

About the “critical reflections” on the Municipal Epidemiological Resilience Index

Sobre las “reflexiones críticas” al Índice de resiliencia epidemiológica municipal

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Dear Editor,

In June 2021, a group of renowned Colombian scholars submitted to your Journal¹ an article with some reflections on the Municipal Epidemiological Resilience Index (IREM by its acronym in Spanish) proposed by the Colombian Ministry of Health and Social Protection as a tool for decision-making in the country's territories to boost economic reactivation and overcome the social and economic crisis caused by the COVID-19 pandemic. We would like to take advantage of this space to provide some analytical and interpretative insights on these reflections with the aim of enriching the discussion.

First, we want to emphasize the relevance of academia in society, as its role as a political actor is critical in ensuring democracy in countries that rely on its contributions to knowledge, citizen education, culture, research, technology, innovation, and societal development. In this sense, we value the reflections that aim to contribute to the welfare of the population. However, given the rejection of the IREM in the aforementioned publication,¹ we will discuss some factors that may provide the reader with a foundation for establishing their own opinion on the indicator's relevance and validity.

To begin, the authors believe that “a clear definition of epidemiological resilience that fits the scientific literature” is missing. Nevertheless, the definition of the construct to be measured is clear in the IREM technical documentation, which states that epidemiological resilience is understood as:

“The capacity of the territories to undergo economic, social and cultural reactivation at the current stage of the COVID-19 pandemic without causing (i) an increase in the number of severe COVID-19 cases; (ii) the collapse of specialized health services; and (iii) an increase in the number of deaths from COVID-19. This construct has been named Epidemiological Resilience, as it illustrates the capacity of the territory-population relationship, as well as the dynamic process of adaptively overcoming stressors while maintaining functioning. This interpretation deviates from previous social science ideas and should not be interpreted as a lack of risk in the territories.”

In this sense, what we want to emphasize is that, first, the IREM does not refer to other meanings of the term resilience, specifically those constructed by social and behavioral sciences on which there is no consensus; second, polysemic concepts are common in science because there are no universally accepted referents; and finally, language is dynamic, changing, and socially constructed, so the meaning suggested in this index is entirely acceptable.

Since the authors also questioned the validity of the IREM, it is important to clarify that, in the fields of measurement in health and development and validation of instruments, validity refers to how well an instrument measures the construct it intends to assess.³ In this case, face, content and construct validity must be analyzed, specifically and at the risk of being repetitive, based on

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the index’s construct, as described in its technical documentation, rather than on the name of the index, other constructs or concepts available in the literature, or external and subjective interpretations of what “should” be measured. Table 1 summarizes the definitions of each type of validity.

Table 1. Types of validity of measuring instruments.

Validity type	Definition
Content validity	Extent to which the content of the instrument adequately assesses a construct.
Face validity	Extent to which a measured instrument adequately covers the construct to be measured. It is a subjective assessment for which there are no standards and that may be influenced by the evaluators’ motivations.
Construct validity	Extent to which the instrument scores are consistent with the construct hypotheses

Source: Own elaboration based on Vet *et al.*⁴

On the other hand, when the reflections analyze each of the domains that comprise the IREM, which was constructed using a formative measurement model, the authors make a mistake in the critical analysis of the variable ‘vaccination’, leading them to inaccurate conclusions when they say:

“The proportion of the population vaccinated with a single dose accounts for 40% of the ‘vaccination’ value, whereas the proportion of people with a complete schedule accounts for 60%. Assuming that the entire population receives the first dose in the municipality (0.4) and that 16.6% of them have a complete scheme, this dimension alone would provide a value of 0.5 to the IREM (assuming that the minimum value is zero and the distance between the maximum and the minimum value is 1), thereby enabling the municipality to reactivate its restricted economic and social activities, regardless of the behavior of the other variables.”¹

The error is that, based on the assumptions proposed in the reflection, the value that this variable would provide in a municipality where the entire population has received the first dose of the vaccine and 16.6% already has completed the immunization schedule is 0.2498, not 0.5, because the latter value would require that 100% of the population have completed the immunization schedule. Therefore, it is essential to bear in mind that, although the weight of this dimension is 0.5, the values obtained in its measurement vary between 0 and 1.

Finally, the authors reiterate their opinion that using the IREM as a decision-making instrument to resume restricted economic and social activities is inappropriate. In this regard, it is worth noting that this proposal, like any other, should be given the opportunity to improve, an aspect that was considered since the index’s inception.² Nevertheless, what has been observed is that this tool efficiently discriminates the different territories of the country based on their capacity to restart restricted

economic, social and cultural activities without having a significant epidemiological impact on the population.

It is worth noting that some scholars signed a public statement expressing their concerns, observations, and requests in relation to Resolution 777 of 2021 of the Colombian Ministry of Health and Social Protection,⁵ specifically with regard to the IREM, and that the Ministry responded by creating a space for dialogue so that, together, alternatives to improve the instrument could be sought. Unfortunately, the authors decided to abandon the road of construction and preferred to publish a manuscript in an academic journal,¹ which put the discussion in a different setting from the one that leads to the articulation of efforts to optimize the index.

Their decision prompts us to reflect on the role that part of the academy plays when dealing with critical situations in the country, because it is not a matter of establishing who is right or wrong, but rather of finding ways to unite efforts to overcome adverse situations, with the health (in the broad sense) of individuals and communities as a priority.

Conflicts of interest

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References

- Eslava-Schmalbach J, Restrepo-Henao A, Guarnizo-Herreño C, Castillo J, Vega-Romero R, Arbeláez M, *et al.* Critical reflections about the Municipal epidemiological resilience index used for public policy decision-making regarding the control of the COVID-19 pandemic in Colombia. *Rev Fac Med.* 2021;69(2):e96644. <https://doi.org/10.15446/revfacmed.v69n2.96644>.
- Colombia. Ministerio de Salud y Protección Social (Minsalud). Análisis de la resiliencia municipal ante la apertura de espacios y servicios de bienestar poblacional en el marco de la epidemia por COVID-19. Version 2. Bogotá D.C.: MinSalud; 2021 [cited 2021 Jun 24]. Available from: <https://bit.ly/3waSDZA>.
- Mokkink LB, Terwee CB, Patrick DL, Alonso J, Stratford PW, Knol DL, *et al.* The COSMIN study reached international consensus on taxonomy, terminology, and definitions of measurement properties for health-related patient-reported outcomes. *J Clin Epidemiol.* 2010;63(7):737-45. <https://doi.org/fm689h>.
- de Vet HCW, Terwee CB, Mokkink LB, Knol DL, editors. *Measurement in medicine: a practical guide.* Cambridge: Cambridge University Press; 2011.
- Colombia. Ministerio de Salud y Protección Social. Resolución 777 de 2021 (junio 2): Por medio de la cual se definen los criterios y condiciones para el desarrollo de las actividades económicas, sociales y del Estado y se adopta el protocolo de bioseguridad para la ejecución de estas. Bogotá D.C.; junio 2 de 2021 [cited 2021 Jun 30]. Available from: <https://bit.ly/3wFW4Zu>.