Title: How can we improve reporting of Chagas disease in Bolivia?

Problem: Background: Chagas disease is a parasitic disease known to cause severe cardiovascular complications. Available estimates from surveillance and modelling studies suggest increasing burden of YLDs of Chagas globally, with Bolivia having the highest prevalence of Chagas in the world. However, there has been no published systematic review on the descriptive epidemiology of Chagas disease in Bolivia.

Objectives: To summarize the descriptive epidemiology of Chagas disease in Bolivia by conducting a systematic review and meta-analysis of the published literature.

Approach: Three electronic databases and reference lists of selected articles for Chagas disease prevalence in Bolivia, performed from 1990 until October 2019 were searched. Random-effects meta-analyses were used to review studies, accounting for a priori heterogeneity, and sub-grouping and meta-regression were performed to understanding associative factors with heterogeneity.

Findings: Of the 14 papers reviewed, 3 were in schools, 2 were in blood banks, 2 were in hospitals 9 were in community-dwelling populations (adds up to 16 because 2 papers contained results from 2 independent studies). High heterogeneity was observed between studies, even when subgrouped by study setting or region. The community-based and school studies were sampled from high-endemic areas which may have contributed to biased prevalence estimates. The association of gender was unclear, but there was a trend of increasing prevalence with age.

Implications: The high between-study heterogeneity is likely due to the large variability in clinical characteristics such as study setting and region and methodological characteristics such as study design and choice of diagnostic method. Future studies should include more comprehensive demographic data, including study data collection period, mean age, number of males and females, and education level to reduce potential confounders, and provide more stratified prevalence estimates such as gender-specific and standardized age-specific estimates. This would facilitate more precise examination of disease burden across person, place, and time and allow for more thorough future systematic reviews. Lastly, there needs to be a standardized diagnostic method to reduce variability in measuring prevalence of Chagas.

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