Latino Immigrants, Acculturation, and Health: Promising New Directions in Research

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Abstract

This article provides an analysis of novel topics emerging in recent years in research on Latino immigrants, acculturation, and health. In the past ten years, the number of studies assessing new ways to conceptualize and understand how acculturation-related processes may influence health has grown. These new frameworks draw from integrative approaches testing new ground to acknowledge the fundamental role of context and policy. We classify the emerging body of evidence according to themes that we identify as promising directions—intrapersonal, interpersonal, social environmental, community, political, and global contexts, cross-cutting themes in life course and developmental approaches, and segmented assimilation—and discuss the challenges and opportunities each theme presents. This body of work, which considers acculturation in context, points to the emergence of a new wave of research that holds great promise in driving forward the study of Latino immigrants, acculturation, and health. We provide suggestions to further advance the ideologic and methodologic rigor of this new wave.

INTRODUCTION

The growth of the Latino population in the United States presents a unique opportunity to understand the nexus between immigration, acculturation, and health. Numbering 50.5 million persons and representing 16% of the population, Latinos constitute a large segment of the United States (44). A large body of work focuses on the role of acculturation in shaping health among Latino populations (67). However, acculturation research is at a crossroads for advancing a more nuanced and comprehensive approach that addresses the complex process by which broad social determinants, in addition to individual-level processes, influence health.

Although definitions vary greatly, acculturation can be defined broadly as the process by which individuals adapt to a new living environment and potentially adopt the norms, values, and practices of their new host society (1); however, the operationalization and measurement of this process are riddled with problematic issues (1, 56, 72, 110). Despite these conceptual and measurement issues, acculturation research reveals some important trends in Latino and immigrant health. First, some marked changes in the theoretical frameworks that guide acculturation research suggest that acculturation is not a static, linear process of cultural adaptation to a new host society but rather is one that involves a dynamic exchange between new members of a society and the host members (105). Importantly, investigators are increasingly recognizing that this exchange emerges from and is reinforced by broader social determinants that are fundamental to adaptation processes (1, 23). Another important finding is the body of evidence indicating that greater acculturation is associated with improved health according to some indicators, but worsening health according to others, and that this relationship may vary by Latino groups (67). In addition, a number of risky health behaviors and outcomes, such as smoking, alcohol use, high body mass index (BMI), and decreased consumption of low-fat foods, increase with acculturation, but so do some healthy behaviors, such as physical activity (12, 14, 21, 27, 35, 37, 43, 45, 57, 61, 68, 95, 122).

Several previous reviews document how acculturation generally relates to health in Latinos (67) and other outcomes such as diet (11), obesity (37), and diabetes (95), and several books have been written on the topic (30, 104). The present article builds on this existing evidence and focuses on more recent work on Latino immigration, acculturation, and health. We identify specific topics emerging in the field, discuss challenges and opportunities within these novel areas of research, and conclude with recommendations to advance acculturation research that is linked to theory and methodological innovation. Our goal is not to provide an exhaustive review of acculturation research but to continue to stimulate new frameworks on Latino immigrants, acculturation, and health.

We begin by describing the profile of the five largest Latino immigrant groups in the United States. In the remaining sections, we discuss promising new directions in research on acculturation, highlighting a contextual approach. We conclude with suggestions for moving forward this new wave of acculturation research, citing the need for novel methodologies and further considerations that could advance a comprehensive approach to acculturation research and ultimately advance the health of Latino populations.

THE LATINO POPULATION IN THE UNITED STATES

The Latino population in the United States combines very diverse populations. The major groups are Mexican Americans (who constitute 63.0% of Latinos), mainland Puerto Ricans (9.2%), and Cubans (3.5%). The fourth largest group, Salvadorans, who represent 3.3% of all US Latinos, are typically combined with the "Central and South American" category. Individuals from the Dominican Republic, falling into the "Other Hispanic" category, constitute the fifth largest Latino group in the United States, representing 2.8% of all Latinos (44).

The various Latino groups concentrate in different regions of the United States (44). Large proportions of Mexicans live in the West (51.8%) and South (34.4%), mostly in California and Texas, respectively. More than three-quarters of Cubans (77%) and Dominicans (78%) reside, respectively, in the South (mostly Florida) and in the Northeast (mostly New York). About half (52.8%) of Puerto Ricans live in the Northeast, largely in New York. Roughly equal proportions of Salvadorans live in the West (40.1%) and South (39.7%), mostly in California and Texas, respectively (44).

Latinos also constitute a large proportion of the foreign-born population of the United States. Estimates based on data from the 2010 US Census indicate that slightly more than half (53.1%) of the total foreign-born population is composed of immigrants from Latin American and Caribbean nations (2). Of the foreign-born population from Latin America and the Caribbean, Mexico accounted for more than half (55.2%), followed by the next largest groups from El Salvador (5.7%), Cuba (5.2%), the Dominican Republic (4.1%), and Colombia (3.0%) (2).

The various Latino groups also differ in nativity status (82). For example, about one-third (36%) of Hispanics of Mexican origin are foreign-born, as compared with more than half of Cubans and Dominicans (59% and 57%, respectively) and almost two-thirds of Salvadorans (62%). Among Puerto Ricans living in the United States, one-third (31%) were born on the island (19). In addition, there is substantial heterogeneity across Latino groups in terms of immigration history and patterns. Moreover, the context of reception in the United States differs for the various groups and at different time points as a result of economic conditions, labor shortages, and the political climate (51, 85, 101, 127).

PROMISING NEW DIRECTIONS IN ACCULTURATION RESEARCH

In this section, we highlight research that offers promising new directions on acculturation and health among Latinos. In most cases, we limit our discussion to studies published after the *Annual Review of Public Health* article on acculturation by Lara et al. (67). We focus mostly on studies with nationally representative samples, or large sample sizes, but discuss qualitative studies and other work that illustrate key points or that present cutting-edge issues (e.g., smaller studies comparing different Latino groups, or studies that use different or novel acculturation measures).

Several reviews provide an overview of theories and frameworks that have dominated research on acculturation since the 1900s, particularly in the fields of anthropology, sociology, and psychology as well as in public health, and the struggles that still exist within each of the disciplines (1, 56, 67, 72, 100). Very recently, integrative frameworks and contextual approaches to acculturation, which consider multiple layers of influence, have emerged in the literature (24, 72, 99, 105). These contemporary frameworks offer promising directions to pursue. In the sections below, we present these new topics in acculturation research in order of increasing contextual hierarchy to highlight how acculturation processes are embedded within broader social structures, and we present important cross-cutting themes.

Intrapersonal Contexts: Belief Systems, Norms, and Cognitive Mechanisms

An implicit assumption in the literature on acculturation and health behaviors is that beliefs, norms, or values change with greater acculturation (25, 53, 54, 100, 102, 113, 123). Little progress has been made, however, in identifying or testing potential cultural norms or belief systems that may help explain these associations. For example, cultural attitudes and norms specific to weight and body shape may affect physical activity among Latinos (68). In a qualitative study with focus groups, participants rated female silhouettes ranging from very thin to very heavy (117). Although

overweight and obese women tended to endorse bigger body types, all women were aware of the societal norm in the United States indicating a preference for thinner bodies as the ideal. Whether these norms, in fact, deter Latina women from engaging in physical activity is not known, given the lack of research demonstrating that norms about body weight are associated with physical activity. In addition to norms about body size or weight, other norms should be explored. In particular, gendered cultural norms should be investigated, given some evidence that Latinas consider vigorous exercise and sports as being activities for men (34, 62, 75). Some evidence also indicates that social norms among Latinos regarding acceptance of smoking are associated with an increased probability of smoking (40).

Greater acculturation may lead to changes in beliefs or norms about particular health behaviors (such as physical activity) or changes in particular values. For example, among adolescents, evidence shows that acculturation is associated with decreases in family values such as family connectedness and respect for parents, and these decreases, in turn, are associated with adolescent alcohol use (54).

Other belief systems and cognitions may shift or play a role in acculturation processes. For example, cognitive mechanisms may account for some of the observed differences between first- and subsequent-generation Latinos. Specifically, evidence shows generation-related differences in psychiatric disorders between US- versus Mexican-born respondents such that rates are higher among the US-born (4). Foreign-born compared with US-born Latinos may experience or perceive less deprivation because they use previous (worse) circumstances in their home countries as a standard of comparison. In contrast, US-born generations, who have different histories than do their foreign-born counterparts, may feel a stronger sense of frustration when faced with blocked opportunities and prejudice (105).

Cognitive mechanisms might also be at play, including social comparisons that help immigrants deal with stigmatized identities. For example, drawing from social identity and cognition theories, Padilla & Perez (93) propose that members of stigmatized groups, such as Latinos, might maintain psychological well-being and protect their self-esteem from the potentially negative consequences of upward comparisons to advantaged "out-group members" (such as non-Latino whites) by restricting their social comparisons to others who share their stigmatized status, such as other Latinos whose circumstances might be worse than their own.

Finally, the "shift-and-persist" hypothesis mentioned below (28) proposes that groups facing social and other disadvantages might engage in cognitive reappraisals of adverse circumstances, while persisting, that is, enduring adversity by finding meaning and maintaining a sense of optimism. Additional research is needed to develop and test theoretical models concerning these effects.

Interpersonal Contexts: Social Support and Social Networks

Research on social support and social networks offers promising avenues to pursue that are relevant to Latino immigrants, acculturation, and health (3). Given the expansive literature linking social networks to health, differences in social networks or levels of support may explain, for example, differential health profiles between immigrant and subsequent-generation Latinos and between those with higher versus lower levels of acculturation. Along these lines, Viruell-Fuentes et al. (121) examined whether there were differences in various measures of social ties and social support between immigrant and US-born Latinos living in Chicago. One of their major findings was that neighborhood Latino/immigrant concentration significantly predicted informal social integration and network size. Respondents who lived in neighborhoods with more Latinos and immigrants had higher levels of social ties. The authors also found interaction effects such that the positive effect of living in a neighborhood with a greater concentration of Latinos and immigrants was greater

for US-born than for foreign-born Latinos. Additional analyses revealed a nonlinear relationship between time in the United States and social ties such that social ties were highest among US-born Latinos, followed by foreign-born Latinos who had been living in the United States for at least 15 years, and lowest among those living in the United States from 5 to 9 years. Their results suggest that the immigration experience disrupts social networks.

These findings are similar to those of Allen et al. (5). In that study, US-born respondents had greater social ties and social support relative to foreign-born individuals. However, other research indicates an opposite pattern: greater social support among the foreign compared with US-born individuals. Almeida et al. (6) showed that relative to US-born Latinos, those who were foreign-born reported greater perceived support from family but lower support from friends. These type-by-provider patterns of association merit further examination.

To further explore these associations, as Angel & Angel (7) point out, it would be useful to consider "strong" versus "weak" ties, and "bridging" versus "bonding" ties, distinctions proposed in sociological and other frameworks (98). Strong ties, such as those of family members and very close friends, provide emotional and other types of support. Weak ties, such as those characteristic of coworkers or service providers, are not as supportive but can create contacts to large social networks. Bonding ties maintain a strong sense of group membership and cohesion. Bridging ties connect individuals to social contacts outside the group. In further examining the associations between acculturation and health outcomes of immigrant versus US-born Latino groups, researchers should explore the composition of networks, that is, whether there are differences in composition of strong, weak, and bridging or bonding ties, and the types of support they provide.

The Social Environmental Context: Racial/Ethnic Discrimination

The social environment can be conceptualized in various ways, including social networks, as described above. Discrimination represents another important component of the social environment. Research on acculturation and health has not paid sufficient attention to the possibility that proxy indices of acculturation—such as length of time living in the United States—might be measuring exposure to discrimination (118). Thus, exposure to discrimination, not acculturation per se, may account for the observed declines in health or increases in risky health behaviors among Latinos. A burgeoning field of research demonstrates that Latinos' experiences of discrimination based on an ascribed racial/ethnic identity are a risk factor for poor physical (79) and mental health (9, 52); however, the strongest associations are between discrimination and specific mental health outcomes (e.g., depression, anxiety) (70). A related vein within this field of research focuses on substance use and disorders among Latinos; findings suggest that Latinos who experience discrimination are at increased risk for alcohol and drug use disorders (86, 90, 91, 103, 114). Although the body of work on discrimination, mental health, and alcohol use is not as large as that for physical disorders, growing evidence indicates that discrimination is associated with worse physical health among Latinos (9, 79). Analyses focused on nativity and other acculturation proxies also reveal greater risk of alcohol and tobacco use among US-born Latinos relative to their less acculturated counterparts (91, 114). Moreover, analyses of alcohol use by country of origin also reveal important differences because greater probabilities of alcohol substance use disorders and discrimination are not consistent across groups of Mexicans, Puerto Ricans, Cubans, and Central and South Americans (61).

Given the pattern of findings in these studies, researchers conclude that because discrimination and substance use are both social experiences, to move the field forward, we must understand the social contexts that create these experiences among Latinos. For example, discriminatory policies that serve to perpetuate Otherness among Latinos, such as law enforcement tactics targeting

Latinos who "look undocumented," are cited as examples of contexts that warrant further study (91). Another future direction in this line of work may include the concept of "socially-assigned race" or "ascribed race," which has proven to be a very important measure in predicting both the level of discrimination encountered by individuals and their health status (73). It may be particularly powerful to study Latinos who self-identify as one race/ethnicity but are perceived differently by others. For example, in analyses adjusted for age, education, and language, a significantly higher proportion of those who self-identified as Latino and were socially assigned as white reported excellent or very good physical health compared with those who were socially assigned as Latino (60). Others have found support for this so-called white advantage in Latino health status; however, this work also highlights the importance of nativity and citizenship status, the latter being an underutilized proxy measure of "belongingness" among Latinos (115).

Other issues related to acculturation and discrimination warrant mention. The hypothesis that discrimination—and not acculturation—accounts for health declines among Latinos assumes that discrimination does not occur in the Latin American and Caribbean countries from which Latinos immigrate. This assumption is faulty, given the scholarship that documents discrimination based on skin color and race/ethnicity in Latin America and the Caribbean (22, 29). Furthermore, in-depth qualitative studies exploring experiences of discrimination by Latino immigrants in the United States suggest that immigrants and the subsequent generation encounter a specific process of stigmatization, during which they are exposed to Othering messages from the dominant society (118) and become acutely aware of their status as minorities. We argue that this process may be particularly painful in the United States because it questions the very idea of America as the land of opportunity and equality. Very little is known about the sheer dissonance that this incongruence creates for immigrants and subsequent generations, as well as the ways in which groups with different native-country experiences (e.g., Afro-Colombians; those belonging to indigenous ethnic minorities in Mexico) may cope with and internalize experiences of discrimination. The issues outlined above call for researchers to understand the complex cultural and sociopolitical realities of immigrants and demand that measures and study designs keep up with these complexities to move the field forward. Moreover, even if individuals have experienced racialized identities in their home countries, there may be a unique form and expression of discrimination in the United States that exerts a powerful effect on health for Latino immigrants.

The Community Context: Neighborhoods and Health

A relatively consistent body of evidence indicates that the neighborhood context, or the places where individuals live, patterns a range of health outcomes, including cardiovascular disease (CVD) and cardiovascular risk factors. This association generally remains constant after adjusting for individual-level covariates, suggesting the independent effect of neighborhoods on health. In the United States, nearly half of Latinos live in the top 10 metropolitan areas of the United States (82), and in the majority of these metropolitan areas, Latino families are significantly more likely to live in poor neighborhoods when compared with their white counterparts at all levels of income (71). Evidence of the extent to which neighborhoods pattern health generally, and more specifically, how neighborhood contexts and acculturation relate to health in Latino populations, remains scant; existing research to date indicates mixed results. Moreover, research on acculturation and health has not explored how ethnic enclaves might affect the process of acculturation via cultural, economic, and social mechanisms (1).

A recent review (63) found that of eight studies focusing on BMI/obesity among Latinos only one showed a clear positive association between increasing neighborhood Latino concentration and health, two showed null findings, and the remainder found mixed associations (positive or

negative) that emerged when testing for interaction by gender or race. Some of these studies did not focus exclusively on neighborhood-level determinants and included broader contextual features such as metropolitan-level indices of Latino segregation. In a separate study by Isasi et al. (57) based on a large national cohort examining CVD risk among Latinos, the authors suggested that differences in obesity prevalence by Latino subgroup may be due to differing patterns in obesity based on the field center from which participants were recruited. Thus, something about individuals' place of residence contributed to the excess burden of obesity observed for some Latino subgroups. Furthermore, one of the few longitudinal studies examining weight trajectories over time by neighborhood context (69) suggests that decreasing neighborhood Latino concentration was associated with increased BMI, but associations were not statistically significant. As noted in the review by Kershaw et al. (63), the more consistent set of results appears to be for smoking. Increasing Latino composition at the neighborhood level is generally associated with decreased smoking among women, suggesting gendered smoking norms and mirroring patterns observed for individual-level measures of acculturation, where increasing acculturation (measured by language or length of stay in the United States) seems to influence adoption of smoking largely among women but not among men (15, 26, 96).

Other studies similarly examined how neighborhood contexts shape cardiovascular outcomes such as dietary behaviors, physical activity, and diabetes among Latinos (39, 70, 89). Osypuk et al. (89) found that Latinos living in neighborhoods with a higher proportion of Latino immigrants (immigrant enclaves) were significantly less likely to consume high fat and processed meats than were Latinos living in neighborhoods with fewer immigrants, even after adjusting for individual-level acculturation and other sociodemographic factors. This finding did not hold for physical activity. Latinos living in neighborhoods with a high concentration of immigrants were significantly less likely to be physically active in a typical week compared with those living in neighborhoods with fewer Latino immigrants. Furthermore, although Latinos living in neighborhoods with a higher concentration of Latino immigrants reported more favorable healthy food environments, they also reported worse built environment features (e.g., walkability, safety) and low neighborhood social cohesion. As described above, other studies also observed this contradictory finding regarding social cohesion in Latino immigrant enclaves (6, 120). Similarly, Park et al. (94) found a positive association between the percentage of households reporting limited English-language proficiency in neighborhoods in New York City (i.e., less acculturated areas) and consumption of a diet high in vegetables, fruits, and legumes, and an inverse association with energy-dense foods. However, increasing neighborhood poverty was associated with increased consumption of energy-dense foods (i.e., unhealthy diet) in the same sample of Latino study participants. Furthermore, one study found that the association between positive built environment features of neighborhoods (e.g., higher population density, more mixed land use, and greater transit access) and BMI varied by socioeconomic position and race/ethnicity; non-Latino whites of higher socioeconomic position experienced the most benefits, which implies that more fundamental aspects of disadvantage need to be addressed to decrease obesity risk. These studies underscore how neighborhoods may simultaneously influence the adoption of health-enhancing and health-damaging behaviors and lead to distinct associations for racially/ethnically diverse groups. Moreover, evidence in perinatal epidemiology suggests that the nativity status of individuals living in ethnic or immigrant enclaves also needs to be considered because ethnic enclaves may actually represent blocked social mobility for US-born Latinos and their descendants (88). However, ethnic enclaves provide important resources to residents (77), and they may even protect the health of older adults, a phenomenon referred to as the *barrio* advantage (8). Thus, research on community contexts presents many opportunities and fruitful avenues to pursue to further advance research on acculturation and health among Latino populations.

The Global Context: Transnationalism and National Policies

Research on acculturation and health among Latinos has neglected to recognize the role of globalization and national policies that influence health and the need to conceptualize and capture changes in population health as they happen across geographic borders (i.e., transnationalism). Recent national policies on health care access, for example, highlight how these uniquely and disproportionately impact Latino communities (87). Furthermore, earlier policies such as the passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) systematically limited immigrants' eligibility for federally funded health and human services (78, 87). Legal permanent residents entering the country after August 22, 1996, were banned from assistance programs during their first five years of residency, with limited exceptions (e.g., refugees) (78).

Following PRWORA, significant concerns arose regarding immigrants' access to health and human services benefits; research showed low enrollment in Food Stamps/Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), and Medicaid, declines from the pre-PRWORA period, and increasing disparities between citizens and immigrants (38). Moreover, some research documented that fear of a "public charge" determination lowers participation in public benefits programs and that requirements to document citizenship status pose barriers by highlighting sanctions against illegal immigrants and potentially raising public charge concerns among legal citizens (65, 66).

A nascent body of research is uncovering how transnationalism may affect health, particularly smoking, obesity, and physical activity (3). In one small, qualitative study, data collected from mother and child pairs living in Mexico and in the United States suggest that those in Mexico were exposed to an environment with access to and availability of fruits and vegetables and opportunities to engage in physical activity (31). Data from another qualitative study with a larger sample (N = 86) of elderly Mexican migrants suggest that circular migration from Mexico and the United States has become more difficult as a result of more stringent migration policies along the border, which has resulted in increased isolation from communities of origin. This isolation coupled with longer work shifts transformed the lifestyle of elderly Mexican migrants, and diets became particularly unhealthy (80).

Other studies document the role of transnationalism in shaping health behaviors among Latinos. Martinez (74) provided detailed qualitative evidence indicating that consumption of processed foods and other negative dietary practices occurred prior to migration, especially among immigrants who resided in urban areas in their former countries. In addition, two large quantitative studies that combined large samples from epidemiological surveys in Mexico and the United States offered evidence for transnational transmission of health behaviors. Specifically, Tong et al. (111) found lower rates of smoking initiation and persistent smoking among migrants compared with those with family or previous migration experience. Among daily smokers, US-born Mexicans smoked more cigarettes per day than did Mexicans who had a migrant in their family and Mexican men with migration experience. Flórez et al. (47) found a similar relationship with obesity, such that respondents living in Mexico who had a family member in the United States were more likely to be obese compared with those who had no migrants in their family; however, this relationship was only significant among men.

This body of work suggests that contextual factors such as the ability to return to the home country, the receiving context, and the interaction between context and individual-level processes are important considerations for acculturation research among Latinos. Yet public health research using a transnational perspective is still in its infancy (3, 83, 109, 116), and large quantitative sources for this type of study are rare (3, 47, 83, 109, 111, 116). Furthermore, research using this approach would benefit from focusing on Latino groups (other than Mexicans) with important

circular patterns of migration (e.g., the "air bridge" between New York City and the Dominican Republic). Another important contribution to this line of research would be conceptualizing and measuring social ties transnationally; these ties are important conduits of emotional and material support for immigrant Latinos in the United States and the families in the countries of origin (121). Crucial to this approach would be to conceptualize and measure both positive (e.g., sense of belonging) and negative (e.g., increased stress) features of transnational ties to better understand physical and mental health among immigrant Latinos in the United States.

Cross-Cutting Themes: Life Course, Developmental Approaches, and Segmented Assimilation

Our review of the literature suggests that greater attention should be paid to areas of research that cross disciplinary boundaries and offer overlapping and yet distinct ways to conceptualize and identify determinants of health in Latino populations. In the social sciences and public health, the fields of psychology, anthropology, sociology, and epidemiology, among others, are actively engaged in immigrant health research. Here, we provide a brief overview of some cross-cutting themes that should be better integrated in the public health and population health research.

Life course approach. A life course perspective has roots in many disciplines, but at the core of this framework is an understanding that health may vary by age, developmental period, or stage of the life course. Only recently has this perspective been integrated in acculturation research. For example, Fox et al. (49) propose a biological life course perspective: that the effects of acculturation can be biologically transmitted from mothers to offspring by fetal programming. That is, poorer health among second-generation Latinos may result from fetal exposures to intrauterine biological conditions resulting from the mother's acculturation. The intergenerational biological transmission could be the consequence of gestational stress processes (e.g., higher concentrations of stress-related hormones such as cortisol), maternal health-related behaviors (e.g., poor diet), or psychosocial processes (e.g., increased depression, decreased social support) occurring during pregnancy, which are related to acculturative processes and create vulnerabilities for children. The authors acknowledge that postnatal factors (e.g., parental behaviors or socialization practices) may also determine the health of subsequent generations; however, they assert that fetal programming provides a feasible, alternative explanation for the declining health observed among second-generation Latinos.

In striking contrast to Fox and colleagues' biological framework, Chen & Miller (28) present a psychosocial perspective. They posit that broad social contexts early in life influence children's views and reactions to life circumstances. More specifically, they propose that if children facing adversity have positive role models they can depend on and trust, children develop the capacity to reappraise stressful situations in ways that reduce the emotional impact of those situations. This method promotes adaptation by shifting, that is, accepting stress and adjusting via emotion-regulation strategies (e.g., cognitive reappraisals), while persisting, that is, enduring adversity by finding meaning and maintaining optimism. This shift-and-persist approach for dealing with adversity reduces physiological responses and in the long term mitigates the development of chronic diseases such as CVD.

Studies of the association between educational attainment and CVD offer additional insight from a life course perspective because an education gradient is less evident among Latinos than among whites and blacks (18); some studies indicate worse health for more highly educated Mexicans than for their less-educated counterparts (128). Zeki Al Hazzouri et al. (125) explored whether educational attainment across generations (parental and personal educational attainment)

and country of birth (United States versus Mexico) was differentially associated with metabolic health outcomes. US-born Latinos with high adult education (regardless of parental education level) had lower odds of diabetes relative to those with low parental and personal education. For foreign-born Latinos, the prevalence of large waist circumference was lowest among those with high parental and personal educational attainment. Thus, in the context of life course determinants of adult disease, cumulative disadvantage may vary by nativity. These differential effects of education merit further study, especially given the paradox of education: Among Latina women especially, the beneficial effects of education on all-cause mortality are not as pronounced as they are among whites and blacks (59). The integration paradox observed in Europe might provide additional insights into the experiences of highly educated Latino immigrants in the United States. The paradox refers to the observation that educated immigrants turn away from the host society, instead of orienting toward it, possibly because, relative to their less-educated immigrant counterparts, labor market interactions with majority groups expose them to greater discrimination, and their credentials are not met with equal rewards (36). In the United States, a related notion is the diminishing returns hypothesis (46), that greater socioeconomic status does not confer equal advantages to ethnic minorities and non-Latino whites (79).

Developmental approaches. Other developmental issues relevant to acculturation warrant mention. There is an association between greater acculturation and smoking (15, 40, 55, 61, 113) and alcohol use (25, 42, 43, 54, 122) among adolescents, although it is most pronounced among female but not male Latino adolescents (15, 25). Studies that assess ethnic identification as a measure of acculturation report a protective effect such that smoking is reduced by factors that are relevant to adolescent life stages, specifically the social influences of peers and psychological factors (e.g., low self-esteem) (25, 81, 112). Furthermore, as Alegria (4) notes, in early childhood, adoption of the English language (and decreased Spanish fluency) could be beneficial in facilitating integration into school. However, in adolescence, diminished Spanish language skills could lead to limited communication capacity with family members. Consistent with some of these propositions, greater English language use is associated with increased separation from parents and other family conflicts as well as with a decrease in traditional family values, which, in turn, are related to greater alcohol use, tobacco use, and deviant behavior (25, 54).

Segmented assimilation. A final cross-cutting theme concerns research on patterns or trajectories of assimilation, most notably segmented assimilation theory, which offers an approach that can drive forward research on acculturation. Originally proposed by Portes & Zhou (97), the segmented-assimilation hypothesis underscores sociopolitical and human capital contexts that shape the environment of immigrants and their children, potentially restricting opportunities and leading to marginalization rather than incorporation. Specifically, the theory posits that immigrants do not assimilate into one distinct pattern but rather three patterns that are qualitatively distinct: (*a*) the classic assimilation pattern characterized by the adoption of white middle-class values and the simultaneous relinquishing of ethnic values; (*b*) an underclass pattern of assimilation, typified by poverty, low educational attainment, and antagonistic attitudes toward middle-class values; or (*c*) a selective or segmented path of acculturation characterized by rapid economic and educational advancement while intentionally maintaining ethnic values (126).

Key to the theory are the concepts of the human capital of immigrant parents and families (i.e., level of formal education or occupational skills), the social context in the United States that receives them (e.g., receptive versus hostile political environment, or the characteristics of the community, such as the existence of strong versus weak or nonexistent co-ethnic ties), and the

composition of the immigrant family (including the structure of the family and familial support systems). Also key are barriers or obstacles to assimilation, which might include discrimination and racism or deviant social groups (e.g., gangs). The theory proposes that immigrant groups are propelled toward upward social mobility and integration if they possess high human capital and the social context is receptive of immigrants or they live in a co-ethnic community with strong ties. In contrast, immigrants with fewer resources face difficulties obtaining employment or overcoming barriers, resulting in blocked opportunities for upward social mobility. Furthermore, the second generation might be exposed to other circumstances (e.g., inner-city schools with limited resources) or groups (e.g., deviant peers) that thwart or discourage educational and other opportunities for social mobility. Alternatively, in the third path of selective assimilation, immigrant parents promote their children's educational aspirations and upward mobility while simultaneously limiting their acculturation by reinforcing traditional cultural values (97).

Given its focus on contexts that shape patterns or trajectories of assimilation, segmented assimilation theory has the potential to advance the study of acculturation and health by addressing some of the theoretical issues that beset current efforts in the field of public health. Despite its promise, very little research has applied segmented assimilation theory to health outcomes. In one study using the National Longitudinal Study of Adolescent Health (42), the authors found that an index of the coethnic context (i.e., the proportion of Latinos enrolled in the school) protected against alcohol use and binge drinking for Cuban and Mexican adolescents, but not for Puerto Rican adolescents. Greater positive family relations (one of three indices of selective acculturation) had a protective effect among Mexicans and Puerto Ricans, reducing the odds of alcohol use and binge drinking, but they were a risk factor for Cubans, increasing the odds. A subsequent analysis revealed interesting gender differences such that the protective effects of selective acculturation were greater for girls than for boys (122).

A third study focused on the association between segmented assimilation and three health-related outcomes—life satisfaction, physical activity, and dietary behaviors—among a sample of 258 multiethnic men (54% of whom were Latino) living in Arizona (24). A novel, latent class analysis was used to identify four patterns of assimilation (extreme upward, moderate upward, moderate downward, and extreme downward) across the life course. Results revealed that the extreme upward assimilation was associated with greater life satisfaction and with lower frequency of unhealthy food consumption. Despite the very small sample size and biases inherent in the retrospective recall data on which the assimilation trajectory measure was based, results are consistent with segmented assimilation theory—as well as with life course perspectives—by demonstrating that an upward trajectory is beneficial for healthy behaviors.

As evident by these few examples, the complexity of segmented assimilation theory has resulted in a wide variety of approaches to operationalize some of its major concepts. As a result, it is difficult to draw conclusions concerning the best approach. Nevertheless, the set of testable hypotheses derived from segmented assimilation theory and the emphasis on the sociopolitical and human capital contexts that shape patterns or trajectories of assimilation represent important new directions to pursue.

THE NEW WAVE OF ACCULTURATION RESEARCH: REFLECTIONS AND CONCLUDING COMMENTS

Reflecting on the past decade of research, the sections above illustrate the emerging new wave of contextual research on Latino immigrants, acculturation, and health. As the field continues to advance, these integrative and complex frameworks present additional methodological and other

issues to consider. We offer a few final reflections and concluding remarks on the development of these exciting areas of research.

The new wave of contextual research will require continued attention to the methodological challenges that it presents. Key to this endeavor will be research and methodological approaches that test mediating mechanisms in the associations between acculturation, health, and health behaviors (5, 25, 76, 112) and that acknowledge the "intersectionality" of social positions (32, 33)—such as immigrant status, ethnicity, and race—that synergistically pattern life opportunities and shape health outcomes (13, 16, 17, 48, 106, 107, 119). Joint effects models (41, 58, 64, 108) and complex systems approaches (10, 50) offer fruitful avenues to pursue in these endeavors.

The contextual approach to acculturation acknowledges the importance of considering processes in immigration and acculturation; however, the process cannot be examined with continued reliance on cross-sectional studies. Mixed-methods approaches that integrate qualitative data offer viable alternatives to the logistical problems presented by transnational and longitudinal studies. Continued attention to processes may also help to explain why acculturation is differentially associated with various health outcomes and behaviors. As previously stated, the processes may be very different depending on the outcome examined. Moreover, in drawing from various social science and public health fields to develop complex, contextual frameworks, interdisciplinary teams will be necessary to continue to move forward the research on acculturation. These interdisciplinary approaches will require team science models that include members whose training, community experience, and ethnic/immigrant backgrounds are diverse.

This new wave of contextual research will also require continued improvements to address the ongoing challenges and limitations in the measurement of acculturation identified in previous reviews and critiques (1, 20, 67, 72, 92, 110, 124). Refinement of existing tools and additional research are both needed to determine the validity and usefulness of measures across different groups (110). Several measurement innovations are notable, including latent class approaches (5, 24). Despite the many problematic measurement issues, as Alegria (4) notes, "one crucial aspect of the acculturation debate comes from the tension between what we *need* to measure, and what we *can* measure, particularly within the constraints of epidemiological and large health surveys" (p. 996, emphasis in original). Although often ignored, country of origin is also an important proxy measure because it offers important insight into the historical and geographical context of exit (4).

Finally, although the number of studies of various Latino groups continues to grow, attention should be paid to the heterogeneity of the Latino population. This includes continued focus on the differing health profiles, demographic characteristics, immigration experiences, and policies affecting the various groups (87).

In conclusion, the study of Latino health is at an important crossroads in advancing a more nuanced and comprehensive understanding of the intersection between immigration, acculturation, and health. Over the past decade, several researchers have called for a more complex understanding of and development of more expansive theoretical frameworks on acculturation and health (1, 67, 72, 84). Progress has been made in developing more complex, contextual models, and there is certainly growing recognition of the problems in acculturation research. In this article, we provide examples of several promising directions. In summary, frameworks that consider acculturation in context hold great promise for driving forward research on Latino immigrants, acculturation, and health and for addressing the vulnerabilities experienced and resilience demonstrated by Latinos.

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