PROMOTING CANCER SCREENING AMONG RURAL AFRICAN AMERICANS: A SOCIAL NETWORK APPROACH

Cancer is the second leading cause of death in the U.S. with 460 newly diagnosed age-adjusted cases per 100,000 people in the U.S. population in 2007 to 2011 for which data is available (Howlader et al., n.d.). In 2012, approximately 13.7 million Americans with a history of cancer were alive, with some of these individuals living cancer-free (American Cancer Society, 2014). Estimates predict 1,665,540 new cases of cancer to be diagnosed in 2014, and an estimated 585,720 Americans with cancer are expected to die that same year (American Cancer Society, 2014). Negative outcomes of cancer can often be mitigated by preventive screening procedures. Unfortunately, the continued existence of cancer-related health disparities shows that, despite the availability of preventive procedures, some groups are still more negatively impacted by cancer than others (American Cancer Society, 2014; U.S. Cancer Statistics Working Group, 2014). In particular, ethnic minorities such as African Americans (AAs) residing in rural areas may experience higher mortality rates as rurality and proportion of AAs increase (Erwin, Fitzhugh, Brown, Looney, & Forde, 2010). Factors potentially contributing to health disparities in general include, but are not limited to, race/ethnicity, socioeconomic status, education, and geographical locations (e.g., urban, rural or suburban) (Erwin, Fitzhugh, Brown, Looney, & Forde, 2010; Meit et al., 2014; Probst, Moore, Glover, & Samuels, 2004). Rural areas with high proportions of AAs may benefit from effective advocacy to lower the prevalence of certain cancers and negative cancer outcomes.

In interest of ameliorating health disparities experienced by rural minorities, ongoing and resilient health promotion should be better integrated into rural settings. Incorporating a social network approach into the design of interventions could facilitate utilization of a framework already intrinsic to rural residents, activate health advocates at the community-level to promote cancer screening and relevant health behaviors, and integrate a culturally-sensitive approach to change unique to that geographic area and/or racial/ethnic group. Specifically, a culturally-sensitive and “in-group” approach may be particularly appealing to minority groups such as AAs living in the rural south (the authors’ major population of interest in this manuscript). Furthermore, engaging the local population as health promoters has the added benefit of establishing a framework that can continue to function even without the presence of intervention specialists who may only be onsite intermittently.
Disparities in Cancer and Cancer Screening in Rural African Americans

Considering that Caucasians are more likely to screen for cancers than AAs, examining racial differences in rural southeastern areas where larger numbers of rural AAs reside may be of particular importance. AA men and Caucasian women have higher incidences of cancer compared to other racial groups when controlling for gender; however, both AA men and women have higher cancer mortality rates compared to Caucasians (U.S. Cancer Statistics Working Group, 2014). Leading causes of cancer death among AA men are lung cancer, prostate cancer, liver cancer, and colorectal cancer and top causes of cancer death for AA women are lung cancer, breast cancer, and colorectal cancer (U.S. Cancer Statistics Working Group, 2013). In 2007-2011, AA men and women had higher rates of cancer mortality (269.3 and 169.0 per 100,000, age-adjusted) compared to Caucasians (209.8 and 147.5 per 100,000, age-adjusted) with the exception of lung cancer where Caucasian women (53.8 per 100,000, age-adjusted) experienced a slightly higher rate of mortality than AA women (51.2 per 100,000, age-adjusted) due to lung cancer (Howlader et al., n.d.).

The racial disparity in cancer mobility and mortality is exacerbated by geographic location. African Americans in rural areas have higher mortality rates in many different types of cancers compared to Caucasian rural dwellers as well as residents of metropolitan areas. While rurality can be defined statistically by the size of population (see the respective criteria used by U.S. Census Bureau, White House’s Office of Management and Budget, and the Office of Rural Health Policy for different standards), we define rural areas generally as locations outside of metropolitan areas (urban and suburban). Rural areas are typically sparsely populated and removed from the healthcare resources in metropolitan centers.

To use cervical cancer, a type of cancer whose negative outcomes are largely minimized by screening efforts, as an example to illustrate rural and urban disparities in cancer: Overall, AA women are twice as likely to die of cervical cancer as Caucasian women. This ratio increases to 3:1 when comparing AA women in non-metropolitan areas to Caucasian women in metropolitan areas (Singh, 2012). Furthermore, incidence of cervical cancer in non-metropolitan AA women is 61% higher than AA women living in metropolitan areas (Singh, 2012). These data imply that living in rural areas or in small towns predicts elevated risk of cervical cancer mortality (Singh, 2012). Similarly AA men in rural areas have significantly higher prostate cancer mortality rate (26% higher mortality) than their comparison group in urban areas (Singh, Williams, Siahpush, & Mulhollen, 2011). Finally, the highest mortality rates and deprivation levels were most evident in the Southeastern rural region of the United States (Singh et al., 2011).

Cancer screening behaviors have been suggested as a partial explanation for the racial and geographic disparities in cancer mortality (Ward, et al., 2004). Screenings allow cancers to be diagnosed early and mortality rates to decrease (Etzioni et al., 2003). Rural individuals and racial minorities may be less likely to screen for cancer (Coughlin, Thompson, Seef, Richards, & Stallings, 2002; Coughlin & Thompson, 2004). Researchers Coughlin and Thompson (2004) found that rural men and women were less likely to report routine colorectal cancer screening than urban and suburban individuals, with geographic differences being more notable than racial differences. Furthermore, Coughlin and Thompson found that lower usage of Fecal Occult Blood Testing (FOBT) was significantly associated with race, rural-residence, younger age, lower education status, unemployed status, lack of health insurance coverage, having one or more persons in the household, not having seen a physician in the past year, and cigarette smoking. Differences in the utilization of sigmoidoscopy and colonoscopy screening in the last 5 years was only significant for age, having seen a physician in the last year, and lower education. Oliver and colleagues (2012) found that depending on the type of colorectal screening procedure, predictors of screening behavior differed. Ethnic/racial group did not significantly predict who reported having received a FOBT or colonoscopy, but the odds of having a sigmoidoscopy were much lower in AAs. Lower reported utilization of cancer screenings in rural and ethnic/racial groups highlights the need for culturally-sensitive approaches to health promotion. If cancer screening utilization can be increased in rural minority groups, negative outcomes associated with cancer may decrease in these at risk populations.

Interestingly, southern regions, such as the Southern Black Belt, have significantly lower colorectal screening rates than the rest of the United States (Coughlin et al., 2002). The Southern Black Belt, historically named for the rich dark soil located in central Alabama and northeast Mississippi with a history of plantation agriculture, is characterized by higher rates of acute poverty; low educational attainment, poor health care, and low employment (Encyclopedia Britannica Online, n.d.; University of Alabama Institute for Rural Health Research, 2002).

Barriers to Cancer Screening among Rural AAs

Lower socioeconomic status is the one of the most important barriers for rural AAs to participate in cancer screenings. In 2009, the US Census Bureau reported that the median household income for AAs and Caucasians was approximately $32,584 and $51,861. The lowest household income levels (ranging from less than $15,000 to $49,999) included a greater percentage of AA households (66.9%) than Caucasian homes (48%). Furthermore, in 2010, 8.2% (5,338,488) of the US population of rural residents were AA (Housing Assistance Council, 2012). Thirty-four percent (approximately 1,697,336) of these rural AAs reported being poor, compared to only 13% of Caucasian rural residents (Probst et al., 2002). Low socioeconomic status is often associated with low income, less education received, lack of health insurance, lack of financial resources to pay for medical services, and a lack of time for doctor’s visit and a lack of means of transportation.

Probst, Moore, Glover, and Samuels (2004) and colleagues reported that the combined effects of rurality and race placed rural ethnic minorities at greatest disadvantage health-wise. They attributed such disparities to socioeconomic status and, specifically, education. For example, rural AAs have lower rates of high school degree attainment and this contributes to their inability to acquire medical insurance and limits their access to health care. According to Bennett and colleagues, AAs and other minority adults were less likely to have a personal health care provider than Caucasians (Bennett, Olutosi, & Probst, 2008). In addition, in the same study, the percentage of rural adults who reported postponement of health care due to cost of
services was greater in AAs (23.6%) and Hispanics (25.3%) than in Caucasians (13.3%). In summary, rural AAs are less likely to have access to health promoting resources, including medical insurance, a primary or personal health care provider, and sufficient finances in comparison to their urban counterparts.

Second, unavailability of transportation to health care facilities decreases the utilization of health care services, putting rural residents at a disadvantage as they are often further away from medical centers in cities (Arcury, Preisser, Cesler, & Powers, 2005). Rural residents with a driver’s license have a greater number of visits to health care facilities for chronic and routine care, increasing utilization by 2.29 times and 1.92 times respectively. Similarly, residents with a family member or friend available to provide transportation to health care visits have 1.58 times more visits than those who do not.

Time is another barrier to the use of preventative care among rural AAs. Rural residents often report a lack of time in attending to their health due to engagement in daily obligations (e.g., work, family) and other activities (e.g., church) (Murimi & Harpel, 2010). In combination with lower socioeconomic status, sacrificing work time and wages in order to receive healthcare is of particular concern to rural residents.

Fear of the discovery of a formerly unknown health complication is another noted barrier to rural residents’ health care utilization. While individuals report understanding that medical conditions lack physical symptoms at times, their fear of discovering “silent killers” (Murimi & Harpel, 2010, p. 279) is a common reason for not participating in preventative services such as cancer screenings. Last but not the least, significant communication difficulties including inability to understand physicians’ vocabulary, medical terms, and educational literature also contribute to the under-utilization of health care among rural-dwelling minorities. Low health literacy among rural AAs is a major contributor to such communication difficulties. Health literacy refers to the cognitive and social skills that enable individuals to access, understand, and use health-related information (Morris et al., 2013). Morris and colleagues (2013) found that among insured people between 40 and 70 years of age, those with lower health literacy were less likely to screen for colorectal cancer because they were less likely to visit their doctors, less likely to understand cancer screening tests, and more likely to hold resigned attitudes toward cancer.

More specifically, healthy literacy influences the frequencies and effectiveness of doctor-patient communication and individuals’ ability to seek out health information. Studies show that low health literacy negatively affects patient understanding of information presented by physicians, physician-patient discussion of treatment options, and the promptness of cancer diagnosis (Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005; Williams, Davis, Parker, & Weiss, 2002). Furthermore, Kelly and Haidet (2007) found that physicians often overestimated patients’ literacy level, and notably, this overestimation occurred more frequently with minority patients, in particular AAs. Such an overestimation may foster a hurtful dynamic where the physician assumes the patient is comfortable and knowledgeable enough to ask pertinent questions, while the patient feels un-empowered or inadequately informed to do so. Overlooking the implications of low health literacy may prove a crucial disadvantage to AA patients who may need to challenge their physician’s adherence to U.S. Preventive Services Task Force (USPSTF)’s cancer screening guidelines—such as when guidelines recommend against prostate cancer screening—while AAs are still shown to be differentially and adversely impacted by prostate cancer (Oliver et al., 2012).

Using Social Network Culture to Promote Cancer Screening Among rural AAs

Rural AAs are less likely than Caucasians or urban and suburban residents to benefit from cancer screening and health education programs promoting cancer screening because of the special challenges discussed above and listed in Table 1 (Ahmed, Pelletier, Winter, & Albatineh, 2013). Public health professionals have been exploring strategies to reach this particular population. “Reach” is the extent to which a preventive health program attracts its intended audience and involves community participation rate and representativeness (Glasgow, Vogt, & Boles, 1999). Different strategies are necessary to reach rural-dwelling racial/ethnic minorities. Mobilizing the community of rural AAs represents an alternative route for the dissemination of cancer screening related information and provides additional incentive for rural AAs to understand and participate in cancer screening. For instance, to take advantage of the religiosity of this population, public health professionals can utilize community health advisors in churches to promote prostate cancer screening (Holt et al., 2009). In the rest of the essay, we will discuss how social networks might be an especially fruitful route by which to promote cancer screening among rural AAs.

Social network refers to a collection of individuals with which a person has varying levels of interactions (Monge & Contractor, 2003). In his/her social network of interpersonal communication, a person is connected to a number of other persons who might or might not be connected to one another. Thus, interpersonal social networks can be examined with regard to characteristics of: 1) the index individual, 2) other individuals in the network, 3) the ties between two individuals and 4) aggregate network characteristics (Monge & Contractor, 2003).

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<th>Table 1. Special challenges faced by rural AAs in the utilization of cancer screening</th>
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<td>1 Lower socioeconomic status</td>
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<td>2 Time</td>
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<td>3 Fear of the discovery of a formerly unknown health complication</td>
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<td>4 Low health literacy</td>
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Social networks are associated with many positive health behaviors, such as healthy diet, physical activity, and smoking cessation (e.g., Dowda, Ainsworth, Addy, Saunders, & Riner, 2003; Sahyoun & Zhang, 2005). It is reasonable, therefore, to examine their applicability to the current topic: cancer screening behaviors. Researchers explain the functions of social networks in terms of social influence, social comparison, and social support (Heaney & Israel, 1996). The social network approach is especially important in health promotion among underserved populations who might be unable to take advantage of health-promotion targeting the general population due to lack of access, low health literacy and other obstacles (e.g., Valente & Watkins, 1997). Furthermore, the social network approach might be especially effective in health education for disadvantaged groups as they are more likely to trust interpersonal sources than mass media or physicians (e.g., Cheong, Edwards, Goulbourne, & Solomos, 2007). Thus, rural-dwelling AAs represent an at-risk population who may benefit from a social network approach.

One's social network is composed of strong ties and weak ties (Granovetter, 1973). The strength of the relationship between two individuals can be defined and measured in terms of the strength of the relationship, emotional intensity, intimacy, frequency of interaction, type of relationship, substantive characteristics, and content of communication (Monge & Contractor, 2003; Valente, 2010). Both strong ties and weak ties are important in the dissemination of health information and promotion of health-related behaviors. Strong ties are effective in exerting social influence (Heaney & Israel, 1996). They also provide strong social support, especially emotional support, companion support and instrumental support. Health researchers have paid attention to the “strength of weak ties” (Granovetter, 1973, p. 1360). Weak ties provide new information that is not available among one’s strong ties and thus may be especially important in providing informational support (Valente, 2010). Sometimes individuals prefer to seek social support from weak ties such as online health support groups rather than strong ties such as family members because weak ties provide new information and objective feedback, but are less likely to pose risks and social role obligations (Wright, Rains, & Banas, 2010).

Different individuals have different levels of connectivity in the social network. Some people have high connectivity or “centrality” by having more direct and indirect connections to other individuals (Monge & Contractor, 2003). These individuals represent ideal “first contact” persons within rural communities. Often times, a social network includes cliques, or a sub-network of individuals who are strongly connected to each other, but are less connected to the rest of the network (Monge & Contractor, 2003). Therefore, it is vital that outreach programs not rely solely on individuals of high connectivity for recruitment, lest they risk overlooking certain “in need”, relatively isolated, individuals and unconnected cliques within the community.

In promoting cancer screening among rural AAs, health professionals face several challenges: how to effectively disseminate the information or knowledge related to cancer screening; how to create attitudinal and behavioral changes among this population so that after being informed, they will actually make the effort to get screened for cancer; and finally how to create a new culture where cancer screening becomes the norm instead of the exception among rural AAs. Social networks have a broad range of health-related functions, including: information dissemination, social influence, social comparison, and social support (Heaney & Israel, 1996), all of which are closely related to the three above-mentioned goals. A discussion of each function will be discussed in the context of these goals below:

**Information dissemination**

According to the transtheoretical model, the first step in health promotion usually involves consciousness raising by providing the target population with relevant health-related information so that they will be aware of the risk and possess the necessary knowledge for eventual behavioral change (Prochaska, 2008). Health professionals can utilize social networks to disseminate information related to cancer screening among rural AAs by utilizing existing strong and weak ties and creating new weak ties.

**Using existing weak ties:** Existing weak ties can be utilized in the promotion of cancer screening among rural AAs. According to Weening and Midden (1991), it is the number of one’s weak ties that decides the effectiveness of information diffusion because weak ties can provide new information that is not possessed by a person or his strong ties. Identifying the persons in the social network who have a high level of knowledge, and preferably personal experience with cancer screening is the first step in making use of their potential in promoting cancer screening. The problem with disseminating health information through weak ties is that people often do not talk about health issues, which are considered too personal, with their weak ties (Miller & Wright, 2006). In order to tap into the potential of weak ties in promoting cancer screening, public health professionals need to encourage those highly knowledgeable individuals to talk to their weak ties about cancer screening. Alternatively, providing education on cancer screening to highly connected individuals in the community to make them “lay health advisors” would allow them to disseminate such information in a culturally appropriate way (Hilaire, 2011, p. 691).

**Creating new weak ties:** Developing new social network ties represents another way to promote cancer screening among rural AAs through social networks. In studying rural populations’ knowledge about diseases, Lehmkühl (2006) found a correlation between one’s knowledge about the topic and the diversity of his/her social network ties. As a result, efforts should be made to identify and target those individuals with low connectivity in the social network, as those people might have the least access to information about cancer screening. Public health professionals can identify the individuals in the network with low levels of knowledge and thus increase the connectivity of these individuals within the rural community.

**Using existing strong ties:** Strong ties are less useful in conveying new information that individuals do not already possess (e.g., Granovetter, 1973; Weening & Midden, 1991). However, they become particularly useful when cliques (i.e., groups of people who are interconnected by strong ties rather than individuals) are the target of health campaigns. In such cliques, some people are easier to reach than others. For instance, data based on the 2003 Health Information National Trends Survey (HINTS) indicate among the population over fifty, women are significantly more likely to worry about cancer than men, even though men have higher perceived risks of cancer (McQueen, Vernon, Meissner, & Rakowski, 2008). Hence, in order to
successfully reach AA men in rural areas, it makes sense to target health campaigns at these men’s strong ties, who are often women, such as wives, sisters, or mothers.

**Attitude and behavior change**

Possessing the necessary information does not mean that individuals will adopt the healthy behavior. For instance, knowing the negative health effects of smoking does not guarantee that individuals will be against smoking (attitude) or quit smoking (behavior). Different theories have offered different explanations to the missing link between knowledge and behavior. The health belief model explains that one’s beliefs about health (including perceived severity, perceived susceptibility, perceived benefits, perceived barriers, perceived self-efficacy) and cue to action decide individual behaviors (Champion & Skinner, 2008). Theory of planned action, on the other hand, predicts that people’s normative beliefs, subjective norms, perceived behavioral control, and control beliefs decide their behavioral intentions and behaviors (Ajzen, 1991).

Using social networks offers one potential channel to create change in people’s health-related attitudes and behaviors. Past research shows that strong ties are particularly effective in influencing people’s attitudes and behaviors with the results that people sharing strong ties often share the same health-related attitudes and behaviors (Weenig & Midden, 1991). For instance, Valente and Watkins (1997) studied the use of contraceptives among Cameroon women and found that one’s attitudes and behaviors were correlated with the perceived attitudes and behaviors of one’s social network ties. Similarly, Paxton and colleagues found that girls belonging to small cliques composed of strong ties shared similar body image as well as unhealthy eating and weight-loss behaviors. Several explanations have been proposed to account for the strength of strong ties (Paxton, Schutz, Wertheim, & Muir, 1999). Strong ties are often associated with high source trustworthiness and high level of identification, both of which will lead to more effective social influence (Tang & Chen, 2013). In line with research suggesting that social network ties and cliques can influence people’s health-related attitudes and behaviors, prior discussion in dyads connected by strong ties about health can increase levels of agreement within the dyad. In a relevant example, Schmid and colleagues found higher treatment preference agreement among AA dyads compared to Caucasian dyads consisting primarily of older adults and their adult children (Schmid, Allen, Haley, & Decoster, 2010). Prior advance care planning moderated the effect, such that lower levels of advance care planning predicted undertreatment errors among AA proxies and overtreatment errors among Caucasian proxies.

**Using existing strong ties:** Public health professionals can utilize the existing strong ties an individual has to change his/her attitudes and behaviors related to cancer screening. Strong ties offer high quality interaction, more emotional involvement and higher levels of identification. In studying the perceptions about prostate cancer screening among rural men, Oliver and colleagues found that family and friends were identified by 59.3% and 51.7%, respectively, of the participants as sources of influence on prostate cancer screening (Oliver, Grindel, McGee, Ford, & Martin, 2011). To promote cancer screening among rural AAs, public health professionals can target their campaign at dyads that share strong ties with each other (spouse, parent-child, sibling, etc) or at cliques whose members are closely connected to each other.

**Creation of new cultural norms of health.**

A group’s cultural beliefs about health may influence their perceptions of diseases, symptoms, and treatments as well as their health-related behaviors (Shaw et al., 2009). A study conducted among AAs in the rural South showed that their understanding and management of hypertension was based on a set of culturally informed experiences that deviated from the mainstream medical understanding of the disease (Schoenberg, Drew, Jr., & Drew, 2002). As a result, promoting cancer screening among rural AAs calls for change of the health culture among rural AAs. A new culture needs to be created in which cancer screening becomes the norm instead of the exception. Unfortunately, cultural changes are difficult to create (Kincaid, 2004).

Introducing cultural change via utilization of existing social networks among rural AAs represents a good place for health professionals to begin. Cultural norms are difficult to change due to people’s tendency to conform to existing norms. As a result, it is difficult for new health practices to be accepted by a culture and to become the normative practice. However, Kincaid (2004, p. 37) demonstrated how such cultural changes can occur through a “bounded normative influence.” He argued that as long as the new practice became the majority practice within a subnetwork or a clique, it would become the norm within this group and would have the ability to spread to other subnetworks. Hence, it might be advisable for public health professionals to introduce changes to a few cliques and make cancer screening the norm within these cliques in an effort to initiate large scale change. For example, members of a particular faith-based organization in a rural community could partner with health professionals to promote cancer screenings. Then members of these cliques will recruit their contacts outside of their cliques to further promote cancer screening within the rural community.

**DISCUSSION**

Rural AAs represent an underserved population. High cancer mortality, lower screening rates, and diagnosis of cancer at later stages are but a few of the cancer-related disparities experienced by this population. Physical (e.g., transportation), financial (e.g., lack of health insurance), and cultural (e.g., low health literacy and lack of trust in the medical community) barriers to care make interventions aimed at reducing disparities experienced by this group particularly difficult, but not impossible. We propose that researchers and members of the medical community focus future information dissemination and promotion of healthy behaviors, such as regular cancer screening, through the pre-existing and pervasive framework of communication intrinsic to all communities: the strong and weak ties of their social networks.

One particularly underserved population in health care in general and in cancer screening in particular is the rural residents of the Black Belt in central Alabama and northeast Mississippi. To illustrate, Hale County of Alabama, a rural county within a state known for a larger proportion of rural-dwelling AAs, has a physician to population ratio of 1:15,736 (Johnson Foundation, n.d., http://www.countyhealthrankings.org/app/alabama/2013/measure/factors/4/map). Compared to the Alabama State ratio of 1:1,641 and the national benchmark of 1:1,067, the
discrepancy experienced by some rural counties becomes
irrefutable.

To promote cancer screening among AAs residing in the
rural Black Belt, public health professionals can tap into
the potential of social networks. They can reach the high-
risk individuals through their strong ties such as spouses,
siblings or adult children. They can foster relationships
(weak ties) with leaders in the community, something
many already do as a recruitment strategy, capturing a
meaningful collection of cliques and high connectivity
individuals within the community. While the reach of
these health promotion programs may be limited, if culture
change can be established in these core cliques, information
will eventually trickle throughout the rural community to
friends-of-friends and acquaintance of those friends to
those individuals in the community habitually elusive to
intervention. Activating those in the health community
to evaluate social networks among rural-dwelling AAs
signifies an ideal and effective way to assess local health
beliefs, attitudes, and behaviors, as well as trail-blaze a path
for culture change that could reduce health disparities in
cancer experienced by this population.

REFERENCES
Factors explaining racial/ethnic disparities in rates of
physician recommendation for colorectal cancer screening.
American journal of public health, 103(7), e91–9. doi:10.2105/ AJPH.2012.301034
Behavior and Human Decision Processes, 50(2), 179–211.
Atlanta: American Cancer Society.
Access to transportation and health care utilization in a rural
region. The Journal of rural health: official journal of the American
Rural Health Association and the National Rural Health Care
In Health Behavior and Health Education (pp. 45–66).
Cheong, P. H., Edwards, R., Goullbourne, H., & Solomos, J.
(2007). Immigration, social cohesion and social capital :
doi:10.1177/0261093907072206
screening practices among men and women in rural and
non-rural areas of the United States, 1999. The Journal of
rural health: official journal of the American Rural Health
Association and the National Rural Health Care Association, 20(2),
Coughlin, S. S., Thompson, T. D., Seeff, L., Richards, T., & Stallings,
F. (2002). Breast, cervical, and colorectal carcinoma screening
in a demographically defined region of the southern U.S.
Cancer, 95(10), 2211–22. doi:10.1002/1538-4165(200210)95:10

Dowda, M., Ainsworth, B. E., Addy, C. A., Saunders, R., & Riner,
Young Adults, 18 to 30 Years of Age, From NHANES III. Annals of
Behavioral Medicine, 26(1), 15–23.
Encyclopedia Britannica Online. (n.d.). “Black Belt” (region,
britannica.com/EBchecked/topic/67652/Black-Belt
Erwin, P. C., Fitzhugh, E. C., Brown, K. C., Looney, S., & Forde,
T. (2010). Health disparities in rural areas: The interaction of
race, socioeconomic status, and geography. Journal of Health
Care for the Poor and Underserved, 21(3), 931-943.
Etzioni, R., Jan, N., Ramsey, S., McIntosh, M., Schwartz, S.,
Nature Reviews Cancer, 3(4), 243-252.
public health impact of health promotion interventions: the
ndertype=abstract
Granovetter, M. S. (1973). The Strength of Weak Ties . American
Journal of Sociology, 78(6), 1360–1380.
support. In K. Glanz, F. M. Lewis, & B. Rimer (Eds.), Health
Behavior And Health Education, Theory, Research, and Practice
screening and reducing disparities. Clinical journal of oncology
nursing, 15(6), 691–3. doi:10.1188/11.CJON.691-693
Holt, C. L., Wynn, T. A., Litaker, M. S., Southward, P., James,
educational intervention to increase informed decision mak-
ing for prostate cancer screening among church-attending
African American men. Journal of Health Communication,
14(6), 590–604.
Housing Assistance Council. (2012). Race & Ethnicity in Rural
America Minorities in Rural & Small Town Areas. Rural
Research Notes, (April), 1–11.
Howlader, N., Noone, A. M., Krapcho, M., Garshell, J., Miller,
gov/csr/1975_2011/
Johnson Foundation, R. W. (n.d.). Primary care physicians in
Alabama. County Health Rankings & Roadmaps. Retrieved
patient literacy: a potential source of health care disparities.
pec.2006.10.007
normative influence. Journal of health communication, 9 Suppl
1, 37–57. doi:10.1080/108173049271511
influence in rural social networks. Conference Papers -- Interna-
McQueen, A., Vernon, S. W., Meissner, H. I., & Rakowski, W.
(2008). Risk perceptions and worry about cancer: does gen-
der make a difference? Journal of health communication, 13(1),
56–79. doi:10.1080/1081730701870767
Meit, M., Knudson, A., Gilbert, T., Tzy-Chyi, A., Tenenbaum,
Rural-Urban Chartbook. Rural Health Research & Policy Center.
(October).
Miller, C., & Wright, K. (2006). A Measure of Weak Tie/Strong Tie
Support Network Preference. In Conference Papers -- Interna-
tional Communication Association [serial online]. 2006 Annual
Meeting (pp. 1–44). Ipswich, MA: Communication & Mass
Media Complete
Monge, P. R., & Contractor, N. (2003). Theories of communication

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