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Health & access to care among working-age lower income adults in the Great Recession: Disparities across race and ethnicity and geospatial factors

Samuel D. Towne, PhD, MPH, CPH [a, *], Janice C. Probst, PhD [b], James W. Hardin, PhD [c], Bethany A. Bell, PhD, MPH [d], Saundra Glover, PhD [e]

[a] Department of Health Promotion and Community Health Sciences, School of Public Health, Texas A&M University, 1266 TAMU, College Station, TX 77843-1266, USA
[b] University of South Carolina, South Carolina Rural Health Research Center, 220 Stoneridge Drive, Suite 204, Columbia, SC 29210, USA
[c] University of South Carolina, Department of Epidemiology and Biostatistics, 915 Greene Street, Room 448, Columbia, SC 29208, USA
[d] University of South Carolina, College of Social Work, Hamilton College 118, 1512 Pendleton Street, Columbia, SC 29208, USA
[e] University of South Carolina, Institute for Partnerships to Eliminate Health Disparities, Discovery I, 353, 915 Greene Street, Columbia, SC 29208, USA

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ABSTRACT

In the United States (US) and elsewhere, residents of low resource areas face health-related disparities, and may experience different outcomes throughout times of severe economic flux. We aimed to identify individual (e.g. sociodemographic) and environmental (e.g. region, rurality) factors associated with self-reported health and forgone medical care due to the cost of treatment in the US across the Great Recession (2008–2009).

We analyzed nationally representative data (2004–2010) using the Behavioral Risk Factor Surveillance System in the US. Individual and geospatial factors (rurality, census region) were used to identify differences in self-reported health and forgone medical care due to the cost.

Adjusted-analyses taking into account individual and geospatial factors among those with incomes <$50,000 identified multiple differences across time, sex, education, disability, rurality and Census Region for health. Similar analyses for forgone medical care found that those in the Recovery and the Recession were more likely to report forgone care than before the Recession. Having insurance and/or being employed (versus unemployed) was a protective factor in terms of reporting fair/poor health and having to forgo health care due to cost.

Policies affecting improvements in health and access for vulnerable populations (e.g., low-income minority adults) are critical. Monitoring trends related to Social Determinants of Health, including the relationship between health and place (e.g. Census region, rurality), is necessary in efforts targeted towards ameliorating disparities.

1. Background

The US Great Recession (December 2007–June 2009) brought with it dramatic effects for millions of Americans. Examples of adverse outcomes related to the US Great Recession include dramatically increased unemployment rates (Saelens and Sallis, 2002) and loss of employer-sponsored health insurance (due to loss of employment) (Collins et al., 2011; Smith and Bell, 2005). Gaps in health coverage are associated with limited affordable options in seeking health care (BRFSS, 2012). The effects of the Great Recession have yet to be fully understood, as gaps in what is known concerning vulnerable populations (e.g. those with lower income, racial or ethnic minority populations, those residing in low resource areas) persist. Further, economic downturns continue to threaten countries around the globe. As such, understanding country-specific experiences of times of severe economic flux and how this may influence individual health-related outcomes is timely. Aside from the economic pressures (e.g. job insecurity

* Corresponding author.
E-mail addresses: towne@sph.tamhsc.edu (S.D. Towne), JPROBST@mailbox.sc.edu (J.C. Probst), JHARDIN@mailbox.sc.edu (J.W. Hardin), BELLB@mailbox.sc.edu (B.A. Bell), SGLOVER@mailbox.sc.edu (S. Glover).

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(Hamad et al., 2016)) related to the Great Recession, one's residential environment also may play a role in health care access and health outcomes (Eberhardt and Pamuk, 2004).

In addition, past studies have identified both aggregate (e.g., province-wide) and individual unemployment rates to be associated with several health-related outcomes such as obesity (Latif, 2014), alcohol consumption, and smoking (Nandi et al., 2013). Further, Ruhm (2015) found an association between economic recessions in the US and mortality (Ruhm, 2015). Stevens et al. (2015) also identified associations between unemployment rates and mortality (Stevens et al., 2015), with increasing mortality during expansions of the economy in the US found by Granados (2005). However, more recent data suggests the effect of times of severe economic flux may have limited effects on health and/or health behaviors (Tekin et al., 2013). Xu (2013) found evidence of associations between negative outcomes (greater consumption of cigarettes, less physical activity) and times of economic growth (Xu, 2013). Thus, there is a need to more fully identify how times of economic flux, as in the Great Recession, may impact health and health-related behaviors. The current study focuses on the Great Recession, which was a time of macroeconomic contraction.

Several theories (e.g., social ecological theory) and frameworks (e.g., related to social determinants of health) identify the importance of the intersection of individual and environmental determinants of health (McLeroy et al., 1988; Solar and Irwin, 2007). The World Health Organization's Framework for Action on the Social Determinants of Health stipulates that individual social (e.g., race, income) and structural (e.g., macroeconomic) factors impact health and health-related outcomes (Solar and Irwin, 2007) and as such serve as the theoretical framework for the current study. For example, racial and ethnic disparities in health have long been identified highlighting the importance of the social determinants of health (Towne, 2013; Weinick et al., 2000). These can be thought of as individual-level factors (e.g., one's own racial or ethnic group) and environmental factors (e.g., the relative composition of race or ethnicity in one's neighborhood or racial segregation). Identifying health and access to health care before, during and after the Great Recession is important because of the already existent disparities in access to medical care found for individuals of racial (e.g., African American) and ethnic (e.g., Hispanic) minority groups and the relative importance of neighborhood racial and ethnic composition related to access to health care found by Gaskin et al. (2012) (Gaskin et al., 2012). Here, both individual-level minority status (i.e., being from a racial or ethnic minority group) and neighborhood composition (e.g., living in areas with higher concentrations of racial or ethnic minority groups) resulted in poorer access to care potentially influenced by lack of familiarity with different types of providers and/or limited availability of providers (Gaskin et al., 2012). Further, residential instability (e.g., percent in a neighborhood residing in their current home less than 1 year) has been shown to be associated with poor access to health care (Kirby and Kaneda, 2006). Given housing turn-overs (e.g., foreclosures) were high in the Great Recession (Ellen and Dastrup, 2012), this too supports the need to look at health and access to health care before, during and after the Great Recession. Further income is another major driver in health and access to care, where individuals with low incomes are more likely to have both poorer health outcomes and lower access to care (Adler and Newman, 2002). In addition, residents of rural areas may have higher poverty rates than those of urban areas (Jolliffe, 2004; Kusmin, 2013), which is a key determinant of poor health-related outcomes (Marmot et al., 2008). Rural residents also face disparities with regard to having a lower availability of medical providers (Council on Graduate Medical Education, 1998; Knapp et al., 1998; MacDowell et al., 2010). Ensuring the availability of health care providers, especially primary care physicians, is a key factor in the goal of reducing disparities in access to health care (Siegel et al., 2004). Rural areas also have disproportionately greater levels of disability, disease (e.g. diabetes (Warren and Smalley, 2014)), factors associated with poorer health outcomes and lower availability and access to health care services when compared to more metropolitan areas (Gamm et al., 2003; Norton and McManus, 1989; Jones et al., 2009). Further, there were variations in employment rates between rural and urban areas throughout the Great Recession (Hertz et al., 2014), with regional variation of employment rates likely due in part to variation in economic sectors (e.g., agricultural versus manufacturing) among rural areas (Hertz et al., 2014). In addition, regional variation in access to care has been shown, in particular with the southern US facing gaps in access to health care (Stephens et al., 2014; Artiga et al., 2015).

Further, in 2014 those in the southern part of the US had the lowest average median household income ($49,655) followed by the Midwest ($54,267), the West ($57,688), and the Northeast ($59,210) (DeNavas-Walt and Proctor, 2014). This variation in median income, a major Social Determinant of Health, may also play a role in the effects of the Great Recession. Thus, individual-level factors (e.g., race/ethnicity, income) and geospatial factors (e.g., rurality, Census Region) are an important consideration in identifying factors associated with one's health and access to care. For example, Census Region has been shown to be associated with differences in access to care and quality of care (Fryer et al., 2012).

It is possible vulnerable populations experienced varying health outcomes and poor health care access throughout the Great Recession, and that this experience may have differed geospatially. This expected difference is hypothesized in-line with evidence of differences in access and utilization of health services and health outcomes already present regionally (Stephens et al., 2014; Artiga et al., 2015) and across rural and urban areas (Gamm et al., 2003; Norton and McManus, 1989; Jones et al., 2009; Towne et al., 2014a, 2015). Thus, we sought to narrow the gap into what is known regarding times of severe economic flux and health-related outcomes among lower income working age adults with incomes roughly at or under the median household income level for the US.

Comparisons to previous recessions are difficult given the timelines of economic downturns (i.e., temporally distant). Therefore, the purpose of this study was to identify individual and geospatial characteristics associated with two different outcomes: 1) *health*; and 2) *barriers in accessing health care (forgone medical care due to cost)* from before the Recession timeline (2004–2007) through the beginning of the economic Recovery (2010), as compared to the Recession (2008–2009).

2. Methods

2.1. Data

We used the Behavioral Risk Factor Surveillance System (BRFSS) to measure individual health outcomes and access to health care services (forgone care). A nationally representative sample of non-institutionalized working age adults (age 18–64) residing in the US included in the 2004–2010 BRFSS were analyzed. The data were drawn from the Centers for Disease Control and Prevention (CDC) website: http://www.cdc.gov/brfss/. The BRFSS is a telephone-based survey with core components used in all states. States can choose whether or not to implement optional modules outside of the core component. States also have the option to add what are referred to as 'state-added questions' that are not edited or evaluated by the CDC. Further, states have the option to add questions of particular interest that may not be asked for all states. Sample size included 214,633 for 2004; 247,900 for 2005; 242,208 for 2006;