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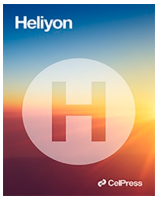

Correspondence

Response to a letter to the editor, "Studying the incidence of thyroid cancer in Ecuador: 2016–2021"

We appreciate the opportunity to respond to the letter from Dr. Lopez Gavilanez regarding our recently published article, "Thyroid cancer in Ecuador: A genetic variants review and a cross-sectional population-based analysis before and after COVID-19 pandemic" [1].

Our article aimed to provide a descriptive analysis of genetic variants and the incidence and mortality rates of thyroid cancer in Ecuador from 2016 to 2021. The main objective was not to perform a statistical analysis of time trends nor to predict future mortality or incidence rates. The study focus was to document the situation through data analyses from specific years, as it can reveal significant patterns and frequencies associated with thyroid cancer.

During the initial phases of the study, the authors' main limitation was the quality of the information. The authors acknowledged that this restriction may affect the incidence rate, stating in the manuscript that the Hospital Discharge Statistics Database, which includes anonymized records provided by the Ministry of Public Health, is not designed to discriminate between the multiple instances that the same patient enters and leaves a hospital.

The letter from Dr. Lopez Gavilanez states that a national tumor registries are used internationally to estimate incidence. The database employed in the current study represents the only accessible source of information, given the outdated status of Ecuador's tumor registry, which also fails to cover the entire national health system [2]. This situation is information that Dr. Lopez Gavilanez should be aware.

Furthermore, Dr. Lopez Gavilanez mentions that the authors do not take any statistical measures to mitigate the risk of case duplication nor perform a time series study to establish the trend of incidence and mortality of thyroid cancer. However, as stated in the article's Abstract and Introduction, the purpose of this study was to describe the genetic variants in the Ecuadorian population and explore the incidence and mortality patterns of thyroid cancer in Ecuador from 2016 to 2021.

It is important to note that while other studies could be conducted with the same data using different methods of statistical analysis of time series, the time period considered in the study may be too short for some of these techniques. In his letter to the Editor, Dr. Lopez Gavilanez asserts the superiority of Joint-point regressions, failing to acknowledge that different scientific approaches can be applied to a given problem. Such claim does not align with the scientific principle that encourages the exploration of diverse methodologies to achieve robust and reproducible results. For instance, within the temporal methods alone, there are several statistical techniques that can be used to carry out a robust trend analysis of the data: for example, Mann-Kendall, median trend (non-parametric Theil-Sen statistic), time series decomposition, software SATSAN, etc.

It is essential to understand that models simplify reality, which can be used to understand complex problems. The segmented regression model implemented in Joint-point software has been widely accepted and refined over the years; however, its applicability depends on the specific focus of a study and the data limitations. Our study's focus, time periods and data limitations guided our choice of methodology.

It is disappointing that Dr. Lopez Gavilanez has chosen to publicly question our methodology, a practice that authors have observed from him in other instances with similar suggestions in the same topic [3,4]. While we respect the right to academic discussion, such actions can be perceived as undermining collaborative scientific discourse. Moreover, constructive criticism should be based on a thorough understanding of the study's aims and limitations.

Furthermore, the value of Dr. Lopez Gavilanez's analyses and their potential contribution to the research landscape in Ecuador is recognized. Consequently, an invitation is extended to him to undertake similar research endeavors, as it is believed that his work possesses the capacity to enhance the collective comprehension of the subject matter.

In conclusion, the authors stand by the validity of our research and its contributions to the scientific community as this data is especially useful for understanding the burden of thyroid cancer in Ecuador and could potentially guide future research and public health policies. We welcome open dialogue and constructive feedback that advances our collective understanding of thyroid cancer epidemiology.

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CRediT authorship contribution statement

Elius Paz-Cruz: Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Santiago Cadena-Ullauri:** Writing – original draft, Writing – review & editing. **Patricia Guevara-Ramírez:** Writing – original draft, Writing – review & editing. **Viviana A. Ruiz-Pozo:** Writing – original draft, Writing – review & editing. **Rafael Tamayo-Trujillo:** Writing – original draft, Writing – review & editing. **Daniel Simancas-Racines:** Methodology, Writing – original draft, Writing – review & editing. **Ana Karina Zambrano:** Funding acquisition, Project administration, Supervision, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Elius Paz-Cruz
Centro de Investigación Genética y Genómica, Facultad de Ciencias de la Salud Eugenio Espejo, Universidad UTE, Mariana de Jesús Ave, Quito, Pichincha, 170129, Ecuador

Santiago Cadena-Ullauri
Centro de Investigación Genética y Genómica, Facultad de Ciencias de la Salud Eugenio Espejo, Universidad UTE, Mariana de Jesús Ave, Quito, Pichincha, 170129, Ecuador

Patricia Guevara-Ramírez
Centro de Investigación Genética y Genómica, Facultad de Ciencias de la Salud Eugenio Espejo, Universidad UTE, Mariana de Jesús Ave, Quito, Pichincha, 170129, Ecuador

Viviana A. Ruiz-Pozo
Centro de Investigación Genética y Genómica, Facultad de Ciencias de la Salud Eugenio Espejo, Universidad UTE, Mariana de Jesús Ave, Quito, Pichincha, 170129, Ecuador

Rafael Tamayo-Trujillo
Centro de Investigación Genética y Genómica, Facultad de Ciencias de la Salud Eugenio Espejo, Universidad UTE, Mariana de Jesús Ave, Quito, Pichincha, 170129, Ecuador

Daniel Simancas-Racines
Centro de Investigación en Salud Pública y Epidemiología Clínica (CISPEC). Facultad de Ciencias de la Salud Eugenio Espejo, Universidad UTE, Mariana de Jesús Ave, Quito, Pichincha, 170129, Ecuador

Ana Karina Zambrano[*]
Centro de Investigación Genética y Genómica, Facultad de Ciencias de la Salud Eugenio Espejo, Universidad UTE, Mariana de Jesús Ave, Quito, Pichincha, 170129, Ecuador

[*] Corresponding author. Mariana de Jesús Ave, no number, Quito, Pichincha, 170129, Ecuador.
E-mail address: anazambrano17@hotmail.com (A.K. Zambrano).