Editorial
Journal of Rafsanjan University of Medical Sciences
Vol. 24, March 2026, 1084-1085

An Introduction to the Global Burden of Disease Study

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The Global Burden of Disease (GBD) study first emerged in 1991. The first article resulting from this study, published in 1993, included a report on 106 diseases and 10 risk factors across eight global regions for the year 1990. Since 2010, the Institute for Health Metrics and Evaluation (IHME) at the University of Washington has led the Global Burden of Disease study (1).

Since then, continuous data revision has been on the agenda, with the most recent revision taking place in 2023. The preliminary results of this revision were published in October 2025 in three articles. In the latest iteration, data concerning 375 diseases and injuries, along with 88 risk factors, were published for 204 countries and 660 subnational regions. The sources from which this data was compiled exceed 310,000, including vital registration systems, surveys, disease registries, and published scientific literature (2-4).

An innovation of the GBD study is its use of the DALY (Disability-Adjusted Life Year) concept, which is calculated as the sum of Years of Life Lost (YLLs) and Years Lived with Disability (YLDs) (1). This composite index provides a unique opportunity to examine the extent to which a disease or injury leads to years of life lost due to premature mortality versus years lived with disability.

Another innovative aspect of GBD is its use of a collaborative network, today exceeding 19,000 collaborators from 167 countries (5). This vast global network helps ensure that the GBD estimates are closer to reality through a precise understanding of the challenges specific to each country or region. Furthermore, by providing their insights based on diverse expertise, these collaborators contribute to improving the quality of the published GBD articles. Collectively, these factors ensure that these articles are published in the world's top health science journals and made available to interested readers.

Despite the importance of the GBD study in providing up-to-date estimates of diseases and injuries globally, it suffers from several problems and limitations. Its most significant limitation stems from the fact that many low- and middle-income countries do not possess reliable systems for estimating diseases or injuries. Even in cases where they may have seemingly reliable data systems, they often do not report this data officially or provide it to the World Health Organization. Consequently, the GBD study is forced to estimate the burden of diseases and injuries in such countries using older national data or relatively newer local reports (2-4). Although every effort is made to carry out such estimates using the best available statistical models, they may still deviate from reality (6).

Another issue is that GBD data is made available to the public for free after publication. This has led to numerous other articles on specific problems being published by individuals outside the core team. Unfortunately, many of these articles either republish redundant data or add very little to existing knowledge. For instance, it has been shown that several similar or low-value articles have been published on the burden of headache (7). Consequently, the GBD has

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recently been developing stricter guidelines for publishing articles based on its data, and it has even been proposed to restrict access to its estimates to those outside the collaborator network (7).

Finally, another criticism directed at GBD-related articles is their typically high number of authors due to the global network. At times, the number of authors for these articles may exceed one thousand. This phenomenon is termed "hyper-authorship," which is an acceptable phenomenon for increasing the quality of articles (8). However, since the GBD study used very simple criteria for authorship in the past, it allowed individuals with minimal participation to be listed as authors. To address this problem, the GBD study has implemented stricter selection criteria for authors in recent years. For example, they now require the collaborator network to refrain from using artificial intelligence in the study of any article before publication, relying solely on their own knowledge. Furthermore, their level of contribution in providing constructive feedback to improve the quality of an article must be significant enough to justify their inclusion as an author.

Citation: Rezaeian M. An Introduction to the Global Burden of Disease Study. *J Rafsanjan Univ Med Sci* 2026; 24 (12): 1084-5. doi: 10.66224/jrums.24.12.1084.

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