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Assessing the Performance of the Healthcare Access and Quality Index: A Methodological Challenge in Global Health Metrics

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Abstract

The quantification of healthcare access and quality (HAQ) has long been a methodological challenge due to disparities in data availability, inconsistencies in measurement approaches, and also the complexity of disentangling health system performance from socioeconomic determinants. Here, the aim is to present an innovative and refined methodology for measuring the HAQ Index across 204 countries and territories in a 30-year time period. This approach marks a significant advancement in global health metrics by integrating mortality-to-incidence ratios (MIRs) and risk-standardized death rates (RSDRs) to isolate healthcare performance from other confounding variables.

This approach builds upon the Nolte and McKee concept of amenable mortality –deaths that should not occur given timely and effective medical intervention –by refining its operationalization. Unlike previous versions of the HAQ Index, which relied on principal component analysis (PCA) weighting schemes, here an arithmetic mean of scaled MIRs and RSDRs across 32 conditions is employed. Such methodological shift enhances interpretability while maintaining the robustness of prior iterations.

A novel contribution of this approach the age-specific stratification of the HAQ Index into three groups: young (0–14 years), working (15–64 years) and post-working (65–74 years). This allows for a more nuanced assessment of healthcare access and quality over the life course, addressing a very significant gap in previous global health assessments. Each group's HAQ Index was computed separately, ensuring that observed changes reflect real healthcare performance improvements rather than demographic shifts.

To further refine the metric, absolute convergence analysis was conducted to assess whether countries with initially lower HAQ scores exhibited faster improvements over time. This convergence analysis was performed using the Socio-Demographic Index (SDI), allowing for differentiation between improvements driven by healthcare access versus broader socioeconomic progress. In this approach, integrating MIRs and RSDRs minimizes biases from disease incidence, improving in turn accuracy. Age-stratified measurement addresses a major limitation of previous indices, revealing persistent disparities in healthcare access among working-age and older adults despite improvements for younger populations. The transition from PCA to an arithmetic mean scoring system enhances interpretability while maintaining robustness. Furthermore, absolute convergence analysis enables a longitudinal assessment of healthcare improvements in lower-performing regions. All these refinements create a more reliable and actionable framework for evaluating healthcare access and quality globally.

This methodological advancement can be used for benchmarking progress and informing health policy. More specifically, the refined HAQ Index holds significant potential for integration into universal health coverage assessments, cross-country performance comparisons, as well as targeted health system interventions –which is currently the need in public and global health. The demonstrated divergence in HAQ Index scores among working-age and older adults underscores the urgency of policy action to ensure equitable healthcare access across all age groups. Future iterations may also further refine risk-adjustment methodologies and expand to incorporate additional indicators reflecting primary care effectiveness and health system resilience.

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