

**Development of a Measure of “Acculturation” for
Ethnic Fijians: Methodologic and Conceptual
Considerations for Application to
Eating Disorders Research**

ANNE E. BECKER

Harvard Medical School and Massachusetts General Hospital

KRISTEN FAY

Tufts University

JESSICA AGNEW-BLAIS

Harvard School of Public Health

PETER M. GUARNACCIA

Rutgers University

RUTH H. STRIEGEL-MOORE

Wesleyan University

STEPHEN E. GILMAN

Harvard School of Public Health

Abstract Acculturation has been examined as a risk factor for eating disorders, but interpretation of findings has been limited by inconsistent operationalization of this construct across studies. The study aim was to develop and evaluate a population-specific measure of acculturation for ethnic Fijian adolescent schoolgirls, to use in future analyses related to eating disorders. Our findings suggest that acculturation is a multi-dimensional construct characterized by distinct, though related, dimensions of orientation to ethnic Fijian and/or western/global culture with respect to a range of behaviors and attitudes. In contrast to theoretical models positing uni-dimensional, orthogonal, or oblique relations between cultural identities in individuals undergoing acculturation, our study findings support a heterogeneous pattern among correlations of dimensions across contrasting cultural identities. We suggest multidimensional measures of acculturation are optimal – and socio-demographic proxies inadequate – for characterization of this complex process for health research.

Key words acculturation • assessment • eating disorders • Fiji • global • western

INTRODUCTION

Eating disorders are serious mental illnesses with high associated mortality and comorbidity (Attia & Walsh, 2009; Harris & Barraclough, 1998). A priority area for adolescent mental health (World Health Organization [WHO], 2003), eating disorders also have global distribution and are increasingly likely to contribute to the burden of illness in populations undergoing migration, urbanization, or rapid economic development (Becker, 2003). The present study was motivated by the need to operationalize, measure, and examine dimensions of cultural change for an investigation of “acculturation” as a risk factor for disordered eating in an ethnic Fijian study population. Our previous ethnographic, narrative, and multi-wave cohort research among ethnic Fijians (Becker, 1995, 2004; Becker, Burwell, Gilman, Herzog, & Hamburg, 2002) supported the emergence of disordered eating that corresponded to the introduction of western-produced television in Fiji. This finding raised the question of whether other cultural exposures increase risk for disordered eating in this social environment.

In order to consider the impact of both the content of cultural exposures and the process of acculturation, we designed a self-report assessment of acculturation with specific relevance to this ethnic Fijian population. Because the construct relating to “western” or “global” culture is problematic, as neither of these is monolithic, fixed, or easily operationalized, we clarify that our use of the term “western/global culture” is intended to encompass ideas and behaviors typifying modern western cultural traditions with global distribution distinct from local, indigenous ethnic

Fijian culture. The meaning of “global” here also supersedes its conventional geographical meaning to invoke a transnational culture; that is, one not localized to specific contexts but rather characterized by its capacity for circulation and broad accessibility via media, communications, and transportation technologies (Ong & Collier, 2005).

The primary aim of the present study is to evaluate a quantitative assessment of individual acculturation in an ethnic Fijian study population. The development of this assessment is also described. A second aim of the study is to examine our hypothesis that the construct of acculturation has multiple dimensions in this study population relating to both cultural identity and domains of engagement. Finally, we examine the heterogeneity of interrelations among these attitudinal and behavioral domains of orientation and/or engagement both *within* and *between* these two cultural identities.

SOCIO-CULTURAL CONTRIBUTIONS TO THE PATHOGENESIS OF EATING DISORDERS: THE NEED FOR A CRITICAL EXAMINATION OF “ACCUULTURATION” AS A RISK FACTOR

Eating disorders have complex etiology that is only incompletely understood, although there is wide empirical support for socio-cultural contribution to risk (Becker & Fay, 2006). Numerous population studies across diverse social environments have supported an association between social transition and an increased risk for eating disorders (Becker, 2003; Mumford, Whitehouse, & Platts, 1991; Nasser, 1988; Nasser, Katzman, & Gordon, 2001). Although inferences about a causal link are limited by methodological constraints (Schwartz & Carpenter, 1999), this association raises pressing questions about cultural exposures and their potential impact on health. A related question concerns whether exposures to particular cultural *content* (e.g., images or stories portrayed in mass media) or the very *processes* of assimilation or acculturation impact eating pathology (Berry, 2008). Identifying social contributions to risk and impairment is intrinsic to strategies for cost-effective prevention and intervention in resource-poor settings (Saxena, Thornicroft, Knapp, & Whiteford, 2007). Moreover, measuring and evaluating the impact of the process and content of novel cultural exposures on population health is of theoretical and practical interest for identifying causal determinants of eating disorders.

“ACCUULTURATION”: A PROBLEMATIC CONSTRUCT FOR HEALTH OUTCOMES RESEARCH

The dynamics of cultural contact and ensuing change have been glossed as “acculturation,” a construct that has proven problematic to evaluate in

health outcomes research (Hunt, Schneider, & Comer, 2004). Notwithstanding widespread recognition of the impact of acculturation on general and psychiatric health (e.g., Rogler, Cortes, & Malgady, 1991; Sundquist, Bayard-Burfield, Johansson, & Johansson, 2000; Westermeyer, Bouafuely, & Vang, 1984), discerning its relation to health outcomes is methodologically and conceptually challenging for several reasons. These difficulties begin with definition and operationalization of the construct. Redfield and colleagues' now classic definition of acculturation, as "changes in original patterns, behaviors, and values that result from continuous and direct contact between different cultures" (Redfield, Linton, & Herskovits, 1936), suggests its multidimensionality and cultural relativity. Both persons and populations adapt, and they do so in domains that need not correspond (see Berry, Trimble, & Olmedo, 1986; Szapocznik, Scopetta, Kurtines, & de los Angeles Aranalde, 1978). Identification of salient dimensions of cultural change has eluded researchers (Escobar & Vega, 2000), and different facets of acculturation may have variable relevance to psychological outcomes studied (Becker, Fay, Gilman, & Striegel-Moore, 2007; Fabrega, 1969). Moreover, psychological and anthropological disciplinary approaches emphasize intrapsychic effects versus changes in socialization processes, respectively (Chun, Organista, & Marín, 2002; Olmedo, 1979).

The construct of acculturation has also been conceptually framed in several distinct ways, contrasting acculturation at individual and societal levels (Ward & Rana-Deuba, 1999) and differentiating its relation to multiple life domains such as personal, family, or community domains (Nguyen, Messe, & Stollak, 1999) or practices versus values (Stephenson, 2000). They also address the relation between dual (or multiple) cultural identities. Two of these – uni-dimensional and bi-dimensional models – differ in positing the presence of inverse linear versus orthogonal relations. That is, a uni-dimensional model of acculturation frames cultural change after contact as *progressive from* traditional (or original) cultural practices and values to those of the mainstream culture. This process assumes polarity, or that values and identification with the heritage culture are replaced by those acquired from the mainstream culture (e.g., Costigan & Su, 2004; Franco, 1983; Olmedo, Martinez, & Martinez, 1978). Within this framework, acculturation is measured along a continuum ranging from low to high which corresponds with this transition from the culture of origin to the mainstream culture (Nguyen & von Eye, 2002). Indeed, the premise of linear progression has been criticized as misguided because it results in inadequate characterization of the complexity of the process (Guarnaccia, 2001). In contrast, theorists who adopt a bi-dimensional perspective of acculturation assert that these processes are at least partially independent of each other (Berry, 1997; Marin & Gamba, 1996;

Nguyen et al, 1999; Ryder, Alden, & Paulhus, 2000; Stephenson, 2000; Ward & Rana-Deuba, 1999; Zane & Mak, 2002). Thus, individuals may adopt attitudes, behaviors, and values of the mainstream society without relinquishing identification with the heritage culture. Conversely, a weak identification with a mainstream culture does not necessarily correspond to strong identification with the heritage culture (Phinney, 1990). A third dimension, that of “emergent ethnicity,” has also been proposed, and encompasses the premise that qualitative attributes of cultural change vary transgenerationally and can result in cultural identities distinct from either the culture of origin or mainstream cultures (Flannery, Reise, & Yu, 2001).

Thus, whereas a uni-dimensional model of cultural identity offers the advantage of parsimony, a bi-dimensional model better accommodates complexity, but still may fail to capture hybrid cultural identities that emerge over a prolonged period of exposure (Flannery *et al.*, 2001). Even among proponents of bi-dimensional models, descriptors for pre-contact versus post-contact cultural identities or orientations vary. For example, these include contrasts such as “levels of involvement in” “native” versus “host” cultures (Nguyen et al., 1999), “degree of immersion in dominant and ethnic societies” (Stephenson, 2000), and “host and co-national identification” (Ward & Rana-Deuba, 1999). Whereas acculturation has been a focus of social science research for decades (Sam & Berry, 2006), there appears to be little consensus on its definition or assessment (Hunt, Schneider, & Comer, 2004; Keefe, 1980). Luminaries in this field concur, however, that the construct of acculturation eludes operationalization (Sam, 2006) and “has been plagued with conceptual vagueness” (Stephenson, 2000). The numerous contextual possibilities impacting acculturation experiences have also been described. For example, these contexts vary with the circumstances of contact (e.g., encroachment upon an indigenous population, forced dislocation, voluntary migration); the proximity between cultures in contact; and the reception experienced following the cultural encounter (Masgerot & Ward, 2006; Sam, 2006; Ward & Rana-Deuba, 1999). The frame, focus, and operationalization of acculturation arguably will benefit from adjustment given the likely contextual impact on outcomes and questions of interest (Flannery et al., 2001; Stephenson, 2000; Guarnaccia et al., 2007).

ACCULTURATION AND EATING DISORDERS: A SELECT REVIEW

The “stress-diathesis” model presents a causal pathway linking acculturation to mental illness via stressors encountered in adaptation to environmental change (Fabrega, 1969). More recent empirical data have demonstrated that the relation of acculturation to distress may be

moderated by various “acculturation strategies” (Berry, 2006a) for managing plural ethnic identities as well as challenges inherent to navigating an unfamiliar or unfavorable social environment that, in turn, impact the success of adjustment (Berry, 2006b; Nguyen et al., 1999; Ward & Rana-Deuba, 1999). An assumption that acculturation is uniformly associated with adverse health outcomes is, moreover, a gross oversimplification that disregards the benefits of encounters with favorable societal resources (e.g., health care technologies, among others). We note that beyond its generic contributions to distress, acculturation may also elevate population risk for eating disorders via specific cultural exposures relevant to body, identity, and social norms. Indeed, our review of the literature addressing the impact of social change on disordered eating identifies variation across cultural settings.

Historical records and cross-cultural prevalence data support that body weight and food refusal are powerful – yet culture-specific – metaphors. In other words, body shape, weight, and dietary restraint are imbued with context-specific symbolic meanings that relate them to local core values. These data support a hypothesis that risk for an eating disorder is elevated in cultural contexts that promote dietary restraint and pressures to be thin (Garner, Garfinkel, Schwartz, & Thompson, 1980; Stice, 2002; Striegel-Moore, Silberstein, & Rodin, 1986). With the premise that “cultures of modernity” support the motivation and means for pursuing thinness (Lee, 1996), numerous studies have examined whether exposure to modern, western-based values, products, and images – now comprising and widely disseminated as a “global culture” (e.g., see Appadurai, 1996) – elevates risk for eating disorders via encounters with specific content that engenders body dissatisfaction and motivates weight management through extreme dieting or purging behaviors. Several studies have supported an association between acculturation and increased risk of eating disorders (Becker, 2003; Bhugra & Bhui, 2003; Cachelin, Phinney, Schug, & Striegel-Moore, 2006; Cachelin, Rebeck, Veisel, & Striegel-Moore, 2001; Davis & Katzman, 1999; Lee, 1996; Nasser et al., 2001; Pike & Borovoy, 2004). In addition to its impact on increased prevalence, acculturation may promote phenomenologic homogeneity in the presentation of disordered eating. For example, the signature “fear of fatness” intrinsic to anorexia nervosa in the West has been reported absent among many Chinese women with anorexia nervosa (Lee, Lee, Ngai, Lee, & Wing, 2001). However, in the setting of economic transition in China, a fear of fatness is increasingly invoked as a rationale for dietary restriction (Tong et al., 2005; Lee & Lee, 1996).

In contrast, other researchers have asserted that acculturation may protect against risk (Jennings, Forbes, McDermott, Juniper, & Hulse, 2005; Tsai, Curbow, & Heinberg, 2003). Still other studies have not demonstrated a relationship between acculturation and eating disorder risk (Bhugra,

Bhui, & Gupta, 2000; Jennings, Forbes, McDermott, & Hulse, 2006). For example, qualitative studies of adolescent girls living in Belize and Papua New Guinea, suggested that cultural change did not appear to be associated with an increased prevalence of eating disorders or the pursuit of a thinner ideal (Anderson-Fye, 2004; Wesch, 2004).

In order to account for the heterogeneous impact of acculturation on risk, the interaction and impact of local and global geographic, political, and economic factors on culture-specific pathways to risk and resilience require close examination (Becker & Fay, 2006; Jackson, Keel, & Lee, 2006). A deconstruction of our understanding and use of “acculturation” in relation to health outcomes – in this case, risk for an eating disorder – is essential for this process. For example, do findings reflect cultural variability in resilience or mischaracterization of acculturation? What features of this construct are valid, measurable, and comparable across diverse social contexts?

In order to examine and critique the available literature on acculturation and eating disorders, we conducted a selective and systematic review of the Medline and PsychInfo databases for studies published between 1966 and 2005. We identified 44 empirical studies that met our selection criteria of containing at least one predictor related to cultural change (i.e., acculturation, assimilation, globalization, modernization, westernization) and at least one outcome term related to disordered eating in the title or abstract. We then examined how acculturation and related constructs were defined, operationalized, and measured in these studies, with the objective of characterizing their validity and consistency across studies. Our findings support great diversity of formal and proxy assessments used in studies relating acculturation to disordered eating ($n = 29$). Acculturation was measured using 11 types of standardized assessments ($n = 18$) and nine unique proxy indicators ($n = 21$). Despite their limitations, bipolar scales (e.g., Cuellar, Harris, & Jasso, 1980; Suinn, Ahuna, & Khoo, 1992), measures of demographic factors (e.g., language, generational level) and cultural knowledge (e.g., adherence to traditional customs and rituals), as well as other proxy indicators (e.g., TV exposure, dress) continue to dominate studies of acculturation and eating disorders. Other studies have used global or single composite measures of acculturation (e.g., Abdollahi & Mann, 2001).

Our critical review also identified methodological limitations in the assessment of acculturation that may partially explain variability in findings relating acculturation to eating disorder risk. First, acculturation is inconsistently defined and operationalized across studies of its association with eating pathology. For example, some researchers embed an assumption that acculturation is a linear process of assimilation to dominant cultural values or behaviors (e.g., Chamorro & Flores-Ortiz,

2000; Lester & Petrie, 1995; Skreblin & Sujoldzic, 2003). Alternatively, others use acculturation to encompass dimensions relating to culture of origin and mainstream cultural identities that have an orthogonal relation with each other (e.g., Cachelin, Phinney, Schug, & Striegel-Moore, 2006). In addition, studies frequently use terms associated with cultural transition interchangeably (e.g., assimilation, acculturation, modernization, westernization, and globalization). However, formal definitions of terms such as modernization, westernization, and globalization are virtually absent from the literature on eating disorders. In some cases, constraints of study design have favored use of behaviors or demographic factors, including language, country of birth, dress (e.g., Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000), years in residence in the US (e.g., Gowen, Hayward, Killen, Robinson, & Taylor, 1999), and TV viewing (e.g., Tsai et al., 2003) as proxy measures of acculturation. Whereas this strategy promotes inclusion of relevant social data in large datasets, it also limits the scope of inquiry (Becker et al., 2007; Berry & Annis, 1974; Koneru, Weisman de Mamani, Flynn, & Betancourt, 2007). For instance, uni-dimensional assessment by proxy may fail to capture the dynamic interplay of processes related to social and cultural change (Lechuga, 2008). The multiple and diverse formal and proxy assessments used to assess impact of cultural change on risk for eating disorders also undermines comparability across studies (for review, see Becker & Fay, 2006).

Single item measures or composites of highly correlated variables theoretically offer only limited assessment of the multiple and fluid dimensions of acculturation. In particular, acculturation measures based on demographic factors, such as generational status, urban dwelling, educational level, or language have been criticized as group-level indices that fail to describe individual-level differences (Mendoza, 1989). In the specific case of eating disorders, it is critical that the unit of analysis also be at the individual level (for a more general overview, see Canino & Guarnaccia, 1997).

The breadth and general theoretical limitations of the assessments characterizing these studies are paralleled by a paucity of reliable and valid measures of acculturation across diverse populations. Measures assessing eating disorder risk, moreover, need to be population-specific to support validity of their findings in local social contexts (Canino & Guarnaccia, 1997; Katsching, 1983). Only a limited number of studies with a primary aim to relate cultural transition to eating disorder risk report on instrument reliability or validation with respect to their sample (e.g., Abrams, Allen, & Gray, 1993; Barry & Garner, 2001; Gowen et al., 1999; Humphrey & Ricciardelli, 2004; Iyer & Haslam, 2003; Kuba & Harris, 2001; Waller & Matoba, 1999). Moreover, relevant studies have infrequently included assessment in the local vernacular language.

Without a clear and consistent conceptual characterization of acculturation, studies will be limited in illuminating cultural pathways that contribute to eating disorder risk. More qualitative research focused on the local cultural context is needed to clarify the plasticity (both within and across historical and social contexts) and multidimensionality of acculturation, as well as its relation to disordered eating outcomes and symptom presentation (e.g., Anderson-Fye, 2004; Lee, 2004; Pike & Borovoy, 2004). Studies also need to incorporate a more processual approach to the study of acculturation, as the work in Fiji shows important changes over time in the impacts of global forces on local ideas about body image (Becker, 2004; Becker et al., 2002). These limitations in the literature on acculturation and eating disorders are serious and resonate with the characterization of acculturation as a “concept that has come to function as an ideologically convenient black box” (Hunt, Schneider, & Comer, 2004). On the other hand, operationalization of a construct relating to cultural change appears essential to advancing a nuanced understanding of its impact on risk for eating disorders. To accomplish this, models that are multi-dimensional – and that permit an orthogonal relation among cultural identities (Costigan & Su, 2004) – hold particular promise. Further, a construct that can be operationalized in ways that are transparent and relevant to diverse local contexts is optimal for discerning cross-cultural commonalities in patterns of risk and resilience.

METHODS

Fiji: THE STUDY SITE

Fiji is an archipelago located in the Western Pacific region. Its modern history is inextricably bound with an extended period of British colonial rule that began in the late-19th century; Fiji was ceded to Great Britain in 1874 and regained its independence in 1970. As Great Britain pursued its interest in developing Fiji for sugar production, an influx of immigrant indentured laborers arrived from India over a century ago (Lal, 1986). Fiji's population of fewer than one million is now composed of approximately equal numbers of ethnic (indigenous) Fijians and Indo-Fijians. Notably, residential communities of ethnic and Indo-Fijians have remained relatively segregated outside of urban areas and have also retained their respective vernacular languages. Widespread electrification of rural areas was unavailable until the 1980s, coinciding with construction of a paved road connecting western provinces of Fiji to Suva, its major urban center. As a result, the majority of ethnic Fijians in rural western Fiji had limited exposure to western produced mass media, with the exception of radio programming, prior to the 1980s. The development of infrastructure to

support communication, travel, and global commerce over the past three decades has greatly increased access to imported mass media (e.g., television programming produced in the US, Australia, New Zealand, and the UK) as well as exposure to other imported consumer goods and to tourists originating from Asia, Europe, Australia, New Zealand, and North America.

Fiji was chosen as a field site for this study based on previous ethnographic, narrative, and pilot quantitative data supporting the emergence of attitudes and behaviors consistent with eating disorders in the setting of rapid social and economic transition (Becker, 2004; Becker et al., 2002). Moreover, this disordered eating represented a departure from previously documented attitudes valuing robust body size (Becker, 1995), and emerged despite the absence of a corresponding indigenous nosologic category for eating disorders.

In addition to changing social norms for perceived body size ideals, the emergence of extreme dieting among ethnic Fijian girls may have also related to other cultural shifts. For example, the reconceptualization of weight management from a collective to an individual responsibility in Fiji arguably requires sufficient autonomy and agency to authorize it. Self-agency, in turn, is tightly linked to local concepts of personhood (e.g., socio-centric orientation) that may be transformed by cultural encounters that present alternative ideas (e.g., ego-centric orientation; Marsella, 1985). Agency, too, may be enhanced by exposure to ideas and resources from the globalized mass media (Appadurai, 1996). Likewise, motivation to pursue a body size ideal may be promoted by the perception that it will enhance social opportunities. Because social status in Fiji is traditionally regarded as ascribed by lineage, gender, and birth order (Ravuvu, 1983), personal motivation to pursue an elusive weight ideal may, in fact, depend upon a perception that circumventing the traditionally rigid social hierarchy is possible.

Many *mataqali* (clans) within the study region consider themselves to be closely related to one another. They share a language and most social rituals and traditions, which provide frequent opportunities to reaffirm cultural solidarity across villages (Ravuvu, 1983, 1987; Sahlins, 1962). Although culturally homogeneous, there is substantial range for degree of exposure to and engagement with modernization in the region of the study. For example, its coastally located tourist industry has supported wage-earning jobs for ethnic Fijians as well as a demand for imported consumer goods, in contrast with its interior areas, where the rugged terrain and distance from beaches are poorly suited to development of tourism. Some of the residential communities (villages) in this region have had electricity since the mid-1980s and television since 1995, whereas others do not have widespread access to either of these. The

heterogeneity in communications and media infrastructure has resulted in regional variation in western/global cultural exposures. These contrasts provide an opportunity to investigate the relative impact of cultural exposures on health outcomes of interest, in this case, eating disorders.

STUDY PARTICIPANTS

All ethnic Fijian schoolgirls meeting study eligibility requirements (female gender, self-reported ethnic Fijian ethnicity, enrolled in Form 3–6 of a regional secondary school, age 15–20 years, inclusive) were invited to participate in a study investigating the impact of social transition on disordered eating, overweight, and youth health risk behaviors. Each of the 12 schools identified by the Ministry of Education in this administrative region participated and 523 eligible study participants enrolled and completed the survey at Time 1 (71% response rate).

A purposive sub-sample of all available respondents in three schools (representing some geographic and linguistic diversity within the area) was recruited to complete the self-report assessments a second time at Time 2, approximately one week after Time 1. Eligibility required having completed a questionnaire at Time 1 and presence in school for the Time 2 site visit. All eligible respondents ($n = 81$) participated in the Time 2 retest.

STUDY PROCEDURES

Written informed parental/guardian consent and assent were obtained for all participants. The administration and evaluation of assessments relating to acculturation were components of a study protocol that was approved by the Fiji National Research Ethical Review Committee (FN-RERC), the Partners Healthcare Human Subjects Committee, and the Harvard Medical School Committee on Human Studies.

After participants were oriented to the study procedures by bilingual study staff, study data were collected by written self-report during proctored sessions within one school day at each participating school. Respondents completed these assessments in the language of their choice (either the local Fijian vernacular, or in English, the language of formal instruction) and clarification of questions on self-report indices was provided when requested by study participants. Completed questionnaires were visually scanned by study staff to identify missing or double-entered items. When applicable, respondents were invited to provide or clarify their response or to leave it blank. Personal identifiers were collected separately and indexed by a code number to each participant's response booklet. Survey data were entered into electronic files and verified. Statistical analyses were performed with SAS 9.1 (SAS Institute Inc., 2004).

DEVELOPMENT OF THE SELF-REPORT SURVEY ASSESSMENT OF ACCULTURATION

Items probing attitudes, behaviors, values, skills, preferences, and perceived engagement relevant to western/global and ethnic Fijian cultural traditions were drafted with guidance from the first author's longitudinal ethnographic research in Fiji (Becker, 1995). We began with the premises that (1) acculturation is a multidimensional construct; (2) dimensions of acculturation (e.g. practices, preferences, competencies, and values) comprise two potentially overlapping domains relating to western/global and ethnic Fijian cultural orientation and engagement; and (3) acculturation is context-specific.

Items were initially translated from English into the local vernacular Fijian language by a bilingual native speaker. This initial version of the questionnaire relating to acculturation was pilot tested with 21 adolescent and adult ethnic Fijian respondents, modified, and then edited for clarity after they were debriefed.

This Fijian language translation was next edited for syntax and back translated into English for comparison with the original version and then edited to achieve consistency across the two versions by consensus of the study team and linguistic consultant. The penultimate Fijian language translation was reviewed and edited by a native speaker for grammatical and idiomatic accuracy, resulting in the final version.

CONSTRUCTING MEASURES OF CULTURAL ORIENTATION AND ENGAGEMENT

We constructed our measures based on the premise that acculturation relevant to our study aims comprises multiple aspects of western/global and ethnic Fijian cultural orientation. We developed composite measures of these dimensions from self-report items specifically related to each of them. Next, we examined the construct validity of these composite measures initially with exploratory factor analyses and then by correlation with related constructs (i.e., other dimensions relating to either western/global or ethnic Fijian cultural orientation and/or engagement and correlation with selected known western/global cultural exposures. Finally, we evaluated internal consistency reliability and one-week retest reliability.

Items were developed and then grouped conceptually – based on previous ethnographic research – to correspond to the following eight relevant aspects of acculturation: (1) perceived knowledge and competencies (10 items); (2) personal values (22 items); (3) food preference (6 items); (4) cultural practices (6 items); and (5) perceived orientation

toward western[/global cultural] or [ethnic] Fijian lifestyle and traditions (4 items); (6) perceived self-agency (13 items); (7) perceived feasibility of social mobility in Fiji (8 items); and (8) personal ambition for upward social mobility (7 items). This list was non-exhaustive and selected for its specific relevance to study questions relating social environment to body image and disordered eating. For this study, we operationalized and assessed self-agency with a set of items relating to perceived potential efficacy of behaviors directed at improving appearance, school performance, job opportunities and social standing. Thus, we operationalized and measured social mobility with items probing perceived feasibility of, and desire for, improving, social status. Items corresponding to these 8 dimensions are listed in Tables 2 and 3. Four items related to body shape and weight were excluded from the analysis given their conceptual overlap with our planned outcome measure (Eating Disorder Examination Questionnaire; EDE-Q; Fairburn and Beglin, 1994) in future analyses of our data.

MODEL TESTING

Exploratory Factor Analysis of Acculturation Items

We used exploratory factor analysis (EFA) to investigate the latent dimensionality of the items belonging to each of the eight aspects of acculturation. That is, we conducted eight separate factor analyses, with the objective of determining whether the items belonging to each aspect of acculturation reflected one or multiple underlying (latent) dimensions. Prior to conducting EFA, all items were standardized to a mean of 0 and standard deviation of 1. For 5 of these aspects of acculturation – (1) perceived knowledge and competencies (10 items); (2) personal values (22 items); (3) food preference (6 items); (4) cultural practices (6 items); and (5) perceived orientation toward “western[/global]” or “[ethnic] Fijian” lifestyle and traditions – we expected that two separate dimensions (corresponding to western/global and ethnic Fijian cultural orientation and/or engagement) would emerge. However, we did not expect these two cultural orientations would necessarily be mutually exclusive within these aspects of acculturation. In contrast, we expected items relating to 3 of these aspects of acculturation (perceived feasibility of social mobility in Fiji, personal ambition for upward social mobility, and perceived self-agency) would reflect a single underlying factor.

We determined the number of factors to retain within each model by examining the scree plot (Cattell, 1966, 1978), the number of factors with eigenvalues > 1 (Kaiser, 1960), and the interpretability of solutions (Hatcher, 1994). In addition, we examined the loadings of each item on each factor. We retained items for further analyses that loaded highly on at least one factor (> 0.30), and that had loadings on one factor that

were at least twice as high as the loadings for the remaining factors (Tabachnick & Fidell, 2001). These criteria ensured that the items retained were informative (as indicated by at least a moderate magnitude of the factor loading) and discriminated between factors. Items that did not meet these criteria were eliminated from further analysis. Next, factor scores were calculated by taking the mean of the (standardized) items that loaded highly on that factor. Finally, Cronbach's alphas were calculated for the final sets of items within each factor to assess the internal consistency of the dimensions of acculturation identified, and intraclass correlation coefficients (ICC) were estimated to evaluate the test-retest reliability of the measures. Cronbach's alpha is a measure of internal consistency that is based on the magnitude of the correlations between the items (Cronbach, 1951). ICC (Shrout & Fleiss, 1979) indicates the degree of chance-corrected agreement (similar to kappa), and therefore provides a measure of test-retest reliability. Finally, we examined the correlations between each of the resulting dimensions of acculturation identified in the factor analyses, as well as the correlations of the dimensions of acculturation with key demographic indicators (e.g., urban school setting, socio-economic status [SES], parental occupation, social rank, and overseas travel).

RESULTS

SAMPLE DESCRIPTION

Demographic characteristics of the total study sample ($n = 523$) and the retest sample ($n = 81$) are shown in Table 1. In general, the demographic characteristics were fairly similar across both samples. By study design, both samples comprised solely ethnic Fijian adolescent females. Over 40% of respondents in both samples resided in urban locations, and less than 7% in either sample spoke English in the home. The majority of respondents in both samples (58.7% and 75.3%, respectively) resided in a home lacking at least one of these: (1) running water, (2) electricity, (3) gas stove, or (4) refrigerator. The majority of respondents in the overall and re-test sample (62.4% and 78.7%, respectively) reported having one or both parents who worked as a farmer or in a domestic occupation. Sixteen percent ($n = 80$) of participants in the overall sample had one or both parents who worked in a professional occupation, such as a teacher, doctor, or in government, as compared with 9% ($n = 7$) in the retest sample. Close to half of respondents (53.4% and 49.4%, respectively) indicated that their father held a position of commoner rank whereas a chiefly rank position was far less common (6.8% and 6.3%). Approximately 11% ($n = 57$) of the overall sample had ever traveled overseas compared with just 3.7%

TABLE 1
 Characteristics of the study sample

<i>Characteristics</i>	<i>Study population (n = 523)</i>	<i>Re-test population (n = 81)</i>
Age, mean (<i>SD</i>)	16.68 (1.1)	16.65 (1.5)
Urban school location, N (%)	261 (49.9)	35 (43.2)
English spoken in home, N (%)	10 (1.9)	5 (6.2)
Form in school, N (%)		
Form 3	42 (8.0)	8 (9.9)
Form 4	161 (30.8)	24 (29.6)
Form 5	160 (30.6)	19 (23.5)
Form 6	160 (30.6)	30 (37.0)
Social status, N (%)		
Commoner rank	274 (53.4)	39 (49.4)
Village leader	204 (39.8)	35 (44.3)
Chiefly rank	35 (6.8)	5 (6.3)
Relative material poverty (SES), N (%)	307 (58.7)	61 (75.3)
Parental occupation, N (%)		
Agrarian/Domestic duties	307 (62.4)	59 (78.7)
Unskilled wage labor	105 (21.3)	9 (12.0)
Professional	80 (16.2)	7 (9.3)
Overseas travel, N (%)		
Respondent ever traveled overseas	57 (10.9)	3 (3.7)
Family member traveled overseas in past year	208 (39.8)	29 (35.8)

Notes: Social status was based on participants' response to the following item: "What is (or was) your father's position in your village?" SES was dichotomized and coded as 1 (*the absence of running water, electricity, gas stove, or a refrigerator in the home*) and 0 (*presence of running water, electricity, gas stove, and a refrigerator in the home*). Parental occupation was based on participants' reports of one or both of their parents. The following are examples of Agrarian occupations: *farmer who takes care of family land, sugar cane, or paid farmer*; Unskilled wage labor occupations: *retail*; Professional occupations: *teacher, doctor or nurse, or government post*.

(*n* = 3) of the retest sample and nearly 40% of each sample (39.8% and 35.8%, respectively) had family members who had been overseas to earn money in the past year.

FACTOR ANALYSIS OF THE EIGHT ASPECTS OF ACCULTURATION

Hypothesized Single-Factor Models

Results of the EFA of the items assessing perceived self-agency, perceived feasibility of social mobility in Fiji, and personal ambition for upward social mobility are shown in Table 2. The intent of these analyses was to confirm that these respective groups of items each comprised single dimensions with conceptual coherence. On the basis of the criteria established for factor loadings, number of eigenvalues > 1, and examination of the scree plots, single-factor solutions were supported.

TABLE 2

Exploratory factor analysis of items related to perceived self-agency, perceived feasibility of social mobility in Fiji, and personal ambition for upward social mobility

<i>Item</i>	<i>Factor loading</i>
Perceived Self-Agency	
How possible is it to lose weight if you want to?	0.41
How possible is it to improve your appearance?	0.58
How possible is it to lighten your skin?	0.47
How possible is it to improve the appearance of your hair?	0.51
How possible is it to improve your marks in school?	0.60
How possible is it to improve how far you go in school?	0.57
How possible is it to improve the kind of job you will get if you want one?	0.62
How possible is it to improve your health?	0.71
How possible is it to improve the healthfulness of the food you eat?	0.61
How possible is it to improve your fitness?	0.63
How possible is it to improve the amount of respect you get from others?	0.69
How possible is it to improve your social standing?	0.70
How possible is it to gain weight if you want to?	<i>0.20</i>
Perceived Feasibility of Social Mobility in Fiji	
In Fiji, is it possible to change your social status?	0.55
In Fiji, is it possible to change your social status by marrying into a good family?	0.60
In Fiji, is it possible to change your social status by getting a good education?	0.70
In Fiji, is it possible to change your social status by getting a job?	0.73
In Fiji, is it possible to change your social status by improving the way you look?	0.69
In Fiji, is it possible to change your social status by changing your weight?	0.62
In Fiji, is it possible to change your social status by keeping Fijian traditions?	0.53
In Fiji, is it possible to change your social status by adapting to Western traditions?	0.42
Personal Ambition for Upward Social Mobility	
How much do you want to improve your social status?	0.69
How much do you want to improve your education so you can improve your social status?	0.73
How much do you want to marry into a good family so you can improve your social status?	0.66
How much do you want to improve your appearance so you can improve your social status?	0.75
How much do you want to get a good job so you can improve your social status?	0.76
How much do you want to keep Fijian traditions so you can improve your social status?	0.57
How much do you want to adapt to Western ways so you can improve your social status?	0.38

Notes: Factor loadings in bold correspond to items that were retained for each factor; factor loadings in italics correspond to items that were not retained in the final factor solution; higher scores reflect more assimilated beliefs, values, and behaviors.

Results of the first factor analysis shown in Table 2 supported retaining 12 of the original thirteen items conceptually related to perceived self-agency, with higher scores corresponding to greater self-agency. All eight of the original items were retained within the second dimension shown in Table 2, demonstrating their conceptual relation to perceived feasibility of upward social mobility. Finally, all seven items were retained in relation to respondents' personal ambition to navigate upward in the social hierarchy. For each of these three aspects of acculturation, higher values represent greater alignment with western-based ideology supporting self-agency and upward social mobility as feasible and desirable. In contrast, relatively lower scores reflect alignment with traditional ethnic Fijian ideology and values that do not uniformly support or cultivate self-agency (Becker, 1995), feasibility of social mobility, and competitive social positioning (Ravuvu, 1983, 1987).

Two-factor models were supported by our scree plot and eigenvalue criteria for items corresponding to 4 of the 5 aspects of acculturation that we expected to encompass both Western/global and ethnic Fijian cultural dimensions (i.e., "perceived knowledge and competencies"; "personal values"; "food preference"; and "perceived orientation toward Western or Fijian lifestyle and traditions"). However, a one-factor solution was supported for "cultural practices" (Table 3). Within each of these models, items loading onto factors corresponding to *western/global* and *ethnic Fijian* cultural dimensions, respectively, demonstrated conceptual coherence with one another and were also consistent with our expectations for their relation to western/global versus ethnic Fijian cultural orientation.

In sum, the EFA revealed 12 underlying dimensions of acculturation for this study population. Among these 12 dimensions, our models revealed 8 dimensions relating to western/global cultural lifestyle, values, and ideas, and 4 dimensions relating to adherence to ethnic Fijian cultural lifestyle, values, and ideas.

INTERNAL CONSISTENCY AND TEST-RETEST RELIABILITY OF THE 12 IDENTIFIED DIMENSIONS OF ACCULTURATION

Generally, the 12 dimensions of acculturation had an adequate to high degree of internal consistency, with Cronbach's alphas ranging from 0.48 to 0.86. These dimensions also demonstrated high test-retest reliability over an approximately one week interval. With one exception (Ethnic Fijian traditional food preference with an ICC value of 0.57), all of the ICC values were greater than 0.60.

TABLE 3
 Results of the exploratory factor analysis of items relating to
 5 aspects of acculturation

<i>Item</i>	<i>Western/ Global</i>	<i>Ethnic Fijian</i>
Perceived Knowledge and Competencies		
How well do you feel you know how to eat to lose weight?	0.597	0.003
How well do you feel you know how to eat so you can be healthy?	0.812	0.041
How well do you feel you know how to stay fit?	0.861	-0.007
How well do you feel you know how to dress like someone on TV?	0.374	0.027
How well do you feel you know what to do at <i>sevusevu</i> ?	0.038	0.719
How well do you feel you know what to do at a <i>yaqona ni horo</i> ?	-0.024	0.810
How well do you feel you know what to do at <i>yaqona ni vavinavina</i> ?	0.011	0.858
How well do you feel you know what to do a <i>meke</i> ?	<i>0.194</i>	<i>0.337</i>
How well do you feel you know how to use email?	<i>0.148</i>	<i>0.217</i>
How well do you feel you know how to search for information on the internet?	<i>0.030</i>	<i>0.185</i>
Personal Values		
Having more stylish clothes than other girls is important to me	0.470	0.074
Being able to dress and wear my hair the way I want is important to me	0.619	-0.179
Taking part in activities that will improve my appearance is important to me	0.656	-0.078
My personal success in terms of respect, reputation and wealth is important to me	0.501	0.069
Having enough money to buy things from overseas is important to me	0.524	-0.011
Being able to learn about what other girls my age are doing overseas is important to me	0.493	-0.019
Knowing how to prepare Western foods is important to me	0.366	0.148
Getting better marks than other students is important to me	0.414	0.171
Having more money than my friends is important to me	0.457	0.043
My family's success in terms of respect, reputation, and wealth is important to me	0.460	0.090
Knowing what to say and do during Fijian ceremonies is important to me	0.045	0.668
Knowing how to use Fijian <i>dranu</i> is important to me	-0.012	0.634
Keeping Fijian traditions is important to me	-0.186	0.644
Knowing how to mix and serve <i>yaqona</i> is important to me	0.064	0.398
Knowing how to cook traditional Fijian food is important to me	-0.105	0.668
Taking part in activities that help me do better in school is important to me	0.156	0.426
Taking part in and contributing to village events is important to me	<i>0.194</i>	<i>0.329</i>
Taking part in and contributing to family events is important to me	<i>0.234</i>	<i>0.298</i>
Taking part in activities that will help me to get a better job is important to me	<i>0.170</i>	<i>0.318</i>
Know how to read and speak English well is important to me	<i>0.328</i>	<i>0.205</i>
Getting a better job than other people is important to me	<i>0.361</i>	<i>0.289</i>
Knowing how to use a computer is important to me	<i>0.264</i>	<i>0.331</i>

TABLE 3
continued

<i>Item</i>	<i>Western/ Global</i>	<i>Ethnic Fijian</i>
Food Preferences^a		
How do you feel about eating <i>cawa dina</i> most days?	-0.041	0.594
How do you feel about eating traditional Fijian feast foods?	-0.029	0.547
How do you feel about eating main course foods that are fresh (such as fish or chicken)?	0.165	0.351
How do you feel about eating main course foods from the grocery store (frozen fish or chicken)?	0.538	0.070
How do you feel about eating McDonald's or other Western-style restaurant food?	0.584	-0.061
How do you feel about drinking soda such as Coca Cola or Fanta?	0.543	0.022
Cultural Practices^b		
How many days in a week (on average) do you wear jeans or pants?	0.544	—
How many days in a week (on average) do you wear a mini-skirt, midriff, or other Western clothing?	0.562	—
How many days in a week (on average) do you read a English language newspaper?	0.545	—
How many <i>days</i> in a week (on average) do you eat take-away food?	0.371	—
How many days in a week (on average) do you read a Fijian language newspaper?	0.227	—
How many days in a week (on average) do you wear <i>sulu ira</i> ?	-0.062	—
Perceived Orientation toward Western[/Global] or [Ethnic] Fijian Lifestyle and Traditions		
How much do you follow Western traditions?	0.823	-0.076
How knowledgeable are you about Western lifestyle and traditions?	0.915	0.055
How much do you follow Fijian traditions?	-0.066	0.710
How knowledgeable are you about Fijian traditions?	0.044	0.844

Notes: Higher scores on Western/Global reflect relatively greater orientation to and/or engagement in Western/Global values, behaviors, and practices; higher scores on Ethnic Fijian reflect relatively greater orientation to and/or engagement with Ethnic Fijian values, behaviors, and practices. ^a Higher scores on factors reflect more dislike for Western and traditional ethnic Fijian foods, respectively; ^b Higher scores on factor reflect higher Western/global cultural orientation, while low scores reflect low Western/global cultural orientation. Factor loadings in bold show items that were retained for each factor and those in italics reflect items not retained in final solution. Glossary: *Cawa dina* = root crops, the traditional staple in the ethnic Fijian diet; *Dranu* = traditional ethnic Fijian herbal preparations with medicinal properties; *Meke* = traditional ethnic Fijian dance; *Sevusevu* = traditional ethnic Fijian ceremonial offering of kava by a guest; *Sulu ira* = garment that is worn under a dress to cover the ankles; worn by ethnic Fijian girls and women as a sign of respect; *Yaqona ni horo* = traditional ethnic Fijian ceremonial offering of kava to seek forgiveness or offer an apology; *Yaqona ni vavinavina* = traditional ethnic Fijian ceremonial offering of kava to give thanks.

INTERCORRELATIONS AMONG 12 DIMENSIONS OF ACCULTURATION

Intercorrelations among the 12 dimensions of acculturation are presented in Table 4. Most dimensions reflecting *western/global* values, behaviors, and ideas were positively correlated with one another, with positive correlation coefficients ranging from 0.045 to 0.608. However, small negative correlations were observed between several western/global dimensions with western/global cultural food preference. Similarly, dimensions reflecting *ethnic Fijian* values were all positively correlated with one another, with correlations ranging from 0.144 to 0.354. These results are consistent with our expectation that dimensions of western/global cultural orientation and engagement would be generally correlated with one another – and likewise dimensions of ethnic Fijian cultural orientation and engagement would be generally correlated with one another – but not entirely overlapping.

In addition to these findings, we identified inverse relations between these two cultural dimensions. For example, perceived orientation toward Fijian lifestyle and traditions was negatively associated with western/global practices ($r = -0.203$) and perceived orientation toward western/global lifestyle and traditions ($r = -0.242$), respectively. However, we also identified positive correlations between many *western/global* and *ethnic Fijian* dimensions. For instance, perceived orientation toward [ethnic] Fijian lifestyle and traditions was related to western/global knowledge and competencies ($r = 0.106$). Overall, the pattern of correlation between dimensions related to contrasting cultural identities was remarkable for its heterogeneity. Of 32 possible such contrasting correlations, 20 were positive and 12 negative.

CORRELATIONS BETWEEN 12 DIMENSIONS OF ACCULTURATION AND SELECTED SOCIO-DEMOGRAPHIC INDICATORS

We also examined correlations between the 12 composite dimensions of acculturation with selected demographic indicators: urban school location, relative material poverty, social rank, parental occupation, personal travel overseas, and parent travel overseas (Table 5). As expected, several dimensions within the *western/global* domain were moderately and positively related to demographic indicators that reflect presumed western cultural exposures (i.e., urban school location, parental occupation associated with either greater education or income, and overseas travel). However, the heterogeneity of association between composite dimensions and the selected socio-demographic indicators is also striking and does not support uniform correspondence between demographic indicators and either western/global or ethnic Fijian cultural orientation and engagement for this study population.

TABLE 4
Intercorrelations among 12 dimensions of acculturation

Dimension	1	2	3	4	5	6	7	8	9	10	11	12
1. Self-Agency	1.00											
2. Perceived Feasibility of Social Mobility in Fiji	0.282***	1.00										
3. Personal Ambition for Upward Social Mobility	0.276***	0.608***	1.00									
4. Western/Global Cultural Knowledge and Competencies	0.315***	0.141**	0.104*	1.00								
5. Ethnic Fijian Cultural Knowledge and Competencies	0.147***	0.093*	0.101	0.226***	1.00							
6. Western/Global Cultural Values	0.348***	0.263***	0.317***	0.132**	0.040	1.00						
7. Ethnic Fijian Cultural Values	0.193***	0.058	0.054	0.152***	0.248***	0.294***	1.00					
8. Ethnic Fijian Food Preference [Western Food Dislike]	-0.002	-0.029	-0.089*	0.103*	0.162***	-0.166***	0.144***	1.00				
9. Western/Global Food Preference [Traditional Food Dislike]	-0.056	-0.041	-0.059	-0.023	0.014	-0.062	-0.133**	0.053	1.00			
10. Western/Global Cultural Practices	0.128**	0.045	0.070	0.111*	0.085	0.221***	-0.073	-0.211***	0.127**	1.00		
11. Perceived Orientation to Western/[Global] Lifestyle and Traditions	0.137**	0.058	0.061	0.069	-0.015	0.294***	-0.056	0.102*	0.123**	0.416***	1.00	
12. Perceived Orientation to [Ethnic] Fijian Lifestyle and Traditions	0.105*	0.084	0.106*	0.160***	0.281***	0.025	0.354***	0.213***	-0.179***	-0.203***	-0.242***	1.00

Note: * $p < .05$; ** $p < .01$; *** $p < .001$; Ethnic Fijian cultural dimensions are shaded in light grey; overlapping Ethnic Fijian cultural dimension cells are in shaded in dark grey. Values reflect Pearson correlation coefficients.

TABLE 5
Correlations between 12 dimensions of acculturation and selected socio-demographic indicators

<i>Dimension</i>	<i>Urban school location</i>	<i>Relative material poverty</i>	<i>Social rank</i>	<i>Parental occupation</i>	<i>Personal travel overseas</i>	<i>Parental travel overseas</i>
1. Perceived Self-Agency	0.073	-0.146***	0.051	0.084	-0.009	0.172***
2. Perceived Feasibility of Social Mobility in Fiji	-0.023	-0.026	-0.006	-0.018	0.067	-0.003
3. Personal Ambition for Upward Social Mobility	-0.054	0.033	0.060	-0.032	0.068	0.081
4. Western/Global Cultural Knowledge and Competencies	0.123**	-0.142**	-0.019	0.100*	0.038	0.106
5. Ethnic Fijian Cultural Knowledge and Competencies	0.038	-0.124**	0.192***	0.002	0.061	0.174***
6. Western/Global Cultural Values	0.044	-0.097*	0.074	0.127**	0.029	0.122**
7. Ethnic Fijian Values	0.009	-0.033	0.084	-0.005	-0.052	-0.077
8. Ethnic Fijian Food Preference [Western Food Dislike]	0.002	0.045	-0.024	-0.167***	-0.025	-0.016
9. Western/Global Food Preference [Traditional Food Dislike]	0.088*	-0.069	-0.101*	0.055	0.094*	0.103*
10. Western/Global Cultural Practices	0.143**	-0.179***	0.054	0.219***	0.133**	0.191***
11. Perceived Orientation to Western/[Global] Lifestyle and Traditions	0.157***	-0.161***	0.009	0.212***	0.138**	0.087
12. Perceived Orientation to [Ethnic] Fijian Lifestyle and Traditions	-0.053	-0.027	0.133**	-0.047	-0.061	0.030

Note: * $p < .05$; ** $p < .01$; *** $p < .001$; Social rank and parental occupation were coded such that increasing values correspond to higher social rank (i.e., ordinally ranked as commoner, village leader, or chiefly) and parental occupation (i.e., ordinal ranking as agrarian, unskilled wage labor, or professional); ethnic Fijian cultural dimensions appear shaded in grey. Values reflect Pearson correlation coefficients.

EXPLORATORY HIGHER-ORDER FACTOR ANALYSIS OF THE TWELVE DIMENSIONS OF ACCULTURATION

As an exploratory final step in our investigation of the dimensionality of acculturation, we factor analyzed the 12 identified dimensions of acculturation to investigate their loading onto higher-order factors encompassing dimensions of western/global and ethnic Fijian cultural orientation and engagement. The best-fitting model was a two-factor model, with perceived self-agency, perceived feasibility of social mobility in Fiji, personal ambition for upward social mobility, western/global cultural knowledge and competencies, and western/global cultural values factor (which we term “western/global cultural”), and perceived orientation toward ethnic Fijian lifestyle and traditions and traditional food preference loading on a second factor (which we term “ethnic Fijian cultural”). Cronbach’s alphas were 0.699 and 0.352 for “western/global cultural” and “ethnic Fijian cultural” higher-order factors, respectively, indicating a much higher degree of internal consistency among the dimensions of acculturation reflecting Western/global cultural orientation. The test-retest reliability for both factors was high (western/global cultural factor, ICC = 0.80; ethnic Fijian cultural factor, ICC = 0.79). These two higher-order factors were independent from one another ($r = 0.08$). The psychometric characteristics of the western/global cultural and ethnic Fijian cultural composite factors, when recomputed using the original rather than the standardized items, were comparable (western/global cultural factor, ICC = .73, alpha = .66; ethnic Fijian cultural factor, ICC = .76, alpha = .35).

DISCUSSION

Numerous studies suggest that the process of cultural contact and ensuing change – glossed as acculturation – has been associated with adverse health outcomes across diverse populations. Given opportunities for enhancement of health outcomes through increased access to health information, technology, and human resources that frequently accompany cultural contact, adverse outcomes appear somewhat paradoxical. Redfield and colleagues (1936) – credited with an early definition of acculturation – framed this construct in relation to a distinct historical and cultural context. It is worth pointing out that, within this context, they could not possibly have anticipated the present communication technologies that have promulgated new dimensions, intensity, velocity, and multiplicity of cultural interface. Consequently this construct, “acculturation,” lacks consistent definition, characterization, and sophistication which, in turn, undermines its validity and utility in application to health research. Critics

have elegantly outlined many of the inherent flaws in its application, including the embedded assumptions that “culture” – absent contact – is intact, static, and monolithic and that cultural variables formulated for health research are reductionistic (Guarnaccia, 2001; Hunt, Schneider, & Comer, 2004).

Notwithstanding the methodologic challenges we have outlined in operationalizing acculturation, there are urgent pragmatic reasons to deconstruct the pathogenic elements of cultural change. These elements are likely not only multiple, but also specific to their interaction with particular geopolitical, historical, and disease contexts. Investigators will need to be attentive to social disenfranchisement and economic marginality, disconnection from cultural resources, adoption of health risk behaviors during acculturation, and social dissonance, for example, when cultural values or practices are highly contested or mutually exclusive.

The present article, however, has a more modest agenda than the one outlined earlier. Our purpose was twofold. First, we sought to develop a population-specific – and disease relevant – measure of “acculturation” in our study population. In developing an extensive inventory of items related to behavioral and cognitive domains, we have incorporated diverse elements and dimensions of cultural identity, engagement, and participation in this study population. This inventory was generated with the benefit of longitudinal ethnographic data, and both linguistic expertise and local cultural informants contributed to the development of questions that were idiomatic and relevant. Moreover, our exploratory factor analyses support construct validity of domains related to Western/global and ethnic Fijian cultures and we have demonstrated the internal consistency and retest reliability of these constructs. The development of a reliable and valid quantitative measure of acculturation is also essential to understand the relation between cultural change and eating disorders in this study population. We intend to use this measure, among others, in future regression models to provide a complementary perspective to narrative and ethnographic data for a broadly informed model of the impact of culture change on risk and resilience for disordered eating in this study population.

The second purpose of the present research was to demonstrate the complexity and multi-dimensionality of acculturation as it might plausibly apply to risk for an eating disorder within a vulnerable population. This purpose is motivated by our review of the literature relating acculturation and similar constructs to risk for eating disorders. Available data suggest that both the process of rapid acculturation and specific cultural exposures encountered via globalized communications networks may be risk factors. This literature reveals limitations that stem from a generally oversimplified approach to assessment of the impact of relevant

cultural change. Our own study findings confirmed multiple dimensions of acculturation within the domains of western/global and ethnic Fijian cultural orientation and engagement as well as complex relations among these dimensions.

Fiji's ethnic Fijian population, of course, has been engaged in acculturation as a result of contact with cultures based in Europe, and eventually in North America, Australia, and New Zealand, for well over a century. Prior to and concomitant with that, their record of cultural contact also includes encounters and sustained relationships with other Pacific populations. Whereas their particular history of contact is unique, the fluidity and drift of cultural practices and traditions in response to dynamic ecological, historical, and social circumstances is by no means singular. The widespread attribution of risk for eating disorders to acculturation raises compelling questions about causal pathways and, specifically, whether the process itself, particular exposures to cultural content, or both of these aspects are pathogenic. Moreover, if the process is pathogenic, what distinctive features of western/global cultural orientation and engagement may have elevated risk? And further, do these relate to velocity of change, change that undermines cultural infrastructures that confer resilience, or an unfortunate sequence of stimulating consumerism in the absence of economic opportunities that can fulfill these newly acquired desires? Our exploratory factor analysis supported our hypothesis – based on ethnographic data – that endorsement of self-agency and motivation to navigate the social hierarchy are associated with other dimensions of western/global cultural orientation and engagement. This finding lends support to our hypothesis that vulnerability to disordered eating in ethnic Fijian adolescent girls may have been increased by buy-in to newly introduced ideas concerning competitive social positioning through management of appearance and weight (Becker, 2004; Becker et al., 2002). The perception that weight management will enhance social and economic opportunities may support disordered eating behaviors such as extreme dieting, fasting, and purging.

The close association of eating disorders with Western, post-industrialized, and modernized social contexts has been well-documented (Bhugra et al., 2000; Keel & Klump, 2003; Lee, 1996; Littlewood, 1995; Prince, 1985; Schwartz, 1985). Whereas modern notions of identity, selfhood, achievement, competition, social mobility, and acquisition of personal wealth are no longer anchored to distinct national contexts, a western cultural hegemony and pedigree can be discerned. Herein lies a pressing need to deconstruct processes and cultural exposures related to acculturation to “western,” “global,” or “modern” contexts. Of particular relevance to this study's aims are findings not only that acculturation was bi-dimensional with respect to cultural identity, but also that

acculturation across multiple domains within these cultural identities was eclectic. That is, some dimensions of western/global cultural orientation and engagement were directly correlated with ethnic Fijian cultural orientation and engagement, whereas others were unrelated or even indirectly (negatively) correlated. Moreover, we found that the relation of attitudinal and behavioral dimensions of acculturation both *within* and *between* western/global and ethnic Fijian cultural identities, respectively, was best characterized as heterogeneous. This finding provides an alternate perspective to models of acculturation that posit the relation between cultural identities as either uniformly uni-dimensional or orthogonal. Whereas it may be premature to identify a hybrid ethnic identity in this study population, this finding of heterogeneity is most consistent with models that allow for plural and emergent ethnic identities (e.g., Flannery *et al.*, 2001). Finally, it is noteworthy that this pattern – not entirely transparent to observational methods – was discerned with the benefit of statistical analysis utilizing summary variables.

Our study findings have a number of limitations. First, our factor analysis was exploratory only. The assessment of its validity is necessarily based upon examination of the interrelationships among hypothesized aspects of acculturation in the absence of external validators. Unfortunately, this methodological limitation underscores the difficulties in characterizing qualities of cultural identity or participation that are arguably subjective and of uncertain reliability. We maintain our optimism, however, that measurement of acculturation is possible, even if subject to some error. Moreover, we assert that this error can be minimized through the thoughtful integration of anthropologic and epidemiologic approaches that render transparent, and then circumvent, invalid assumptions. Given the exploratory nature of our analysis, and that we did not specify hypotheses for correlations between dimensions, statistical inference for the significance of any particular relation is limited because of the large number of correlations we examined. We underscore that our data are best interpreted as an illustration that heterogeneous relations among these dimensions are possible. We caution that findings about the direction, magnitude, and statistical significance of specific relationships among these dimensions will require replication in future studies.

We also emphasize that our findings are necessarily specific to a particular study population and time: ethnic Fijian school-going adolescent girls in 2007. We suggest that, contrary to assumptions inherent to its common usage, the term “acculturation” remains an imperfect placeholder for a heterogeneous construct that encompasses unique complexity relative to the social context to which it is applied. That is, acculturation – and its measurement – lacks specificity outside of a particular context. Our construct of western/global cultural orientation and engagement is

also problematic. It is at best a proxy for ethnic identity that may elude comprehensive or temporally stable definition. Moreover, ascertainment of western/global and ethnic Fijian cultural orientation and engagement – or hybrid ethnic identities – is possibly quite subjective and they may not always be uniformly distinct or distinguishable.

Although our findings are specific to modern ethnic Fijian adolescent girls in Fiji, we also note their implication that universal caution is warranted for measuring and interpreting the impact of acculturation in other contexts. For example, our correlational analyses support that acculturation comprises at least two dimensions relating to distinctive cultural identities. This finding is consistent with the conceptual models of acculturation that presently have the most currency (e.g., Flannery et al., 2001; Sam, 2006; Ward & Rana-Deuba, 1999). The relation between cultural identities has been variously conceptualized as uni-dimensional, orthogonal, and oblique (e.g., Nguyen et al., 1999; Stephenson, 2000), yet our study data support heterogeneous relations between aspects of cultural identities. Moreover, the heterogeneity in strength, direction, and statistical significance of correlations leads us to conclude that interpretation of the impact of acculturation on outcomes should be specific to its multiple dimensions. In addition, the lack of consistent correspondence between socio-demographic indicators and dimensions of western/global and ethnic Fijian cultural orientation and engagement strongly suggests demographic indicators are inadequate proxies for measuring acculturation. Furthermore, comparative assessment of acculturation across culturally and linguistically distinct populations may have limited validity because of its heterogeneity in local contexts (Guarnaccia, 2009). Although the identification of commonalities in the relation of acculturation to adverse health outcomes across diverse populations is highly desirable, measures of acculturation merit population-specific validation to avoid interpretations based on inaccurate assumptions.

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ANNE E. BECKER, MD, PhD, ScM is an anthropologist and psychiatrist who is Professor of Global Health and Social Medicine and Vice Chair of the Department of Global Health and Social Medicine at Harvard Medical School and Director of the Eating Disorders Clinical and Research Program at Massachusetts General Hospital. She has conducted ethnographic and epidemiologic research in Fiji for over 20 years where she has also examined the cultural mediation of body image and eating pathology. *Address:* Department of Global Health and Social Medicine, Harvard Medical School, 641 Huntington Ave., Boston, MA 02115, USA. [E-mail: anne_becker@hms.harvard.edu]

KRISTEN FAY, MA, is currently a doctoral candidate (2010) in the Eliot-Pearson Department of Applied Development at Tufts University. Kristen is primarily interested in individual and socio-cultural factors that moderate eating disorder risk, specifically among adolescents. *Address:* Institute for Applied Research in Youth Development, Lincoln-Filene Building (3rd floor), Tufts University, Medford, MA 02155, USA.

JESSICA AGNEW-BLAIS, Sc.M. is a doctoral student in the Department of Epidemiology at the Harvard School of Public Health in the Psychiatric Epidemiology Training Program. Jessica's research interests include the impact of culture and society on mental health, psychiatric nosology, and the role of cognitive functioning in psychiatric disorders. *Address:* Harvard School of Public Health, Department of Epidemiology, Kresge Building, 677 Huntington Avenue, Boston, MA 02115, USA.

PETER GUARNACCIA, PhD, is Professor in the Department of Human Ecology at Cook College and Investigator at the Institute for Health, Health Care Policy and Aging Research. His research interests include cross-cultural patterns of psychiatric disorders, cultural competence in mental health organizations, and processes of cultural and health change among Latino immigrants. *Address:* Department of Human Ecology, Cook Office Building 206, Rutgers University, 55 Dudley Road, New Brunswick, NJ 08901, USA.

RUTH STRIEGEL-MOORE, PhD, is a clinical psychologist who is Professor of Psychology at Wesleyan University. Her research focuses on risk factors for the development of eating disorders and, more recently, on health services research. *Address:* Department of Psychology, Wesleyan University, 207 High Street, Middletown, CT 06459, USA.

STEPHEN E. GILMAN, ScD, is Associate Professor in the Departments of Society, Human Development, & Health, and Epidemiology at Harvard School of Public Health. His research program investigates the environmental determinants of mental illness during developmentally sensitive periods, disparities in treatment effectiveness for depression, and disparities in depression outcomes including mortality. *Address:* 677 Huntington Avenue, Boston, MA 02115, USA.