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Review article

Assessment of acculturation in minority health research

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ABSTRACT

Acculturation represents an important construct in the context of health disparities. Although several studies have reported relationships between various aspects of acculturation and health in minority populations, crucial inconsistencies remain. One likely reason for these inconsistencies may relate to limitations in the conceptualization and operationalization of acculturation, particularly in the context of health research. The acculturation construct underwent major conceptual and operational change when it was adapted from anthropology to psychology, and we argue another major shift is now required for use of this construct in health research. Issues include determining whether acculturation measures should focus on an individual's internal attitudes or overt behaviors; whether they should characterize cultural orientation status at a given point in time or change over time; whether measures should be culture-specific or more global in nature; how the issue of multiculturalism should be addressed; how measures can optimally incorporate multiple dimensions of acculturation; and whether proxy measures should be used. These issues are important in the context of health research because of their implications for determining the direct and indirect effects of cultural change on health-related biological and behavioral processes. We elaborate on and address each of these issues from a perspective that spans multiple disciplines across the biological and social sciences, and offer concrete recommendations with the ultimate goal of achieving a better understanding of the role of acculturation in minority health and health disparities.

1. Introduction

A range of academic disciplines are interested in the question of how post-migration and post-colonization cultural adjustment, or 'acculturation,' affects health in minority migrant and indigenous populations, respectively. A multitude of theory and evidence suggests that acculturation can affect health (Berry, 1998; Chun et al., 2003; Organista et al., 2003), yet, crucial inconsistencies exist in the literature regarding the nature of the relationship between acculturation and health outcomes (Lara et al., 2005; Ra et al., 2013; Salant and Lauderdale, 2003; Smith et al., 2012; Yoon et al., 2013). These inconsistencies undermine our ability to determine the precise mechanisms by which an individual's acculturation experiences affect health and disease risk, as well as the role of acculturation in explaining epidemiological trends in minority health. A major impediment to the application of acculturation in health research is that, when applied to health, the construct has been inappropriately and inconsistently conceptualized and operationalized (Abraído-Lanza et al., 2006; Comer, 2003; Hunt et al., 2004; Lopez-Class et al., 2011; Thomson and Hoffman-Goetz, 2009; Wallace et al., 2010).

Here, we address key limitations in how the construct of acculturation has been defined, measured, and interpreted in the context of health research. We integrate rigorous theoretical and methodological approaches to understanding culture (D'Andrade, 1984; Dressler, 2005) with the requirements of health research, both of which have been insufficiently attended to (Abraído-Lanza

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et al., 2016; Dressler, 1995, 2005; Hunt et al., 2004; Kagawa Singer et al., 2016; Salant and Lauderdale, 2003). Our goal is to provide a coherent perspective that incorporates concepts from social, biomedical, and computational sciences towards offering concrete suggestions to enhance the quality and efficacy of studies in this field.

We highlight concerns related to the conceptualization of the construct of acculturation, particularly, whether it should measure an individual's internal feelings or overt behaviors; whether it should characterize cultural orientation status at a given point in time or change over time; whether measures should be culture-specific or more global in nature; how the issue of multiculturalism should be addressed; how measures should optimally incorporate multiple dimensions of acculturation; and whether proxy measures should be used. Furthermore, we discuss concerns related to operationalization, specially, how different domains of acculturation may exert independent and/or interactive effects on health outcomes, and how some of the commonly-used proxy measures of acculturation may capture non-acculturative causes of health disparities. Each of these issues is addressed with recommendations for measurement techniques and/or statistical analysis methods.

1.1. Acculturation conceptualized in different academic disciplines

Acculturation is a construct with roots in the fields of anthropology (Boas, 1888) and archaeology (Powell, 1880). It was initially used to describe the cultural and linguistic changes that occur when two *groups* come into contact (Rudmin, 2003). Early anthropological methods included direct observation of contact between cultural groups, interviews with individuals, reading historic testimonies, and deductions based on analysis of history (Redfield et al., 1936). There was emphasis on the ways in which history was crucial for understanding the process of acculturation in order to recognize elements of the origin culture when they are expressed (Herskovits, 1937). Observations of acculturation were also considered useful for better understanding the dynamics and structure of culture itself, as conflicting traditions and changes in certain aspects of culture allows each piece to be more clearly visible (Herskovits, 1937).

The construct was subsequently adopted by psychology alongside major changes in operationalization (Graves, 1967; Thurnwald, 1932), and re-conceptualized to focus on an *individual's* experience of changes in identity, values and behaviors, rather than as a group-level phenomenon. In psychology, the most widely-accepted conceptualization is Berry's model of acculturation strategies, assessed by two independent, orthogonal measures of acquisition of host culture and retention of heritage culture (Berry, 1997, 2003).

Acculturation has become a construct of considerable interest in medicine and public health (Abraído-Lanza et al., 2006; Berry, 1998). However, this disciplinary transition occurred without refining the construct and methodologies to be more appropriate for health research (Hunt et al., 2004; Lopez-Class et al., 2011). We argue that new considerations and modifications are necessary to improve research into acculturation's health consequences.

1.2. Acculturation and epidemiology

Epidemiologists have frequently observed trends in minority population health that seem to reflect changes in “cultural orientations,” or the degree to which individuals espouse the culture (values; identity; preferences; behaviors; traditions) of their heritage (ethnic; racial; religious; national) group. Consequently, a large number of studies have investigated the relationship between various aspects of acculturation and health, particularly in Hispanic Americans (reviews: (Abraído-Lanza et al., 2016; Lara et al., 2005; Thomson and Hoffman-Goetz, 2009)), Asian Americans (reviews: (Salant and Lauderdale, 2003; Suinn, 2010)), ethnic minority immigrants to Canada (reviews: (Sanou et al., 2013; Urquia et al., 2012)), and Native Americans (Duncan et al., 2014; Garrett et al., 2012). Notable inconsistencies have emerged in the relationship between acculturation and health (Castro, 2007). For example, among Hispanic Americans, acculturation has been associated with higher (Moscicki et al., 1989), lower (González et al., 2001), and no difference (Cuéllar and Roberts, 1997) in depression risk, and higher (West et al., 2002), lower (Hazuda et al., 1988a), and no difference (Harris, 1991) in diabetes risk. For another example, among Asian Americans, acculturation has been associated with better (Chou et al., 2010; Dey and Lucas, 2006), worse (Acevedo-Garcia et al., 2010), and no difference (John et al., 2012) in self-rated health. These kinds of inconsistencies call into question how acculturation, including its various components and domains, affects health-related biological and behavioral processes. We argue that shortcomings in the conceptualization and operationalization of acculturation likely account for the many contradictory findings in this area of research. Widely-used methodologies to characterize acculturation in the context of studies of both physical (Abraído-Lanza et al., 2006; Berry, 1998; Comer, 2003; Hunt et al., 2004; Lopez-Class et al., 2011; Schwartz et al., 2010) and mental health outcomes (Berry, 2009; Chirkov, 2009; Gonzales et al., 2002; Tardif-Williams and Fisher, 2009; Ward, 2008) have been criticized. We build upon those previous critiques, summarize major inadequacies from past studies, and suggest alternative approaches that would enhance the quality of research in this area (Table 1).

2. Conceptualization of acculturation

2.1. Does acculturation reflect internal state (attitudes/preferences/feelings), external state (behaviors), or both?

Internal state is comprised of attitudes, preferences, and feelings, while external state is comprised of behaviors. Previous authors have disagreed about whether the construct of acculturation should reflect internal or external state (Ward and Kus, 2012). Internal state (e.g., low mood) may be reflected in external state (e.g., avoidant behavior), and thus internality and externality can be strongly correlated. However, the internal and external aspects of acculturation do not necessarily parallel one another. In a Native American cohort, internalized negative attitudes about Native cultural identity were associated with less adoption of Anglo cultural behaviors (Walters, 1999). Thus, despite the expectation that internal rejection of Native identity should be associated with a shift towards an Anglo cultural status, the opposite was observed.

Acculturation affects health at the point at which acculturation becomes directly or indirectly (i.e., via behavior) “biologically embedded” in an individual. Life experiences, such as social interactions, behaviors, and events, can affect human biology (Fox et al., 2015; Hertzman, 1999). The supposition that life experiences shape human biology was proposed and theoretically developed in the field of medical anthropology, i.e., the study of “cultural embodiment” (Csordas, 1994; Fabrega, 1992). The frameworks of “embodiment” in anthropology and “biological embedding” in developmental sciences converge in their mutual interest addressing the social origins of epidemiological inequalities (Gravlee, 2009; Krieger and Smith, 2004). Because people in different sectors of society (e.g., based on socio-economic status, ethnicity, geography) have systematic differences in experiences, when those experiences become biologically embedded they can result in systematic differences in health status (Hertzman, 2012). We emphasize that certain external aspects of cultural orientation