

# Toward a better understanding of cardiovascular risk in the transgender and gender-diverse community: a supplement to the Tijuana Declaration

## *El camino hacia una mejor comprensión del riesgo cardiovascular en la comunidad transgénero y diferentes géneros: un suplemento a la Declaración de Tijuana*

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## Abstract

On World Heart Day 2022, the Mexican Society of Cardiology, the Inter-American Society of Cardiology, and the World Heart Federation collaborated on a communication regarding the increased risk of adverse cardiovascular health outcomes in transgender and gender-diverse (TGD) individuals. This document, called the Tijuana Declaration, urged the global cardiovascular community to work toward understanding and mitigating this problem. This article aims to unpack the numerous factors that lead to it. An example is the social stigma faced by members of the TGD community, which leads to increased stress and risk for cardiovascular complications. TGD patients are also more likely to have insufficient access to health care, and those that do receive care are often faced with providers that are not adequately educated about the unique needs of their community. Finally, there is some evidence to suggest that gender-affirming hormone therapies have an impact on cardiovascular health, but studies on this subject often have methodological concerns and contradictory findings. Decreasing the incidence of adverse cardiovascular events in this community requires interventions such as educational reform in the medical community, an increase in research studies on this topic, and broader social initiatives intended to reduce the stigma faced by TGD individuals.

**Keywords:** Tijuana Declaration. Transgender health. Cardiovascular disease. Minority stress theory. Gender-affirming hormone therapy.

## Resumen

En el Día Mundial del Corazón 2022, la Sociedad Mexicana de Cardiología, la Sociedad Interamericana de Cardiología y la Federación Mundial del Corazón colaboraron en una comunicación sobre el aumento del riesgo de resultados adversos para la salud cardiovascular en individuos transgénero y de género diverso (TGD). Este documento, conocido como la Declaración de Tijuana, instó a la comunidad cardiovascular global a trabajar en la comprensión y mitigación de este problema. Este artículo tiene como objetivo desentrañar los numerosos factores que lo provocan. Un ejemplo es el estigma social enfrentado por los miembros de la comunidad TGD, lo que conduce a un aumento del estrés y el riesgo de complicaciones cardiovasculares.

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*Los pacientes TGD también tienen más probabilidades de tener un acceso insuficiente a la atención médica, y aquellos que la reciben a menudo se enfrentan a proveedores que no están adecuadamente educados sobre las necesidades únicas de su comunidad. Finalmente, hay evidencia que sugiere que las terapias hormonales de afirmación de género tienen un impacto en la salud cardiovascular, pero los estudios sobre este tema a menudo tienen preocupaciones metodológicas y hallazgos contradictorios. Disminuir la incidencia de eventos cardiovasculares adversos en esta comunidad requiere intervenciones como la reforma educativa en la comunidad médica, un aumento en los estudios de investigación sobre este tema e iniciativas sociales más amplias destinadas a reducir el estigma enfrentado por los individuos TGD.*

**Palabras clave:** Declaración de Tijuana. Salud transgénero. Enfermedad cardiovascular. Teoría del estrés de minorías. Terapia hormonal de afirmación de género.

## Background

Systemic health disparities that cause the burden of disease to be disproportionately heavier on the shoulders of minority groups have been well documented in scientific literature. This phenomenon is especially concerning in the context of cardiovascular disease (CVD), which is the leading cause of death globally and accounts for more than 17.9 million deaths every year<sup>1</sup>. Datasets from the Behavioral Risk Factor Surveillance System and the all of Us research program demonstrate that sex significantly modulates the odds of developing cardiovascular health problems and that gender non-conforming individuals are at a disproportionate risk for complications such as myocardial infarction and venous thromboembolism<sup>2,3</sup>. In some ways, the incidence of CVD in the transgender and gender diverse (TGD) community has become a preventable pandemic, as it is possible to manage and prevent many heart conditions if clinicians are provided with adequate information to guide their therapeutic strategies. The reasons for the increased incidence of CVD among the TGD community are broad ranging and the solution to this problem requires both interdisciplinary inquiry and multisectoral collaboration.

This is the subject of the Tijuana Declaration, which is a communication that was put forth by the Mexican Society of Cardiology, the Inter-American Society of Cardiology, and the World Heart Federation (WHF) on September 29, 2022 (the date of World Heart Day). In keeping with WHFs mission to provide cardiovascular health for all, this declaration synthesized information regarding the increased incidence of adverse cardiovascular health events in the TGD community in Latin America and served as a call to action for cardiovascular health-focused organizations to work to close this crucial health disparity. The objective of this report is to supplement the Tijuana Declaration by providing a global perspective on cardiovascular health disparities in the TGD community, exploring the multiple facets of

this issue, and articulating some priorities for the scientific community in the process of advancing toward the goal of providing equitable health care for all.

## The social context of TGD cardiovascular health

The social and political context of a person's living situation has a significant impact on their stress level, which is a significant factor in the development of CVD. In the Transition Experience Study, the lived experience of the social and medical gender transition was examined through interviews and surveys<sup>4</sup>. The progressive nature of the geopolitical climate in which participants lived was negatively correlated with allostatic load and physiological symptoms of stress. Sociodemographic advantage was also negatively correlated with markers of stress.

The concept that is often used to articulate the relationship between stress and adverse health outcomes in gender and ethnic minorities is minority stress theory (MST). To expand on MST and include consideration of various intersecting minority identities, the American Heart Association has developed the Intersectional Transgender Multilevel Minority Stress model, which relates health status to the "degree of stigmatization" (i.e., someone with multiple intersecting minority social identities will face a higher degree of stigmatization than someone with only one)<sup>2</sup>.

This model, along with other available literature on this subject, illustrates the relationship between social stigma and cardiovascular health. Transgender individuals face stigma at the individual level (i.e., internalized homophobia), the microsystem level (i.e., through enacted and perceived stigma in interpersonal interactions), and the macrosystem level (i.e., structural stigma)<sup>2</sup>. Thus, interventions intended to address stigma beyond the clinic will likely be required to reduce the minority stress faced by the TGD community, which in turn will impact their cardiovascular health outcomes.

## **Access to quality health care in the TGD community**

A study from the U.S. demonstrated significant disparities in access to health-care services between racial/ethnic and gender identities. White and cisgender patients have higher rates of health insurance and are more likely to have the financial capacity to pay for medical services, and transgender patients are more likely to delay seeking medical attention and report negative experiences with medical providers<sup>5</sup>.

In addition to general issues with health-care access, gender non-conforming individuals are faced with a unique set of challenges in the patient-provider relationship. For example, there are currently no standardized methods to collect information about gender identity in patient histories, thereby reducing the visibility of transgender patients in the health-care system<sup>6</sup>. In a study that looked at submission guidelines in obstetrics and gynecology journals, it was found that only a small proportion of journals used gender-inclusive language in their publication guidelines<sup>7</sup>. Along the same lines, health-care professionals typically do not receive sufficient education about the needs of the TGD community, so transgender patients that have access to health care often do not have access to care from providers that are intellectually equipped to handle the challenges that they face<sup>7</sup>. The attitudes of many health-care providers are another barrier to effective health care for the TGD community, as a study found that it is common for transgender women to undergo gender-affirming procedures in Thailand instead of in Australia, America, and Europe due to the inclusive and respectful environment that can be found in the Thai medical community<sup>8</sup>. In another study, nursing, health sciences, and medical students were found to exhibit homophobia when they were surveyed using the Hudson and Ricketts Homophobia Scale<sup>9</sup>.

These findings, among others, expose the heteronormativity of the health-care system. Homophobia is not only evident in individuals in the medical field but is also embedded in the system. Health-care professionals are not taught to consider the gender identities of their patients when providing care, which often forces TGD patients to advocate for themselves to receive proper medical care.

There were some publications that represented strides toward a more gender-inclusive approach to medical care. A narrative review by Rosendale et al. provides a brief guide to gender-inclusive medical care for clinicians and includes recommendations such as

using gender-neutral pronouns until a patient specifies their gender identity and taking an inclusive “anatomic inventory” that includes questions about whether patients have had gender-affirming surgery<sup>7</sup>. The Standards of Care for the Health of TGD People (the most recent version, the SOC-8, was published in 2022) is a periodic publication outputted by the World Professional Association for Transgender Health that provides guidance for clinicians on how to care for the TGD community<sup>10</sup>. Widespread integration of research such as this into the education of health-care professionals is crucial to making the clinical setting a safe space for TGD individuals.

## **The impact of gender-affirming hormone therapy on cardiovascular health**

According to the current knowledge base regarding the relationship between gender-affirming hormone therapy (GHT) and cardiovascular health, there is evidence to suggest that estrogen therapy as administered to transgender women increases their risk for venous thromboembolism over 5-fold. Testosterone therapy for transgender men has numerous physiological impacts, such as increasing hemoglobin and systolic and diastolic blood pressure. Hormone therapy also may lead to increased triglycerides, higher low-density lipoprotein cholesterol, and lower high-density lipoprotein cholesterol<sup>11</sup>. However, much of the available research exhibits mixed findings. For instance, the administration of estrogen seems to have some vasoprotective effects but is sometimes linked to higher incidences of adverse cardiovascular health outcomes<sup>12</sup>.

One study investigated a potential mechanism for the relationship between hormone therapy and cardiovascular health outcomes: inflammation, as measured by systematic and endothelial biomarkers, platelet activation markers, and coagulation markers. The principal finding was that hormone therapy modulates the expression of inflammatory biomarkers and therefore has an impact on hemostasis, which is a potential mechanism for the relationship between GHT and CVD<sup>13</sup>. Additional research on the mechanism by which GHT impacts cardiovascular health is limited.

Studies on GHT often have significant methodological concerns. For example, they generally only include participants younger than 50 years of age and are nearly all observational and thus do not lead to concrete conclusions. In addition, many of these lack adequate controls on confounding variables such as minority stress and HIV infection that could have a

significant impact on the incidence of adverse cardiovascular health outcomes.

The lack of research regarding gender-affirming hormone therapies and its impact on the quality of medical care received by TGD patients is representative of the significance of inclusive research endeavors. To create a more gender-inclusive medical field, more data elucidating the unique risks faced by transgender patients are required.

## Conclusion

Dismantling the web of structural violence that has led to higher rates of adverse cardiovascular health outcomes in the TGD community requires interdisciplinary collaboration. For example, the homophobia among pre-health students described by Harmanci Seren et al.<sup>9</sup> is a microcosm of broader patterns of homophobia in society. Educational reform in health-oriented graduate schools is important to create a generation of medical professionals who are aware of the unique struggles of the TGD community, but social initiatives that aim to address homophobia and gender bias on a broader scale are just as significant to create a shift in the social commentary about this community. As health-care professionals, cardiologists, and primary practitioners have the obligation to educate themselves about the transgender community and work to make their practice an inclusive and accepting environment. In addition, to echo the calls to action in many of the studies discussed in this report, inclusive and holistic data on this subject are needed. Specifically, there is a lack of controlled clinical trials regarding the therapeutic applications and side effects of GHT, as well as a paucity of studies intended to learn about the needs of the aging transgender community.

Ultimately, an overarching goal of all this work is to build trust among the TGD community in a health-care

system that has historically been heteronormative. Meaningful educational initiatives for health-care professionals and the broader society are imperative to building trust in the transgender community, as are research efforts that spotlight marginalized populations and make their voices heard. Creating a society with lower rates of CVD and narrower health disparities among social groups is a huge undertaking but one that can be made possible with meaningful and intersectoral collaboration.

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