proceedings

MDPI

Abstract

Quantifying the Coexistence of Multiple Forms of Malnutrition: A Systematic Literature Review and Meta-Analysis of Prevalence Estimates across Latin America †

Diana Sagastume [1,2,*], Antonio Barrenechea-Pulache [1], Manuel Ramírez-Zea [3], Lenka Beňová [1] and José L. Peñalvo [2]

[1] Institute of Tropical Medicine Antwerp, 2000 Antwerp, Belgium; antonio.barrenechea23@gmail.com (A.B.-P.); lbenova@itg.be (L.B.)
[2] Global Health Institute, University of Antwerp, 2610 Wilrijk, Belgium; jose.penalvo@uantwerpen.be
[3] Institute of Nutrition of Central America and Panama, Guatemala City 1188, Guatemala; mramirez@incap.int
* Correspondence: dsagastume@itg.be
† Presented at the 14th European Nutrition Conference FENS 2023, Belgrade, Serbia, 14–17 November 2023.

Abstract: Background: Estimating the prevalence of the double burden of malnutrition (DBM) remains challenging in Latin America and the Caribbean (LAC), where DBM typologies are heterogeneous and estimates are scattered across the literature. We aimed to comprehensively appraise the evidence and estimate the prevalence of any typology of DBM in LAC. Methods: A systematic search was conducted on PubMed, Embase, Scopus and Web of Science to identify studies on the prevalence of DBM published in English, Spanish, French or Portuguese between 1 January 2000 and 23 January 2023. The primary outcome was any typology of DBM derived from combining levels (individual, household, across the life course) and identified DBM typologies. The data extraction and methodological quality assessment were conducted in duplicate. Random effect meta-analyses of proportions were used to estimate the pooled prevalence, stabilized using the Freeman–Tukey transformation. Heterogeneity was assessed using Cochran's Q and I2-statistics. PROSPERO-CRD42023406755. Results: In total, 754 records were identified, of which 60 (8%) studies were eligible, with a median 4379 individuals, including 314 DBM estimates. Most studies were nationally representative surveys (68%), had a low risk of bias (70%) and came from South America (53%). In total, 40% of DBM estimates corresponded to the individual level, where the most frequent typologies were 'overweight + stunting' among <18 years, and 'overweight + anemia' among >18 years. The household level represented 59% of estimates, where 'adults with overweight + child with stunting' was the most frequent typology. The pooled prevalence of any typology of DBM was 4% (95% prediction interval: 4–5%). For the individual level, the most contributing typology for <18 year was 'overweight + anemia', 3% (2–5%), and for >18 year, 'overweight + short stature', 22% (14–30%). The typology of 'adults with overweight + child with stunting, 9% (8–9%), contributed the most at the household level. The pooled prevalence estimates carried large heterogeneity (I2 > 90%). The preliminary source of heterogeneity was the setting, as Mesoamerica and South America had 5% prevalence of DBM and the Caribbean had 2%. The DBM across individuals' life course could not be estimated due to the scarcity of estimates. Conclusion: The prevalence of multiple forms of malnutrition in LAC varies between 2 and 5%. Adult with overweight are the most common contributor to DBM across levels and typologies. Substantial progress can be made in curbing the burden of DBM in LAC through strategies addressing overweight within the general population.

Keywords: double burden of malnutrition; Latin America; meta-analysis

check for updates

Citation: Sagastume, D.; Barrenechea-Pulache, A.; Ramírez-Zea, M.; Beňová, L.; Peñalvo, J.L. Quantifying the Coexistence of Multiple Forms of Malnutrition: A Systematic Literature Review and Meta-Analysis of Prevalence Estimates across Latin America. *Proceedings* **2023**, *91*, 88. https://doi.org/10.3390/proceedings2023091088

Academic Editors: Sladjana Sobajic and Philip Calder

Published: 27 November 2023

Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

Author Contributions: Conceptualization, D.S. and J.L.P.; methodology, D.S., A.B.-P. and J.L.P.; formal analysis, D.S.; investigation, D.S. and J.L.P.; writing—original draft preparation, D.S. and J.L.P.; writing—review and editing, D.S., A.B.-P., M.R.-Z., L.B. and J.L.P.; visualization, D.S.; supervision, D.S. and J.L.P. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.