

# Biology of Immigrant Stress: How Can We Be Better Clinicians for Immigrant Families?

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The number of international migrants has never been higher than today. People are displaced from their homelands due to climate change, political conflicts or simply seeking a better way of life. Our hearts are torn by news of thousands of immigrant families and minorities – Syrian refugee families fleeing from their terrorized life, Hispanic children being forcefully separated from parents at the border, duped Chinese immigrants helplessly ensnared in sex trafficking, and Afghanistan families who continue to live under the shadow of the Taliban.

As a clinician, how do we truly empathize with children and their families who have gone through these challenging transitions? Immigrants experience tremendous acculturative stress that arises in adapting to a new social environment, especially one with an unfamiliar language, culture, and values. Even the most nonjudgmental, culturally aware clinician may struggle to adequately understand an immigrant's stress, stigma, or trauma across language barriers. The *DSM-5*'s "Cultural Formulation Interview" and "Glossary of Cultural Concepts of Distress" are not sufficient. Clinically, the cross-cultural doctor-patient gap may lead to poor alliance, treatment nonadherence, and even misdiagnosis. In addition to psychosocial perspectives, this paper aims to provide clinicians an additional understanding of immigrant families through the biological lens.

## Biological Evidence for Acculturative Stress

To appreciate the challenges that immigrant families face, we first need to imagine how acculturative stress affects the body. For an immigrant, when one opens his or her eyes in the morning, the new environment offers little comfort of familiarity. From the content of breakfast to sounds from a TV or radio, seemingly every little thing can be a stressor triggering an autonomic "fight-

or-flight" response. When walking on the street, unlike tourists enjoying the sights, an immigrant might hold a long to-do list and nervously imagine what a stranger will say in an unfamiliar tongue. As a day proceeds on a roller coaster of stressors, the hypothalamic pituitary adrenal (HPA) axis in an immigrant's body will try to regulate the imbalance of multiple organ systems. Over weeks or months of uphill battles surviving, adapting and coping with the onslaught of unknowns, prolonged stress can be detrimental to an immigrant's neuroendocrine system, immune system, metabolic system, and genes.

For instance, a dysregulated HPA and altered brain functioning have both been implicated in immigrant populations. Akdeniz *et al.*<sup>1</sup> demonstrated this point by studying a group of native Germans in comparison to adult children and their migrant parents with ethnic backgrounds including Turkish, former Yugoslavian, Italian, Polish, Russian, Syrian, Vietnamese, Egyptian, and Algerian. Participants were asked to perform a cognitive task in a socially judgmental setting (eg, being observed and given negative feedback by an authority figure). First generation immigrants showed marked elevated stress response, including increased heart rate and serum cortisol level,<sup>1</sup> and self-report of being threatened. Moreover, brain imaging showed enhanced functional connectivity in immigrants' perigenual anterior cingulate gyrus (pACC), the brain region involved in cognitive and emotional regulation after social evaluative threat. Increased expression of glucocorticoid receptors, the final target of the HPA axis, was also found in immigrants' pACC,<sup>1</sup> suggesting it underlies the increased chronic stress in immigrant populations.

At the peripheral level, research in general shows that stress-induced inflammatory markers, such as C-reactive protein and cytokines, are elevated in immigrants'

serum.<sup>2</sup> These markers correlate with increased acculturative stress and the higher risk of chronic diseases such as diabetes, obesity, cardiovascular disease and cancer. Despite new immigrants often having a healthy metabolic profile at the time of arrival to the new country, data suggest that many experience significant weight gain during the 10 to 15 years after migration.<sup>3</sup> This may be largely related to the lack of access to healthy food, proper living environments, and healthcare due to language and socioeconomic barriers.<sup>3</sup>

At the genetic level, chromosomal structures such as telomeres have been reported to be altered in minority populations and acculturative stress. Accelerated shortening of the telomere is often associated with various psychiatric disorders, childhood trauma and social adversity in minority populations.<sup>4</sup> However, one study reported that poor, newly immigrated Mexicans have longer telomere length and a better health profile than the US born Mexicans.<sup>5</sup> This phenomenon was known as the “Hispanic paradox.” Researchers suggested that new Mexican immigrants may gain protections from negative health impacts of acculturative stress by staying within Spanish speaking cultural frameworks in their communities.

Besides their own adjustments, immigrant parents are responsible for the wellbeing of their children. Parenting during this adjustment state can be cumbersome and challenging. As described above, immigrant parents are at elevated risk for emotional health problems during the post-migration period. In addition, their children are exposed to additional risk factors such as discrimination, health care and educational inequities, and are susceptible to depression and suicidality. Altered HPA axis and elevated cortisol levels are found in immigrant children when compared to their counterparts at the time of kindergarten entry, a vulnerable stage when young children separate from parents.<sup>6</sup> The same study

suggests that a more emotionally attuned parent-child relationship is essential to children’s resilience against acculturative challenges at this age, as reflected by a less reactive HPA axis.<sup>6</sup> Conversely, one longitudinal study reports that greater acculturative stress in immigrant mothers from prenatal to two years postpartum period correlates to children’s poorer emotional regulation and academic achievement at the age of 5.<sup>7</sup> Moreover, case reports have shown that an acculturation gap within the immigrant parent-child relationship is associated with higher risk of clinical depression in adolescents.<sup>8</sup>

To tackle the immigrants’ stress biology, we need a multifaceted approach to provide a safety net in the community. Psychoeducation for clinicians may be essential to have better reflective capacity on the immigrants’ needs. Clinicians can work with school educators and community leaders to serve as unique scaffolds and guide the children and parents to the appropriate treatments and services. Existing data suggests that nonconventional interventions have shown positive outcomes in stress response system that can be implemented in the community. For example, Tai Chi, a mind-body exercise derived from martial arts, has been associated with antineuroinflammatory stress reduction by reducing IL-6 level and modulating the activity of key brain regions involved in depression and emotion regulation.<sup>9</sup> Relaxation response-based group intervention, an approach which utilizes mind-body techniques shared by Tai Chi or Yoga, has shown a promising improvement of depression symptoms in immigrants who struggle with acculturation.<sup>10</sup> In conjunction, developing positive identities and nurturing support systems may help protect patients who are facing acculturation challenges. Early intervention such as developing support groups with cultural liaison and mentorship can be invaluable. As a team, we can make a difference for the immigrant families.

### Take Home Summary

Biological data suggests immigrants' mind and body have increased vulnerabilities to stress during the process of acculturation. Such vulnerabilities may carry clinical implications to our patient care. Understanding immigrants' biological stress will foster reflective functioning among clinicians to support the mental health of immigrant children and families.

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