

No birth sex ratio difference between Mexican and non-Mexican births in Mexico

To the Editor,

The sex ratio at birth is expected to be approximately 0.515, calculated as male births divided by total births (M/T), thus a slight excess of males. Acute stress in the general population may cause M/T depressions, as evidenced by the M/T dip observed after the Great Recession of 2007 in the United States (1). Significant racial differences have been noted and attributed to innate and minor physiological differences, but chronic stress has been proposed as a possible cause (2). A recent paper showed that M/T was depressed in Mexico when compared to a global reference dataset (3,4). This study was carried out in order to ascertain whether Mexican M/T was similar to M/T in non-Mexican births in the same study cohort (4).

Ethical approval was not required as data was comprised of free and anonymous datasets from the Instituto Nacional de Estadística y Geografía, Mexico's National Institute of Statistics and Geography. For the same reason, informed consent was not obtained. Live births by sex, year and nationality [Mexican or non-Mexican ("Extranjero")] were available for the period January 2010-December 2020.

The equations of Fleiss (binomial) were used to calculate 95% confidence intervals (CI) for proportions. A bespoke Excel sheet was used to perform chi square tests. A p-value <0.05 was taken to represent a statistically significant result. Mexican and non-Mexican births by sex, and M/T with 95% CIs are shown in Table 1. There was no significant M/T difference between the two groups. While racial disparities in M/T could theoretically be caused by innate physiological differences, it is also possible that the differences seen may be due to chronic stress (2). Support for this comes from a comparison of racial M/T in the United States which showed that M/T was higher in Whites than in American Indian/Alaska Native, and Black/African American births (5). This was probably due to the fact that in the United States, race remains the primary determinant of socioeconomic status and stress. This accords with the Trivers-Willard hypothesis of male foetal loss in this type of stress (2).

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Table 1. Mexican and non-Mexican births by sex, and M/T with 95% confidence intervals

	Mexican	Non-Mexican	Total
M	13,327,784	52,711	13,380,495
F	13,006,783	51,609	13,058,392
Total	26,334,567	104,320	26,438,887
UCI	0.5063	0.5083	0.5063
M/T	0.5061	0.5053	0.5061
LCI	0.5059	0.5022	0.5059

M: Male, F: Female, T: Total, UCI: Upper incidence interval, LCI: Lower incidence interval

This study indirectly supports the hypothesis that innate physiological differences do not appear to affect M/T, as there were no significant differences between the low Mexican M/T and non-Mexican M/T. However, the study was limited by small numbers and a lack of breakdown of what races or ethnicities constituted the non-Mexican births.

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