Review
Applying the concept of culture to reduce health disparities through health behavior research

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A R T I C L E   I N F O

Abstract
Culture is often cited as an underlying cause of the undue burden of disease borne by communities of color along the entire life cycle. However, culture is rarely defined or appropriately measured. Scientifically, culture is a complex, integrated, and dynamic conceptual framework that is incongruent with the way it is operationalized in health behavior theories: as a unidimensional, static, and immutable character element of a homogeneous population group. This paper lays out this contradiction and proposes a more scientifically grounded approach to the use of culture. The premise is that if the concept of culture were better operationalized, results from studies of diverse population groups would produce findings that are more scientifically valid and relevant to the community. Practitioners could then use these findings to develop more effective strategies to reduce health disparities and improve the health of all population groups. Six steps are proposed to increase our ability to achieve greater clarity on what culture is and to identify how it impacts health behavior and ultimately health outcomes, enabling researchers to build a stronger science of cultural diversity.

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Introduction

Despite over 40 years of research and program efforts to eliminate the disproportionate degree of poorer health outcomes borne by communities of color, the gap in health outcomes not only persists, but is widening (Institute of Medicine, 2001; Smedley et al., 2003; Syme, 2008). One of the major contributing factors identified for the unequal burden of diseases such as infant mortality, cancer, kidney disease hypertension, and diabetes (American Cancer Society, 2011; CDC/National Center for Health Statistics, 2009; Smith et al., 2009) is culture; yet the actual contribution of culture to health outcomes is virtually unknown.

This lack of clarity of the impact of “culture” on health outcomes is due to a narrow and erroneous understanding of this concept. Too often, the unidimensional and unscientific proxy of race is used for culture. Not surprisingly, when this single proxy variable is used in a multilinear regression, “culture’s” contribution usually accounts for an insignificant portion of the variance, and it is dropped from the analysis (Gregg and Saha, 2006). The powerful construct of socioeconomic status then emerges to trump culture (Zambrana and Carter-Pokras, 2010). Such conflation of race and culture in U.S. society misinforms population science (Kagawa-Singer, 2006; Smedley and Smedley, 2012).

The 1997 OMB Directive 15 on Racial/Ethnic categories identified six racial groups and one ethnic group for data reporting (Office of Management and Budget, 1997). Despite the Directive caveat that clearly states that no scientific evidence exists for these categories,
which are being used as socio-cultural constructs, race continues unthinkingly to be used in health research. Moreover, each of the OMB racial categories aggregates many highly diverse cultural groups, including non-Hispanic whites (NHWs). For example, Middle Easterners are, according to the OMB, considered white, like Northern and Eastern Europeans and Mediterranean nationalities. Predictably then, when studies are replicated in different parts of the country, the results are often dissimilar, because different population groups are aggregated assuming some homogeneity of the category when they are actually quite variant.

Fortunately, questions are now arising regarding the science of the concept and construct of culture. In a recent review of the American Journal of Public Health in 2008, 95 articles referenced “culture” or “cultural” in the abstract or body of the text (Hruschka, 2009). Culture was claimed to influence health behavior in 40% of the articles and 18% described culture as a source of measurement problems. In many cases, it was mentioned that culture influenced health outcomes, but none of the authors specified the pathways for its effect. In a few cases, culture was used to explain group differences or contradictory findings that could not be accounted for by other factors, but again, authors provided no specificity on the scientific validity of or the manner in which the term was operationalized or integrated into the analysis.

This lack of scientific grounding for the use of culture in health sciences not only results in methodological quagmires that threaten the validity of the studies, but also prevents comparison between studies, because the authors are likely operationalizing the concept differently in the same populations resulting in samples that may not be comparable across studies. Even more problematic, is that the actual contribution of culture is invisible or, due to its inappropriate operationalization in the methodology, the conclusions may be misleading at best or, more likely, invalid (Pasick et al., 2009b).

Population science is thus hampered by the lack of a framework that integrates disparate approaches to health disparities research. Culture is such a framework.

Erroneous uses of culture

Every group of people belongs to at least one culture, but in a multicultural society like the United States, each population group contemporaneously undergoes modifications and mixtures that result in cultures that are different not only from their native origins, but from similar groups across the country, and, notably, individuals within each group undergo these modifications at varying rates and hold constituent elements to varying degrees. Therefore, reducing culture to a dichotomous variable, i.e., one is or is not a member of a racial/ethnic group or to a set of “how-to” instructions for cultural tailoring for particular, assumed traits (e.g. Latinos are bound by familism, which restricts them from asserting their self-efficacy) is unfounded and misses wide intragroup variations (Kagawa-Singer, 2006; Pasick et al., 2009b).

When culture is operationalized as race, or as discreet acontextual cultural beliefs, such as fatalism, familism, filial piety, or cultural practices, such as language preference or frequency of consuming native foods (as in acculturation measures) (Lee et al., 2007; Wang et al., 2008; Woo et al., 2009), culture is implicitly treated as a “risk factor” to explain group differences in population-based studies (Kao et al., 2004; Pasick et al., 2009b). For example, cultural practices that are different from the dominant society are often believed to be causes for delay in seeking medical attention or lack of adherence to Western biomedical practices. Use of traditional healing practices such as cupping or coining, ayurvedic medicine, curanderismo, or herbal medicines is often perceived as indicative of lack of scientific knowledge about health and targeted with interventions to “educate” the population to increase use of Western medicine (Ngo-Metzger et al., 2003; Uba, 1992; Woo et al., 2009). Few health science studies look at why such practices are used (Kleinman, 1980) or explore within cultural group variation by education, income or generation in the U.S. Instead, the cultural practices are problematized and their function often misunderstood (Kleinman, 1980).

A critical review of studies published between 1990 and 2006 on the use of sociocultural constructs in research on African Americans found that such terms were seldom clearly defined, and the sources and psychometric properties of socio-cultural measures were rarely reported (Deshpande et al., 2009). The cross-cultural validity or equivalence of the measures to operationalize culture is also rarely tested, and the modal cultural beliefs of a cultural group and range of subscription to such beliefs are rarely ascertained when identifying risk factors known or suspected to impact disease prevalence, morbidity, and mortality across population groups (Dressler et al., 2005; Kagawa-Singer, 2006; Kagawa-Singer et al., 2010a). Such unfounded assumptions usually mask the more proximal factors why such protective behaviors exist, that is, why subgroups continue particular cultural practices despite the availability of biomedical care. Too often, the reasons for the behaviors are not cultural per se, but individual reactions to structural constraints such as poverty, sub-standard health care, or lack of insurance (Adler and Rehkopf, 2008; Williams, 1997). These structural factors are glossed as social determinants of health, but, as noted later, their interaction with socio-historical forces are often overlooked in molding the cultural response. Such inconsistent and unscientific use of culture suggests an urgent need for proper standardization of the concept and measures to advance health behavior and social science research. As Oppenheimer stated, no other variable used in health research is so poorly defined and untested (Oppenheimer, 2001).

Culture defined

Culture is the blueprint or guiding framework behind a population group’s conscious and unconscious actions, or the “toolkit” for living life, solving problems, and informing decisions (Kao et al., 2004; Swidler, 1986). Although hundreds of definitions of culture have emerged within the social and behavioral sciences, four basic characteristics are contained in the majority. Culture is: 1) learned from birth through the processes of language acquisition and socialization, 2) shared by all members of the same cultural group, 3) an adaptation to specific environmental and technical conditions, and therefore, 4) a dynamic, ever-changing process (Dibble, 1983; Kagawa-Singer, 2006, 2010b; Leininger, 1995). This framework for action also shapes appropriate personal emotional reactions and behavioral responses to the circumstances, as well as how social networks communicate caring, provide safety, social support, a sense of belonging, and integrity (Mandell and Novak, 2005; Kagawa-Singer et al., 2010b). The function of culture is to assure survival of its members, make cognitive and emotional sense of the chaos of reality, and create meaningful, and appropriate modes of interpersonal and institutional social interaction to support the well-being of its members (Kagawa-Singer, 1994a, 1994b). Culture, then, is a shared way of being and interacting, and is socially and legally integrated into the structure of a society’s institutions. Cultural differences, however, are only recognized when they are juxtaposed with another. The social institutions of the U.S., including our health care system, reflect the values and beliefs of the dominant European–American culture, and thus, often do not match those of the diverse communities that constitute the multicultural U.S. society. Therefore, since accurate use of culture requires a realization that each cultural subgroup in the U.S. lives within the larger culturally based European–American culture and institutions, the role of the dominant European–American culture must also be part of the analysis of any subgroup culture and its health and illness behavior.

Culture, by definition, influences all human behavior across space and time and explicitly recognizes that geographic, historical, social, and political forces constrain or promote the ability of individuals to enact healthier choices (Bourdieu, 1990; Diamond, 1999; Hunt et al., 2004).
Evidence to support defining the concept is presented below, to counter the narrow, static, unidimensional, concept currently used in health research (Dressler et al., 2005; Hruschka, 2009; Nichter, 2003).

Migrant studies have clearly documented that lifestyle affects patterns of disease expression and culture informs lifestyle (Fejerman et al., 2008; Nelson, 2006; Parkin and Khlat, 1996). In a study on variations in incidence of coronary heart disease among Japanese men in three geographic regions, rates of coronary heart disease were lowest among Japanese men living in Japan, intermediate among their counterparts in Hawaii, and highest among those living in the United States (Marmot and Syme, 1976). The same population group was studied in each site, but the geographic location and host culture varied, which clearly showed that the place in which an individual lives plays a more significant role in health outcomes than purported racial group membership alone. Intracultural variations have also been studied for other disease and conditions, such as asthma and diabetes. For instance, Fujimoto et al. (1994) found that rates of diabetes among Japanese–Americans were lowest in Japan (4%), mid-way in Hawaii (9–12%), and highest in Seattle, Washington, USA (20%). A cross-national study of asthma among individuals of African descent found the lowest rates of asthma in Africa, intermediate rates in the Caribbean, and the highest rates in the U.S. (Kumar et al., 2010).

Historical, social, and political forces are also powerful factors that create culture change. For example, the sequelae of slavery for African Americans differ in the North of the U.S. compared to the South. For example, residential segregation has somewhat different etiology, but persists in both geographic regions despite political and legal assurances of equality, and results in similar limitations in access to quality education, jobs, and healthcare (Smedley and Smedley, 2012; Smedley et al., 2003). The high rates of alcoholism and obesity among Native Americans are not indigenously “cultural,” but a result of legal policies in the U.S., which historically forced Native Americans onto reservations and sought to eliminate the culture of Native peoples through strategies such as boarding schools and reservations far from native lands, which result in high unemployment rates and livelihoods far different than traditional ones. “Evidence based” strategies demonstrated to be effective in mainstream communities are often applied to treat Native people’s substance abuse, for example, with minimal benefit (Edgerly et al., 2009). In these examples, larger historical, social, and political forces created the environment in which these communities have had to adapt to denigration and restriction of resources (Weiner, 2009). The lack of integration of this information often threatens the relevance, viability and sustainability of public health interventions in these communities (Kagawa-Singer, 2006; Winker, 2004).

Social determinants of health have become a major focus of public health discourse in the last 10 years, (Adler and Newman, 2002; Kawachi and Kennedy, 1997) but again, culture is relegated to the laundry list of factors, rather than used as an integrated conceptual framework. The interaction of socio-economic and social status and race/ethnicity are essential to study, but not with the continued efforts to disentangle these constructs. The assumptions behind this strategy miss the fact that it is the interaction of these variables that adversely affect diverse populations within the larger U.S. society. For example, Zambrana and Carter-Pokras (2010) recently disputed the emphasis in health disparities research on acculturation measures and thereby culture in favor of socio-economic position as the major barrier to health equity for Latinos. The argument remains an either/or predicament rather than “both and.” Notably, the authors do not define what they mean by culture when they say that cultural competency efforts divert attention from the real issues of social position. Culturally competent research, with a scientific definition of culture, requires integration of the social, historical and political realities of the communities.

**Essential elements of a theoretical framework**

The broader, encompassing scientific concept of culture presented here has not been widely recognized or used in health care. Several studies (Dressler, 1995; Dressler and Bindon, 2000; Guarnaccia, 1996a; Guarnaccia and Rodriguez, 1996) have set promising avenues of pursuit, but as yet, we do not have a set of parsimonious and psychometrically sound measures of culture nor is it likely this would be universally possible. To guide further efforts to operationalize culture, we need first to come to a consensus on the concept. Operationalization of such a complex, dynamic and multilevel concept for any one study will likely depend on the domains of culture most salient and proximal to the dependent variable. Therefore, a set of guidelines for selection and suggested methodologies to assess all domains at this point in time is unlikely. Instead, we might begin by identifying a repertoire of integrated measures for each domain at each level of culture for specific population groups.

Building on the commonalities in the definitions of culture noted in the section above, three conceptual frameworks are offered to lay the foundation for operationalizing culture. The first framework delineates the contextual basis of cultures that create their variations and differences. Cultures develop to maintain the livelihood of its members and provide meaning for being. Hammond (1978) posited seven universal layers of culture that begin with the assets and constraints of the environmental niche of the population, and directs its adaptable structure and form. (See Table 1) The seven nested layers of culture are similar to the public health socio-ecologic model (McElroy and Townsend, 1996), but Hammond’s model explicitly and inextricably indicates the feedback system between the levels. Each level emanates from the one above and bi-directionally impacts its organic form and meaning. For example, at Level 1, the ecologic niche in which a population originated sets parameters for indigenous diets, such as the availability of fish or animals and types of fruit. The climate establishes the parameters for appropriate clothing. The Inuit in the Arctic requires total bundling with furs available from the indigenous animals that also serve as food compared to minimal clothing in populations at the equator. At Level 2 and 3, material and animal availability establishes the economy and technology, and influences the economic resources for trade and the social structure (Level 6) needed to sustain livelihood in the ecologic niche (Diamond, 1999). Our humanness imbues the biologic and abiotic environment with meaning and integrates it into a world-view and religion or spiritual organization to provide an explanation of who the people are and why they exist (Level 4). Language (Level 5) emerges to enable more efficient communication and encapsulates the people’s world view and culture (Ash, 1999). Level 7, the beliefs and behaviors, provides the guidelines for behavior that personify a “good person” within that cultural worldview. Therefore, using discreet beliefs or practices acontextually, as fatalism often does, misses the reasons why a community might hold this view, and importantly, overlooks the function it serves to maintain the social order and their sense of safety. Although the sociocologic model implicitly notes the interrelationships, the levels tend to be studied independently of each other, since it is missing the unifying framework of culture (Burke et al., 2009). Few studies have analyzed the essential dynamic interaction between simultaneous interventions at each level (Warnecke et al., 2008), yet as an organic system, adaptation is fundamental, for not adapting means extinction. Health disparities research currently misses this basic truth when attempting to institute change.

Cultures adapt in response to social and political circumstances—like globalization and internal events, or the stochastic impact of a

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**Table 1**

Hammond’s seven nested components of culture.

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<thead>
<tr>
<th>Number</th>
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<tbody>
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<td>1</td>
<td>Environment</td>
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<td>2</td>
<td>Economy</td>
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<td>3</td>
<td>Technology</td>
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<td>4</td>
<td>Religion/world view</td>
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<td>5</td>
<td>Language</td>
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<tr>
<td>6</td>
<td>Social structure</td>
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<tr>
<td>7</td>
<td>Beliefs and values</td>
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significant event like the “Arab Spring,” which has affected every culture around the world and forced changes in languages, beliefs, values, behaviors and social institutions that will reverberate for years to come (Khalidi, March 21, 2011). Accurate application of the concept of culture in health research thus requires an integration of each of the multi-dimensional levels that impact an individual’s and population’s response to illness based upon time, place, and biotic and abiotic resources.

Therefore, the concept of culture, must be expanded from its current narrow, simplistic, reductionist and unscientific application (Dressler, 2004; Kagawa Singer, 2009). Specific, discrete, cultural beliefs and behaviors, such as stoicism or machismo, do not characterize a whole culture, yet evaluation of adaptiveness or maladaptiveness of a cultural belief or practice is often made using the standards or template of the dominant cultural group’s beliefs and values. The results of such studies often end up irrelevant at best or invalid at its most damaging when interventions are based upon such findings. Knowing why groups hold onto or are forced to continue using various beliefs or practices that have been scientifically shown to be of little and harmful use enables us to negotiate change over time with all parties involved (Lewin, 2011). For example, the traditional role of women as caretakers for the ill and for the family as a whole is changing (Abel, 1995a, 1995b; Aneshensel, 1992). Two income families are almost essential, more women are full-time professionals, single family households are a growing phenomenon, and extended families are dispersed geographically across the country. Professional agencies (e.g., palliative care or hospice care) have been developed to provide such services, but utilization varies both geographically and demographically (Meier et al., 2010).

To guide the organization and identification of the likely essential domains of culture that most affect a particular aspect of health status or decision making requires broad but integrated systems theories. Two additional conceptual models that encompass the holistic and stochastic nature of disease etiology and management within a cultural framework are offered as examples of models that identify the cultural context in which these multiple pathways may act at the individual and population levels within a cultural context.

Fig. 1 shows the McElroy and Townsend Ecologic Model of culture and health (Kagawa Singer, 2000) that expands on Hammond’s 7 levels of culture (Table 1) by indicating how the biotic, abiotic, and cultural domains of the environment affect a population (e.g., diet, lifestyle, genetic polymorphisms, and gene-environment interactions). This model also highlights the essential role “time and place” play in understanding environmental and behavioral pathways to promote health. Fig. 2 highlights how the Myers life-course model identifies the multiple pathways through which social–historical–environmental factors act on psychosocial stress.

The pathways act to predict disease through the complex reciprocal and recursive relationships between race/ethnicity, SES, reserve capacity, and both cumulative biologic and emotional vulnerabilities and potential resources across the lifespan (Myers and Gallo, 2008). Future studies are needed to integrate the individual domains of Fig. 2 within the population levels of Fig. 1 to study the interaction effects of the various levels of culture and identify actual measures of the various domains.

Next steps

To guide the development of a repertoire of tested measures of culture, the following six steps are offered.

1. When culture is identified as a factor in the behavior of focus, researchers should provide their definition of culture and identify the measures used to operationalize the concept. This practice would require researchers to be more thoughtful and specific in the use of the term and development of their measures (Winker, 2004). The comparability of findings across studies of similar population groups would then be possible.

2. Develop parsimonious models that capture the holistic influence of culture on health beliefs and behaviors, and identify the pathways through which culture may differentially affect health and well-being.
3. Establish the cross-cultural equivalence and validity of measures. For example, the social science literature indicates that even the “standard” demographic questions that measure existing domains, such as income and education, are not comparable across ethnic groups or by education level. Other concepts, such as health, aging, trust, respect, ethics, self-efficacy, and intent have been demonstrated to differ across cultures (Graham et al., 2011; Kagawa-Singer et al., 2002; Pasick et al., 2001, 2009a; Stewart et al., 2009; Surbone, 2004).

4. Address the limitations of the concept of acculturation. Hunt et al. (2004) note the fallacies of this concept because it assumes boundaries between at least two discreet cultures. Moreover, acculturation is distal to health care utilization. One study tested the impact of the usual acculturation measures of nativity, time in the U.S., and language used at home and compared it with more proximal health access and navigation skills. Navigation skills more accurately predicted utilization, indicating that structural barriers were more powerful than acculturation measures. Notably, structural factors can be changed whereas the acculturation factors cannot (Pourat et al., 2010).

5. Develop guidelines for the use of culture in population science analogous to the 2003 the International Committee of Medical Journal Editors that recognized a similar confusion over the concept of race, and established guidelines for publication of studies that purported to study disease variations among multiple racial/ethnic groups (International Committee of Medical Journal Editors (ICMJE), 2003). The Committee recommended that authors provide explicit statements about the necessity for racial/ethnic comparisons, descriptions of how groups are identified, options provided for respondents, and indications of how categories are grouped for analysis (International Committee of Medical Journal Editors (ICMJE), 2010).

6. Utilize more inductive and mixed method studies to elicit and identify heretofore unrecognized domains of cultural influence on health outcomes in diverse cultural communities.

The role of culture in the causal pathway of disparities and the potential impact of culturally competent research and practice on improving health outcomes in diverse cultural groups have been underestimated. Implementation of the six recommended steps would increase our ability to achieve greater clarity on what culture is and how it impacts health behavior and ultimately health outcomes. Researchers and practitioners would then be able to understand that culture, by definition, encompasses the social determinants of health. This shift in understanding would enable researchers to build a stronger science of cultural diversity by creating the means to produce more valid findings and identify more relevant and more malleable systemic factors to address to increase the effectiveness of programs and services for health equity across the disease spectrum and across the care continuum from prevention to end-of-life care (Hartigan, 2010; Kagawa-Singer et al., 2010a). Scientific focus would then be on changing the intervention and not the culture of the populations of interest (Erwin, 2009; Harrison et al., 2005).

Conflict of interest statement
The author has declared no conflict of interest.

References


