

musculoskeletal and mental health. Adam Smith in *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776) emphasized the potential of modern methods in the production of wealth but he did not neglect their potential also to produce adverse effects in the workforce.

In the progress of the division of labor, the great body of people comes to be confined to a very few simple operations. . . . The man's whole life is spent in performing a few simple operations . . . [he] naturally loses, therefore, the habit [of solving problems]. . . . The torpor of his mind renders him not only incapable . . . of rational conversation . . . [but] equally incapable of defending his country in war.<sup>7</sup>

Opportunities to gather new insights should be plentiful. We are in an historical period in which changes in both technology and the world economy are causing continual and rapid change "in the way work is designed, allocated and performed."<sup>8</sup> Psychosocial research in this area not only directs our attention to

the existing nature of work but it also illuminates the ways in which changes in the design of work might improve health by preventing premature cardiovascular disease and perhaps other disorders. As great is the challenge to understand the role of occupational psychosocial factors in promoting health, the still greater challenge lies in demonstrating scientifically that it is both feasible and effective to change the work environment. Dr Y. Ian Noy reminds us that our challenge is to understand not only the actual, but also the possible.<sup>8</sup> □

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## Editorial: Paradox as Paradigm—The Health Outcomes of Mexican Americans

The biomedical model has long dominated the public health research agenda. Specification of disease in terms of a biomedical model assumes that group-level associations are crude attempts to describe an underlying biologic mechanism at the individual level.<sup>1,2</sup> This is a reductionist paradigm. It assumes that group-level variables do not cause disease and group-level correlations represent poor substitutes for causal mechanisms at the individual level. The paradox of Hispanic health represents a group-level correlation between ethnicity and mortality that cannot be explained in terms of an individual-level model. As a result, it challenges the hold biomedicine has on the public health research agenda and calls into question the widespread practice in public health of addressing group-level risk with individual-level models and interventions.

The paradox of Hispanic health has its origin in Mexican immigration to the United States. Mexican Americans are the second largest ethnic group in the southwest, yet 50% of Mexican Americans were born in Mexico.<sup>3</sup> Thus, recent Mexican immigration to the United States has resulted in a Mexican American population with strong cultural ties to

Mexico. In addition, Mexican Americans tend to be poorer, less educated, and medically underserved compared with non-Hispanic Whites. Despite these presumed socioeconomic risks, Mexican Americans are astonishingly healthy. Mexican American rates of infant mortality and low birthweight are equivalent to non-Hispanic Whites and half that of Blacks,<sup>4-7</sup> and the overall mortality rate among Mexican Americans is lower than that of non-Hispanic Whites.<sup>8</sup> This is a paradox of profound importance. Historically, biomedicine has explained the increased risk associated with ethnicity either in terms of genetic differences related to race or factors directly related to socioeconomic status (e.g., lack of access to health care services). However, the health outcomes of Mexican Americans are contrary to these individual-level models of risk.

The health outcomes of Mexican Americans suggests that our understanding of the relation between ethnicity and mortality is based on ecologic fallacy. Ecologic fallacy can occur when correlations at the group level are the basis of causal inferences at the individual level and vice versa.<sup>2</sup> According to Susser,<sup>1</sup> this definition is rarely conceded because

biomedical notions of causality have shaped our assumptions related to the meaning of the term "ecologic." It never occurs to a biomedical theorist that a group-level variable could cause disease (e.g., Greenland & Robins<sup>9</sup>). Thus, it is wrongly assumed, group-level correlations are meaningful only for hypothesis generation.<sup>1,2</sup> The paradox of Hispanic health indicates that group-level associations between ethnicity and mortality have been inappropriately reduced to causal inferences at the individual level. As a result, much of our understanding of the disparity in health outcomes between Whites and Blacks appears to be based on ecologic fallacy.

For example, lack of access to adequate prenatal care among disadvantaged Black mothers is assumed to account for some of the ethnic differences in infant mortality. However, the effectiveness of prenatal care is based on group-level correlations between the types of mothers who get prenatal care and those who do not.<sup>10</sup> These studies do not account for fact that the mothers who get prenatal care are also the mothers who

**Editor's Note.** See related article by Cobas et al. (p 394) in this issue.

are less likely to drink or smoke during pregnancy. In fact, randomized studies at the individual level have difficulty finding any effect for prenatal care at all,<sup>11</sup> and studies examining the content of prenatal care find that mothers who do not receive all the recommended prenatal care procedures are at no greater risk than mothers who do.<sup>12</sup> Consequently, the effectiveness of prenatal care is based almost entirely on group-level associations. The absence of any relation between prenatal care and birth outcomes among Mexican Americans now removes even that support.

An explanation of the paradox of Hispanic health in terms of group-level variables has been proposed.<sup>13</sup> Called the acculturation hypothesis, it explains the paradox in terms of cultural orientation linked to ethnicity. Mexican American ethnicity is a marker of a Mexican cultural orientation that is defined by behavioral norms that can account for their favorable health status. Mexican Americans as a group smoke less,<sup>14</sup> drink less,<sup>15</sup> and eat a better diet<sup>16</sup> than do non-Hispanic Whites. This constellation of behaviors provides evidence for the group-level variable, cultural orientation, which directly influences the behavior of an entire group. It not only explains the low rates of low birthweight and infant mortality among Mexican Americans but also explains low rates of lung cancer, heart disease, and chronic respiratory disease evidenced among Mexican Americans. It is difficult to explain the fact that Mexican Americans have the lowest overall rate of mortality of any major ethnic group in the United States<sup>8</sup> except in terms of a group-level effect for cultural orientation.<sup>17</sup>

The acculturation hypothesis also acknowledges the effect of a Mexican cultural orientation among Mexican Americans as well. The degree of US orientation among Mexican Americans can be measured with an acculturation index.<sup>18</sup> In this issue of the Journal, Cobas and colleagues<sup>19</sup> revisit the original study that first documented the fact that Mexican-oriented Mexican Americans are less likely to engage in high-risk behaviors and therefore have more favorable health outcomes than their US-oriented counterparts.<sup>13</sup> Their critical reanalysis demonstrates that the language-based components of the acculturation index are better predictors of low birthweight than the nativity and ethnic identification components. These findings contradict speculation that the paradox of Hispanic health

could represent a healthy migrant effect.<sup>8,13</sup>

The most remarkable aspect of the acculturation hypothesis is the implication that behavioral norms linked to a cultural orientation are malleable. The characteristic change in behavioral norms associated with US acculturation is a group-level phenomenon that gradually occurs over several generations. Changes in behavioral norms are determined at the group level and therefore appear to be cultural adaptations to the socioeconomically disadvantaged community environments Mexican Americans share with one another. Increased consumption of tobacco, alcohol, and non-nutritious foods are behavioral norms naturally selected in communities with greater availability and consumption of these products. In fact, the overconcentration of minimarkets and convenience stores, which are the primary outlets for these products, has been documented in the socioeconomically disadvantaged communities where Mexican Americans reside.<sup>20</sup> Theoretically, once Mexican Americans have been fully acculturated in these high-risk community environments, their behavioral norms and health outcomes will resemble those of other socioeconomically disadvantaged groups living in similar community environments, but only after their Mexican cultural assets have been exhausted.<sup>21</sup>

The existence of a group-level relation between community environment and community norms is the basis of the acculturation hypothesis and the type of relation biomedical theorists ignore. The fact that the health status of Mexican Americans as a group deteriorates with exposure to community environments in the United States and the fact that the characteristic deterioration in health status is associated with the loss of a Mexican cultural orientation indicate the existence of a group-level model of risk. It is a model of profound importance for public health, one that has been virtually ignored by the research establishment.<sup>17,22</sup>

The paradox of Hispanic health exposes the limitations of the reductionist paradigm of biomedicine in setting the research agenda for public health. The acculturation hypothesis suggests that a group-level effect for cultural orientation is far more important in determining risk of chronic disease among Mexican Americans than genetic, biologic or socioeconomic factors operating at the individual level.

Since the 19th century, public health practitioners have observed that, although

there are no laws that determine individual behavior, there are regularities in the behaviors of groups that can be characterized by statistical laws.<sup>23</sup> Public health must return to these paradigmatic origins if it is to successfully address this era's epidemics of chronic disease. It is time we stopped trying to address group-level risk with individual-level interventions and redirect our efforts toward the factors that are responsible for the regularities in the behavior of groups. □

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## Topics for Our Times: From Cairo to Beijing—Women’s Agenda for Equality

The Fourth World Conference on Women (FWCW), which took place in Beijing, China, in September 1995, has been rightly called momentous. Over 50 000 persons, mostly women, attended the conference and the overlapping Non-Governmental Organizations (NGO) Forum, by far the largest attendance at any United Nations Conference and NGO gathering.

The NGO Forum drew the largest share of attendees, an estimated 35 000. In more than 2000 workshops, dozens of plenary sessions, and formal and informal meetings, women shared experiences, networked, and crafted documents. In the years and months preceding the conference, millions of women met in their homes, communities, and at regional and national levels to discuss issues and prepare documents. It was the work of those millions of grassroots women that gave the subsequent forum and conference its energy and legitimacy.

The resulting Beijing Declaration and Platform for Action<sup>1</sup> establishes a basis for a universal commitment to address poverty, educational opportunity, health care, violence, access to resources and inequalities in power, in opportunities for advancement, in management of natural resources, and in protection of human rights from the perspective of women. A first in the platform is recognition of the need to combat the stereotyping of women and to end persistent discrimination and violation of the rights of the girl child.

Highlights of several key areas in the platform illustrate its ambitious scope.

### Human Rights

At the conference, women succeeded in maintaining and, in some areas, advancing the concept of women’s rights as human rights. After many struggles, delegates agreed on language reaffirming the universality of human rights without qualifications sought by the Holy See and others. A compromise position on the relationship between human rights and national custom is now stated in the preamble as:

While the significance of national and regional particularities and various historical, cultural and religious backgrounds must be borne in mind, it is the duty of states, regardless of their political, economic and cultural systems, to promote and protect all human rights and fundamental freedoms.<sup>1</sup>

Further, the Beijing document recognizes the need to protect human rights activists.

### Health

The Platform for Action builds on the 1994 Cairo Population and Development Conference and calls for special attention to the reproductive and sexual health needs of women and girls. It identifies the barriers to health as “inequality, both between men and women and among women in different geographical regions, social classes and indigenous and ethnic groups”<sup>1</sup> and urges increased primary health care and social services for women throughout their lives.<sup>2</sup>

In opposition to the views of the Holy See and some Islamic nations and their followers, women at Beijing were determined to maintain the Cairo conference’s

language on unsafe abortion and reproductive health and rights.<sup>3</sup> They won reaffirmation of Cairo and an important addition that asked governments to consider reviewing laws containing measures against women who had undergone illegal abortions.<sup>1</sup> Also, Cairo provisions on human immunodeficiency virus/acquired immunodeficiency syndrome and sexually transmitted diseases<sup>1</sup> and prenatal and primary health services were strengthened.

Controversies over the introduction of the term “sexual rights” were resolved by a groundbreaking consensus that “the human rights of women include their right to have control over and decide freely and responsibly in matters related to their sexuality, including sexual and reproductive health, free of coercion, discrimination and violence.”<sup>1</sup>

The issue of sexual orientation was debated until the final day of the conference, when a ruling by the chair deleted any references to sexual orientation in the declaration and platform.

An explicit emphasis on total health throughout the life cycle of women is a new concept in United Nations documents. In regarding inequalities in income, rights, resources, and power as the basis of inequalities in health, the platform comes close to defining a public health agenda for women.

### Inheritance

Issues of inheritance by women on an equal status with men could not be resolved over the opposition of many Islamic delegates. In the final hours, a