly every day for the past 2 weeks’. The score was obtained by adding each item and calculating the mean. The higher the score is indicative of more frequently occurring depressive symptoms.

Perceived Health. The Short Form-12 Version 2[®] (SF12v2[®]) Health Survey is a 12 item self-reported scale measuring the subject’s perception of their physical and mental health on a 5 point Likert scale ranging from “excellent” to “poor” and “all the time” to “never”. It was designed to measure eight domains of health-related quality of life (Ware et al., 1996; Ware, Kosinski, Turner-Bowker, & Gandek, 2002; Ware et al., 2010) including: Physical Functioning, Role Limitations due to Physical Functioning, Bodily Pain, General Health Perception, Vitality, Social Functioning, Role Limitations due to Emotional Problems and Mental Health. Examples of items on the survey include “In general, would you say your health is...” with choices ranging from “excellent” to “poor” and “during the past 4 weeks, how much of the time has your

physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.?)” again with 5 choices ranging from “all of the time” to “none of the time”. The data obtained from the 8 subscales were aggregated to provide summary measures of the respondent’s physical health and mental health (Ware et al., 1996; Ware et al., 2002; Ware et al., 2010).

Analysis

Analysis of the data was conducted using the Statistical Package for the Social Sciences (SPSS™). Race/ethnicity data were collected using the United States Bureau of Census categories and included White/Non-Hispanic, African-American, Native American/Pacific Islander, Hispanic or Latino, Asian, and Multi-racial. These categories were coded 1 through 6 for data analysis. However, for statistical purposes the ‘non-white’ groups were clustered together as there were too few participants within each non-white group to perform the regression analyses. Descriptive statistics analyzed and reported for the demographic variables were mean, standard deviation, frequencies, percentages and cumulative percentages (see Table 1).

Model testing was conducted using hierarchical multiple regression to determine how much of the variance in the dependent variables (depression and perceived health) were attributable to each of the independent variables (social connectedness and spiritual perspective). A two-step process was followed. A baseline model with the demographic variables entered as a block was conducted with one of the dependent variables. Next an independent variable was introduced in the second step of the regression analysis. The unstandardized beta, the standard beta error, the standardized beta and confidence intervals were reported. In addition the *F* ratio,

significance (p), variance (R^2) and change in variance (ΔR^2) were reported for each 2-step regression model (see Tables 3-6).

Results

Demographic Characteristics

The demographic data from this study are presented in Table 1.

Table 1

Demographic Characteristics

$N = 144$	n
	Gender
Female	102
Male	38
	Age
18-30	19
31-40	27
41-50	22
51-60	32
61-70	26
71-80	12
>80	4
	Income
<10,000	7
10,000-20,000	11
21,000-30,000	12
31,000-40,000	13
41,000-50,000	15
51,000-65,000	19
66,000-100,000	38
>100,000	22
	Race/Ethnicity
White	125
African American	1
Native American	2
Hispanic	14
Asian	1
Multi-Race	1

<i>N</i> = 144	<i>n</i>	
Area of County		
Unincorporated	58	
Incorporated	79	
	<i>M(SD)Mdn</i>	<i>Range (Min Max)</i>
Time in County (months)	196.51 (172.66)144	1018(2-1020)
Family Members in County	2.22 (4.8)0	40(0-40)

Descriptive Findings of Study Variables

Most people rated themselves high in social connectedness. The sample results for the scale demonstrate that more subjects reported few depressive symptoms. Most individuals perceived their physical and mental health in a positive manner. Table 2 includes the descriptive statistics for the study variables.

Table 2

Descriptive Findings of Study Variables

Instrument	Σ	<i>M (SD)</i>	Range
Social Connectedness	93.20		57 – 119
Spiritual Perspectives		3.63(1.33)	0 – 5
Instrument	Σ	<i>M (SD)</i>	Range
Depression		0.43(0.45)	0 – 2.3
Health and Well-Being		4.14(0.62)	2 – 5

Social Connectedness and Perceived Health

Results of the hierarchical multiple regression analysis for social connectedness on perceived health are found in Table 3. Approximately 10% of the explained variance of perceived health was attributable to social connectedness. As social connectedness increased, an individual's perceived health increased.

Spiritual Perspective and Perceived Health

Results of the hierarchical multiple regression analysis for spiritual perspective on perceived health is found in Table 4. The baseline regression model in Step 1 of Table 3 is the

same for this analysis. Spiritual perspective was added to that baseline model in Step 2 below.

Spiritual perspective was not a significant predictor of perceived health in this sample.

Table 3

Effects of Demographic Variables and Social Connectedness on Perceived Health

Step 1	B_i	$B SE$	β	95% CI (LL-UL)
Intercept	3.95	0.21		(3.53 – 4.37)
Gender	0.17	0.12	.12	(-0.06 – 0.40)
Age	0.00	0.04	.00	(-0.07 – 0.08)
Income	0.04	0.03	.12	(-0.02 – 0.09)
Time in County	0.00	0.00	.00	(0.00 – 0.00)
Family Member	0.02	0.01	.13	(-0.01 – 0.04)
Race	-0.12	0.17	-.07	(-0.45 – 0.21)
Area of County	0.03	0.11	.03	(-0.19 – 0.25)
F	0.71			
p	.67			
R^2	0.01			
Step 2	B_i	$B SE$	β	95% CI (LL – UL)
Intercept	2.49	0.39		(1.72 – 3.26)
Gender	0.19	0.11	.14	(-0.03 – 0.41)
Age	-0.01	0.04	-.03	(-0.08 – 0.06)
Income	0.04	0.03	.14	(-0.01 – 0.09)
Time in County	0.00	0.00	.03	(0.00 – 0.00)
Family Member	0.01	0.01	.11	(-0.01 – 0.04)
Race	-0.05	0.16	-.03	(-0.37 – 0.26)
Area of County	0.00	0.11	.00	(-0.21 – 0.21)
Social Connect.	0.02	0.00	.35*	(0.01 – 0.02)
F	3.14			
p	< .001			
R^2	0.11			
ΔR^2	0.10			

Note: B_i = Unstandardized beta; $B SE$ = beta standard error; β = standardized beta; * $p < .05$

Predictor = Social Connectedness; Outcome = Perceived Health

Table 4

Effects of Spiritual Perspective on Perceived Health

Step 2	B_i	$B SE$	β	95% CI (LL – UL)
Intercept	4.14	0.28		(3.59 – 4.69)
Gender	0.15	0.12	.11	(-0.09 – 0.28)
Age	0.00	0.04	.01	(-0.07 – 0.08)
Income	0.04	0.03	.12	(-0.02 – 0.09)
Time in County	0.00	0.00	-.02	(0.00 – 0.00)
Family Member	0.02	0.01	.14	(-0.01 – 0.04)
Race	-0.14	0.17	-.08	(-0.47 – 0.20)
Area of County	0.04	0.11	.03	(-0.18 – 0.26)
Spiritual Persp.	-0.05	0.04	-.10	(-0.13 – 0.04)
F	0.78			
p	.63			
R^2	0.01			
ΔR^2	0.00			

Note: B_i = Unstandardized beta; $B SE$ = beta standard error; β = standardized beta; * $p < .05$

Predictor = Spiritual Perspective; Outcome = Perceived Health

Social Connectedness and Depression

The hierarchical multiple regression analysis for social connectedness and self-reported depression can be seen in Table 5. Social connectedness was a significant predictor of self-reported depression as seen in Step 2 and accounted for approximately 17 % of the variance of self-reported depression in this sample. As social connectedness increased, depressive symptoms decreased. Several demographic variables predicted depression including female gender, younger age, and white race/ethnicity. However, when social connectedness was added to the model, it appeared to be the strongest predictor of self-reported depression.

Table 5

Effects of Social Connectedness on Self-Reported Depression

Step 1	B_i	$B SE$	β	95% CI (LL--UL)
Intercept	0.48	0.16		(0.17 - 0.79)
Gender	-0.17	0.09	-.16*	(-0.34 - 0.01)
Age	-0.07	0.03	-.24*	(-0.13 - -0.01)
Income	-0.01	0.02	-.03	(-0.05 - .003)
Time in County	0.00	0.00	.00	(0.00 - 0.00)
Family Member	-0.01	0.01	-.05	(-0.02 - 0.01)
Step 1	B_i	$B SE$	β	95% CI (LL--UL)
Race	0.31	0.12	.22*	(0.07 - 0.55)
Area of County	-0.03	0.08	-.03	(-0.20 - 0.14)
F	2.10			
p	.05			
R^2	0.05			
Step 2	B_i	$B SE$	β	95% CI (LL--UL)
Intercept	1.80	0.28		(1.25 - 2.34)
Gender	-0.19	0.08	-.18*	(-0.34 - -0.03)
Age	-0.06	0.03	-.20*	(-0.11 - -0.01)
Income	-0.01	0.02	-.04	(-0.05 - 0.03)
Time in County	0.00	0.00	-.04	(0.00 - 0.00)
Family Member	0.00	0.01	-.03	(-0.02 - 0.01)
Race	0.25	0.11	.18*	(0.03 - 0.47)
Area of County	0.00	0.08	.00	(-0.15 - 0.15)
Social Connect.	-0.01	0.00	-.41*	(-0.02 - -0.01)
F	6.08			
p	< .001			
R^2	0.22			
ΔR^2	0.17			

Note: B_i = Unstandardized beta; $B SE$ = beta standard error; β = standardized beta; * $p < .05$
 Predictor = Social Connectedness; Outcome = Depression

Spiritual Perspective and Depression

The hierarchical multiple regression analysis for spiritual perspective and self-reported depression can be seen in Table 6. The baseline regression model in Step 1 of Table 5 is the same for this analysis. Step 2 added spiritual perspective to the baseline model. Spiritual

perspective was not a significant predictor of self-reported depression in this sample. As noted from the R^2 values, the baseline model in step 1 explained approximately 5% of the variance in the dependent variable self-reported depression, with younger age being the only significant predictor and the variance in step 2 which included spiritual perspective was virtually the same. This indicates there was no change in the variance of depression when spiritual perspective was added to the analysis.

Table 6

Effects of Spiritual Perspective on Self-Reported Depression

Step 2	B_i	$B SE$	β	95% CI (LL--UL)
Intercept	0.45	0.21		(0.04 – 0.86)
Gender	-0.16	0.09	-.15	(-0.34 – 0.01)
Age	-0.07	0.03	-.24*	(-0.13 – -0.01)
Step 2	B_i	$B SE$	β	95% CI (LL-UL)
Income	-0.01	0.02	-.03	(-0.05 – 0.03)
Time in County	0.00	0.00	.00	(0.00 – 0.00)
Family Member	-0.01	0.01	-.06	(-0.02 – 0.01)
Race	0.31	0.12	.22*	(0.07 – 0.55)
Area of County	-0.03	0.09	-.03	(-0.20 – 0.14)
Spiritual Persp.	0.01	0.03	.02	(-0.06 – 0.07)
F	1.84			
p	.08			
R^2	0.05			
ΔR^2	0.00			

Note: B_i = Unstandardized beta; $B SE$ = beta standard error; β = standardized beta; * $p < .05$
 Predictor = Spiritual Perspective; Outcome = Depression

Discussion

Social Connectedness and Perceived Health and Depression

Our findings are consistent with other studies which suggest that the lack of social connectedness has detrimental effects on physical and mental health. Feeling connected to others leads to physical and psychological well-being and has a positive impact on health (Lee &

Robbins, 1998; Lee, Keough, & Sexton, 2002; Lee et al., 2008; Flaskerud & Winslow, 1998; Mitchinson et al., 2008).

In our study we found that social connectedness was a significant, positive predictor of perceived health in the rural residents we surveyed. The more socially connected a person felt, the more they perceived themselves as physically and mentally healthy. This is consistent with other studies' findings in rural and urban populations (Ashida & Heaney, 2008; Giummarra et al., 2007, Hinton & Earnest, 2009; Jackson et al., 2011).

We also found that low social connectedness was a predictor of self-reported depression in the residents surveyed. A significant percentage of the variance of depression was explained by the level of perceived social connectedness. Our findings are similar to other studies' results that indicate the lack of social capital or social connectedness contribute to the overall depression levels in rural residents (Probst et al., 2006; Fortney, Harman, Xu, & Dong, 2009; Kemppainen et al., 2009).

Spiritual Perspective and Perceived Health and Depression

We did not find a significant relationship between spiritual perspectives, perceived health or self-reported depression in this sample of rural, Colorado residents. Our findings contradict previous studies that suggest that spirituality has positive effects on physical, psychological and social health (Campbell, et al., 2010; Coyle, 2002; McCord, et al., 2004). Spirituality, as measured by spiritual perspective, has been seen as a protective factor against depression in many studies (Dew et al., 2010; Dailey & Stewart., 2007; Jesse et al., 2005).

The lack of relationship between spiritual perspective and both depression and perceived health in our study is unexpected and may relate to the complexity of the concept of spiritual perspective. One study comparing the relationship between spiritual perspective, social support

and depression in a sample of caregiving wives of dementia victims and non-caregiving wives of healthy adults, had results similar to ours. They found that in the caregiver group spiritual perspective was not significantly related to social support or depression (Robinson & Kaye, 1994). The impact of spirituality on physical and mental health may be due to the other characteristics of spirituality such as meaning and purpose to life or transcendence that may have not been captured in our survey tool. In addition, not all outcomes of spirituality are positive. Some research has found negative outcomes of spirituality including guilt, inner conflicts and beliefs that lack of spirituality lead to misfortunes, negative emotions, and loss of serenity (Bolletino, 2001; Carson, 2008) which could have led to the conflicting results we observed. The sample of rural residents in our study may perceive spirituality very differently from the other groups of people previously studied. Further research might assist in exploring this relationship in greater detail and identify any potential variation this concept may have for different groups of people.

Limitations

Using a convenience sample and the lack of random selection may have led to selection bias by those individuals who agreed to participate in the study decreasing the overall generalizability of the findings. The demographic statistics revealed that the sample did not reflect the population statistics. The sample was older, more female, whiter, and had higher income than the average county resident, which could have been due to the sampling technique and location leading to the potential inadvertent oversight of inclusion of some groups of individuals (such as Hispanic residents). Participants with more social support or less depressive symptoms might have been more willing to participate. Also, inability to leave home due to poor health or depressive symptoms might have excluded some individuals from participation. The

location of the data collection in retail stores and community health events may have limited who was available to be selected for the sample. Additionally, the two community events were health related, and may have caused the sample to be skewed toward healthier individuals or individuals with greater interest in their health. There was also the possibility that wealthier individuals attended these community health events and this may explain the data trend toward subjects with higher incomes.

Our results suggested that there may be some significant differences in how gender, age, and race affect the contribution of social connectedness and spiritual perspective on a person's overall health and depression, however, we did not have enough participants from the various demographic groups to make any conclusions of these results. Additional research specifically examining the effects of gender age, or race on these variables would be very beneficial to see if there is a difference in perspective for people of different backgrounds.

A final limitation of this research study was the small sample and corresponding low power on the spiritual perspective analyses. While there was strong power on the analyses where social connectedness was the independent variable, the power was not adequate in the analyses for spiritual perspectives. A sample with more participants would help to increase the power and as a result, the confidence in the findings.

Recommendations for Further Research

The current study and much of the literature investigated the relationships between the social connectedness and spiritual perspective on physical and mental health from a quantitative viewpoint. A qualitative study could give insights into how rural populations experience social connectedness and spiritual perspective, how social connectedness and spiritual perspective affect their perception of their health specifically, and the level of importance they attach to the

variables. This would be of particular interest to explore the perspective of spirituality in more depth in rural resident since our data was inconclusive. A qualitative viewpoint would provide more complex data for rural community health care providers to aid in understanding the relationships between social connectedness and spiritual perspectives on perceived physical and mental health.

Much research has been done on the benefits of social support but little nursing research has been conducted to identify interventions that foster social connectedness (Haun, Rittman, & Sberna, 2008). This is an area where more research by nursing is needed. Most of the research that has been conducted on social connectedness has been in the sociology and psychology realm. More quantitative studies by nurse researchers to investigate how and where nursing can intervene and prevent the ill effects of social disconnectedness are needed. Identifying methods to improve and increase social connectedness could lead to decreased vulnerability or risk of adverse health outcomes.

Implications for Nursing

The social determinants of health can impact an individual's health status as much as environmental or material resources such as access to and quality of health care services (Barr, 2008; WHO, 2012b; Marmot, 2005; Marmot et al., 2008). Social connectedness and social relationships are essential in the maintenance of health; however in modern societies, the number of people living alone in the United States is increasing according to the most recent census data (United States Bureau of Census, 2011; Steptoe et al., 2013). In many rural areas, there often are few opportunities for social connectedness to develop (Barenholdt et al., 2010; Edwards & Cheer, 2007; Cacioppo & Hawley 2003). This and other studies suggest that the lack of social connectedness in rural communities has detrimental effects on physical and mental health.

Recommendations from the World Health Organization (2012a), Healthy People 2020 (USHHS, 2011) and the Institute of Medicine's Committee on the *Future of Rural Health Care* (2005) stress each rural community should conduct a health needs assessment, set priorities for addressing the individual and population's health needs, and develop and implement action plans to address the identified health needs. These entities recommend all determinants of health, including social determinants, be included in the needs assessment.

Analysis of social determinants, including social connectedness, in a rural community could lead to the development of strategies to address the unique health needs and improve the mental, physical and social health status of rural residents. Rural nurses are uniquely situated to conduct these health needs assessments and make recommendations on ways to improve social connectedness in rural communities.

The needs assessments may indicate changes in health policies are needed. Nursing should be in the forefront of developing local, state and national health policies which take into consideration the social determinants of health. Development of evidence-based practices which foster social connectedness in rural communities can be positive outcomes of the needs assessment and policy changes. Nurses can also take the leadership role of forming coalitions to work on developing these practices. Incorporating already established rural institutions such as churches, schools and athletic events and obtaining buy-in from rural community leaders can help assure the interventions are successful and meets the needs of the residents (WHO, 2012b).

Urban planners have discovered the need for social connectedness in many large cities. In these cities, residential areas of apartments, townhomes, or condos along with shops, gyms and other entertainment venues are built clustered together so inhabitants can walk from place to place and meet with other residents of the neighborhood. Faith communities are locating more

often in these neighborhood areas to provide closeness and convenience for their members. Rural residents tend to be more isolated from each other, however, similar types of neighborhoods could be developed in rural communities to meet the residents' physical, mental, spiritual and social health needs.

This study highlights the importance of understanding a patient's social connectedness when developing a patient centered care plan. Determining social goals of the patient is essential in assisting a patient to reach their functional goals. Nurses who care for individual patients and families should always include the social support and spiritual needs of their patients as either problem areas to address or strengths to be sustained for the patient's return to optimal health.

Nursing is in a unique position to improve and increase social connectedness for individuals which can lead to decreased vulnerability and risk of adverse health outcomes for these individuals living in rural communities. Educating community leaders and organizations, developing health policies at the local, state, and national level to address the need for more social support and social interactions; and forming coalitions to improve rural health are within nurses' scope of practice. Nursing should be at the forefront in the effort to improve health of our communities and individuals by addressing all determinants of health.

References

- Aday, L. A. (1994). Health status of vulnerable populations. *Annual Review of Public Health, 15*, 487-509. <http://dx.doi.org/10.1146/annurev.pu.15.050194.002415>
- Aday, L. A. (2003). *At risk in America: The health and health care needs of vulnerable populations in the United States* (2nd ed.). San Francisco, CA: Jossey-Bass.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th text revision ed.). Washington, DC: American Psychiatric Association.

- Ashida, S., & Heaney, C. A. (2008). Differential associations of social support and social connectedness with structural features of social networks and the health status of older adults. *Journal of Aging and Health*, 20(7), 872-893. <http://dx.doi.org/10.1177/0898264308324626>
- Baernholdt, M., Jennings, B. M., Merwin, E., & Thornlow, D. (2010). What does quality care mean to nurses in rural hospitals? *Journal of Advanced Nursing*, 66(6), 1346-1355. <http://dx.doi.org/10.1111/j.1365-2648.2010.05290.x>
- Barr, D. A. (2008). *Health disparities in the United States: Social class, race, ethnicity and health*. Baltimore, MD: John Hopkins University Press.
- Bolletino, R. C. (2001). A model of spirituality for psychotherapy and other fields of mind-body medicine. *Advances in Mind-Body Medicine*, 17, 90-107. [[MEDLINE](#)]
- Cacioppo, J. T., & Hawkley, L. C. (2003). Social isolation and health, with an emphasis on underlying mechanisms. *Perspectives in Biology and Medicine*, 46(3), S39-S52. <http://dx.doi.org/10.1353/pbm.2003.0049>
- Campbell, J. D., Yoon, D. P., and Johnstone, B. (2010). Determining relationship between physical health and spiritual experience, religious practices, and congregational support in a heterogeneous medical sample. *Journal of Religious Health*, 49, 3-17. <http://dx.doi.org/10.1007/s10934-008-9227-5>
- Carroll, B. (2001). A phenomenological exploration of the nature of spirituality and spiritual care. *Mortality* 6(1), 81-98. <http://dx.doi.org/10.1080/13576270020028656>
- Carson, V. B. (2008). Spirituality: Identifying and meeting spiritual needs. In V. B. Carson & H. G. Koenig (Eds.). *Spiritual Dimensions of Nursing Practice* (rev. ed.) (pp.125-153). West Conshohocken, PA: Templeton Foundation Press.

- Chester, D. N., Himburg, S. P., & Weatherspoon, L. J. (2006). Spirituality of African-American women: Correlations to health-promoting behaviors. *Journal of National Black Nurses Association, 17*(1), 1-8. [[MEDLINE](#)]
- Colorado Department of Local Affairs. (2010). *Final 2010 conservation trust funds estimates*. Retrieved from <http://dola.colorado.gov/dlg/demog/ctf/final/table2/garfield.pdf>
- Cornwell, E.Y., & Waite, L. J. (2009). Social disconnectedness, perceived isolation and health among older adults. *Journal of Health and Social Behavior, 50*, 31-48. <http://dx.doi.org/10.1177/002214650905000103>
- Coyle, J. (2002). Spirituality and health: Towards a framework for exploring the relationship between spirituality and health. *Journal of Advanced Nursing 37*(6), 589-597. <http://dx.doi.org/10.1046/j.1365-2648.2002.02133.x>
- Craig, C., Weinert, C., Walton, J., & Derwinski-Robinson, B. (2006). Spirituality, chronic illness and rural life. *Journal of Holistic Nursing 24*(1), 27-35. <http://dx.doi.org/10.1177/0898010105282526>
- Daaleman, T. P., Cobb, A. K., & Frey, B. B. (2001). Spirituality and well-being: An exploratory study of the patient perspective. *Social Science & Medicine, 53*, 1503-1511. [http://dx.doi.org/10.1016/S0277-9536\(00\)00439-1](http://dx.doi.org/10.1016/S0277-9536(00)00439-1)
- Dailey, D. E., & Stewart, A. (2007). Psychometric characteristics of the Spiritual Perspective Scale in pregnant African-American women. *Research in Nursing and Health, 30*, 61-71. <http://dx.doi.org/10.1002/nur.20173>
- Dew, R. E., Daniel, S. S., Goldston, D. B., McCall, W. V., Kuchibhatla, M., Schleifer, C., Koenig, H.G. (2010). A prospective study of religion/spirituality and depressive

- symptoms among adolescent psychiatric patients. *Journal of Affective Disorders*, 120; 149-157. <http://dx.doi.org/10.1016/j.jad.2009.04.029>
- Dossey, B.M. (2008). Theory of integral nursing. *Advances in Nursing Science*, 31(1), E52-73. <http://dx.doi.org/10.1097/01.ANS.0000311536.11683.0a>
- Eaton, W. W., Smith, C., Ybarra, M., Muntaner, C., & Tien, A. (2004). Center for Epidemiologic Studies Depression Scale: Review and revision (CESD and CESD-R). In Maruish, M. E. (Ed.). *The Use of Psychological Testing for Treatment Planning and Outcomes Assessment*, (3rd ed., pp. 363-377). Mahwah, NJ: Lawrence Erlbaum.
- Edwards, J., & Cheer, B. (2007). Is social capital good for everyone? The case of same-sex attracted women in rural South Australian communities. *Health Sociology Review*, 16(3-4), 226-235. <http://dx.doi.org/10.5172/hesr.2007.16.3-4.226>
- Farmer, J., Lauder, W., Richards, H., & Sharkey, S. (2003). Dr. John has gone: Assessing health professionals' contribution to remote rural community sustainability in the U.K. *Social Science & Medicine*, 57, 673-686. [http://dx.doi.org/10.1016/S0277-9536\(02\)00410-0](http://dx.doi.org/10.1016/S0277-9536(02)00410-0)
- Flaskerud, J. H., & Winslow, B. J. (1998). Conceptualizing vulnerable populations: Health-related research. *Nursing Research*, 47(2), 69-78. <http://dx.doi.org/10.1097/00006199-199803000-00005>
- Fortney, J. C., Harman, J. S., Xu, S., & Dong, F. (2009). Rural-urban differences in depression care. *Wiche Center for Mental Health Research*. Retrieved from <http://www.wiche.edu/info/publications/FortneyWorkingPaperYr3Proj2.pdf>
- Gamm, L. D., Hutchinson, L. L., Dabney, B. J., & Dorsey, A. M. (2003). *Rural Healthy People 2010: A companion document to Health People 2010, Volume 1*. College Station, Texas:

The Texas A & M University System Health Science Center, School of Rural Public Health, Southwest Rural Health Research Center.

Gibson, L. M. (2003). Inter-relationships among sense of coherence, hope, and spiritual perspectives (inner resources) of African-American and European-American breast cancer survivors. *Applied Nursing Research*, 16(4), 236-244.
[http://dx.doi.org/10.1016/S0897-1897\(03\)00053-3](http://dx.doi.org/10.1016/S0897-1897(03)00053-3)

Guimmarra, M. J., Haralambous, B., Moore, K., & Nankervis, J. (2007). The concept of health in older age: Views of older people and health professionals. *Australian Health Review*, 31(4), 642-650. <http://dx.doi.org/10.1071/AH070642>

Hagerty, B.M., Lynch-Sauer, J., Patusky, K., & Bouwsema, M. (1993). An emerging theory of human relatedness. *Image: Journal of Nursing Scholarship*, 25, 291-296.
<http://dx.doi.org/10.1111/j.1547-5069.1993.tb00262.x>

Haun, J., Rittman, M. R., & Sberna, M. (2008). The continuum of connectedness and social isolation during post stroke recovery. *Journal of Aging Studies*, 22, 54-64.
<http://dx.doi.org/10.1016/j.jaging.2007.03.001>

Hill, D. L. (2006). Sense of belonging as connectedness, American Indian worldview, and mental health. *Archives of Psychiatric Nursing*, 20(5), 210-216.
<http://dx.doi.org/10.1016/j.apnu.2006.04.003>

Hinton, R. L., & Earnest, J. (2009). Beyond risk factors to lived experiences: Young women's experiences of health in Papua, New Guiana. *Rural and Remote Health*, 9, 1257-1272.
[\[MEDLINE\]](#)

Institute of Medicine. Committee on the Future of Rural Health. (2005). *Quality through collaboration: The future of rural health*. Washington, DC: National Academies Press.

- Jackson, L. A., Unruh, A., & Donahus, M. (2011). Living in a rural community is good for your health...or is it? Young women talk about rural living and their emotional and mental health. *Canadian Journal of Community Mental Health*, 30(1), 45-60. <http://dx.doi.org/10.7870/cjcmh-2001-0004>
- Jesse, D. E., & Reed, P. G. (2004). Effects of spirituality and psychosocial well-being on health risk behaviors in Appalachian pregnant women. *JOGNN*, 33(6), 739-747. <http://dx.doi.org/10.1177/088421750427066>
- Jesse, D. E., Walcott-Mcquigg, J., Mariella, A., & Swanson, M. S. (2005). Risks and protective factors associated with symptoms of depression in low-income African American and Caucasian women during pregnancy. *Journal of Midwifery & Women's Health*, 50(5), 405-410. <http://dx.doi.org/10.1016/j.jmwh.2005.05.001>
- Kemppainen, J. K., Taylor, J., Jackson, L. A., & Kim-Godwin, Y. S. (2009). Incidence, sources, and self-management of depression in persons attending a rural health clinic in southeastern North Carolina. *Journal of Community Health Nursing*, 26, 1-13. <http://dx.doi.org/10.1080/07370010802605697>
- Krause, N., & Bastida, E. (2011). Church-based social relationships, belonging, and health among older Mexican Americans. *Journal for the Scientific Study of Religion*, 50(2), 397-409. <http://dx.doi.org/10.1111/j.1468-5906.2011.01575.x>
- Lauder, W., Reel, S., Farmer, J., & Griggs, H. (2006). Social capital, rural nursing and rural nursing theory. *Nursing Inquiry*, 13(1), 73-79. <http://dx.doi.org/10.1111/j.1440-1800.2006.00297.x>

- Lee, R. M., Dean, B. L., & Jung, K. R. (2008). Social connectedness, extraversion, and subjective well-being: Testing a mediation model. *Personality and Individual Differences, 45*, 414-419. <http://dx.doi.org/10.1016/j.paid.2008.05.017>
- Lee, R. M., Draper, M., & Lee, S. (2001). Social connectedness, dysfunctional interpersonal behaviors, and psychological distress: Testing a mediator model. *Journal of Counseling Psychology, 48*(3), 310-318. <http://dx.doi.org/10.1037/0022-0167.48.3.310>
- Lee, R. M., Keough, K. A., & Sexton, J. D. (2002). Social connectedness, social appraisal, and perceived stress in college women and men. *Journal of Counseling & Development, 80*, 355-366. <http://dx.doi.org/10.1002/j.1556-6678.2002.tb00200.x>
- Lee, R. M. & Robbins, S. B. (1998). The relationship between social connectedness and anxiety, self-esteem, and social identity. *Journal of Counseling Psychology, 45*, 338-345. <http://dx.doi.org/10.1037/0022-0167.45.3.338>
- Leight, S. B. (2003). The application of a vulnerable populations conceptual model to rural health. *Public Health Nursing, 20*(6), 440-448. <http://dx.doi.org/10.1046/j.1525-1446.2003.20604.x>
- Marmot, M. (2005). Social determinants of health inequalities. *Lancet, 365*, 1099-1104. [http://dx.doi.org/10.1016/S0140-6736\(05\)71146-6](http://dx.doi.org/10.1016/S0140-6736(05)71146-6)
- Marmot, M. G., Friel, S., Bell, R., Houweling, T. A., & Taylor, S. (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. *Lancet, 372*(9650), 1661-1669. [http://dx.doi.org/10.1016/S0140-6736\(08\)61690-6](http://dx.doi.org/10.1016/S0140-6736(08)61690-6)
- McCord, G., Gilchrist, V. J., Grossman, S. D., King, B. D., McCormick, K. F., Oprandi, A. M., Smucker, W. D. (2004). Discussing spirituality with patients: A rational and ethical approach. *Annals of Family Medicine 2*(4), 356-361. <http://dx.doi.org/10.1370/afm.71>

- Meyer, C. L. (2003). How effectively are nurse educators preparing students to provide spiritual care? *Nurse Educator*, 28(4), 185-190. <http://dx.doi.org/10.1097/00006223-200307000-00010>
- Mitchinson, A. R., Kim, H. M., Geisser, M., Rosenberg, J. M., & Hinshaw, D. B. (2008). Social connectedness and patient recovery after major operations. *Journal of the American College of Surgeons*, 206(2), 292-300. <http://dx.doi.org/10.1016/j.jamcollsurg.2007.08.017>
- Mok, E., Wong, F., & Wong, D. (2009). The meaning of spirituality and spiritual care among the Hong Kong Chinese terminally ill. *Journal of Advanced Nursing* 66(2), 360-370. <http://dx.doi.org/10.1111/j.1365-2648.2009.05193.x>
- National Rural Health Association (2010). *What's different about rural health care?* Retrieved from <http://www.ruralhealthweb.org/go/left/about-rural-health/what-s-different-about-rural-health-care>
- Probst, J. C., Laditika, S. B., Moore, C. G., Harun, N., Powell, P., & Baxley, E. G. (2006). Rural-urban differences in depression prevalence: Implications for family medicine. *Family Medicine*, 38(9), 653-660. [MEDLINE]
- Radloff, L. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401. <http://dx.doi.org/10.1177/014662167700100306>
- Reed, P. G. (1987). Spirituality and well-being in terminally ill hospitalized adults. *Research in Nursing and Health*, 10, 335-344. <http://dx.doi.org/10.1002/nur.4770100507>
- Robinson, K. M., & Kaye, J. (1994). The relationship between spiritual perspective, social support, and depression in caregiving and noncaregiving wives. *Scholarly Inquiry for Nursing Practice: An International Journal*, 8(4), 375-389. [MEDLINE]

- Steptoe, A., Shankar, A., Demakakos, P., & Wardle, J. (2013). Social isolation, loneliness, and all-cause mortality in older men and women. *Proceedings of the National Academy of Sciences*, *110*(15), 5797-5801. <http://dx.doi.org/10.1073/pnas.1219686110>
- Stranahan, S. (2001). Spiritual perception, attitudes about spiritual care, and spiritual care practices among nurse practitioners. *Western Journal of Nursing Research*, *23*(1), 90-104. <http://dx.doi.org/10.1177/01939450122044970>
- United States Bureau of Census (2010). *2010 Census urban and rural classification and urban area criteria*. Retrieved from http://www.census.gov/geo/www/2010census/gtc/gtc_urbanrural.html
- United States Bureau of Census (2011). *Quick facts on Garfield County, Colorado*. Retrieved from <http://quickfacts.census.gov/qfd/states/08/08045.html>
- United States Department of Agriculture Economic Research Service (2003). *Rural-urban continuum codes: An overview*. Retrieved from <http://www.ere.usda.gov/data-products/rural-urban-continuum-codes.aspx>
- United States Health and Human Services (2011). *Healthy people 2020: Determinants of health*. Retrieved from <http://www.healthypeople.gov/2020/about/DOHAbout.aspx>
- Vance, D. L. (2001). Nurses' attitudes toward spirituality and patient care. *MedSurg Nursing*, *10*(5), 264-278.
- Ware, J. E., Kosinski, M., Gandek, B., Sundaram, M., Bjorner, J. B., Turner-Bowker, D. M., & Maruish, M. E. (2010). *User's manual for the SF-12v2 Health Survey*, 2nd ed. Lincoln, RI: QualityMetric Inc.

- Ware, J. E., Kosinski, M., & Keller, S. D. (1996). A 12-item short-form health survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care*, 34(3), 220-233.
- Ware, J. E., Kosinski, M., Turner-Bowker, D. M., & Gandek, B. (2002). *How to score version 2 of the SF-12 Health Survey (with a supplement documenting Version 1)*. Lincoln, RI: QualityMetric Inc.
- World Health Organization (1948). Constitution of the World Health Organization. *Handbook of Basic Documents*. Geneva: World Health Organization.
- World Health Organization (2012a). *Health impact assessment: The determinants of health*. Retrieved from <http://www.who.int/hia/evidence/doh/en/index.html>
- World Health Organization (2012b). *Social determinants of health*. Retrieved from http://www.who.int/social_determinants/en/
- World Health Organization (2012c). *Depression: What is depression?* Retrieved from http://www.who.int/mental_health/management/depression/definition/en/