Inequalities in health among migrants. A bibliometric approach for knowledge-based policy recommendations

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Abstract: There are several socioeconomic and demographic factors (gender, education, employment, income, ethnicity) that influence not only how healthy a person is but also whether and how a person access and utilize health care services. In this case, inequalities in access to health care are identified when systematic differences among different population groups arise. Regarding ethnicity, even if migrants tend to be healthier than natives, literature has shown that there are important differences when analyzing access to health care services between native and migrant populations. Within this context, the main purpose of this research is to explore the scientific production on health access inequalities applying bibliometric techniques to analyze scientific productivity, extract its central themes and explore changes over time. This exploratory approach allows to identify the key subjects discussed across academic communities and to present findings as potential policy recommendations, which remains particularly important given that inequalities in healthcare access have significant social and economic costs both to individuals and societies.

Keywords: Inequalities, migrants, health, bibliometric.

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1. Introduction and objectives

Since the early ninety-sixties, scholars have found a downward slope regarding health differences (in terms of one of both outcomes and/or access) across groups of population not only across every country around the globe but also within countries (inside national boundaries). This slope materializes itself into the socioeconomic gradient of health outcomes or health care access among individuals having diverse characteristics, which have been defined as health inequalities.

Health inequalities are the result of a highly complex mix of conditions and experiences and/or access to resources, which might exist alone or combine to cumulate. On one hand, conditions and experiences characterize individuals which are born, live, work, and grow older in a certain context; here individuals might differ on their health outcomes and access in terms of their gender, education, income, personal networks, migratory status, and social relations, among others. On the other, each individual get access to resources and decision-making processes (to its own degree); such as the access to: social protection measures (affordable child services or housing, sickness and unemployment protection, pensions, etc.), healthy housing and settlement, quality health services and prevention measures, or access to other financial and non-financial services.

Alone or together, conditions-experiences of individuals and their degree of access to resources/decision-making processes are negatively impacted by discrimination, which often affects women, older people, people with disability, or could be based on ethnicity (migratory status) or sexual identity. Discrimination is often exerted by individuals but could also be exerted by institutions. In this case, when social institutions discriminate, entire groups of population might be at risk of receiving inferior services or having different access to health services which, in contrast, could influence their chances to enjoy healthier lives.

Health is a fundamental human right. Thus, identifying differences in health outcomes and access to health services and its main drivers is extremely important for reducing health inequalities and progress towards health equity, allowing everyone to attain their full potential for health and well-being (WHO Thirteenth General Programme of Work). Both academic and institutional research on health inequality has a long-standing tradition and remains the main source of knowledge for policy making in developed countries and in multicultural and aged modern societies. Previous studies have shown that one of the central themes capturing the attention from research on health inequalities/disparities in recent decades were those focused on differences between natives and migrants and/or among migrants (Benach

de Rovira, 1995; Almeida-Filho et al., 2003). According to United Nations data, today there are nearly 1 billion migrants globally (including international migrants and forcibly displaced), which represent about 1 in 8 of the global population. Thus, in the first place, the increasing importance of international migration as a growing phenomenon is changing the structural composition of societies; in the second, the experience of migration becomes a key determinant of health and well-being. In fact, migrants remain among the most vulnerable population subgroups of modern societies because they often face discrimination, and poor living, housing, and working conditions along their biographies; and inadequate access to health care services, despite being frequently affected by physical and mental health problems (once the healthy migrant effect vanishes) (IOM 2009, Rechel et al. 2013, WHO 2022).

If compared to bibliometric studies based on health inequalities, analyses regarding the scientific production on migrants' health are still scarce. However, there are few recent studies on this subject that are relevant to our analyses and deserve to be highlighted. For example, Sweileh et al. (2018) examined the growth of publications, the geographical distribution of authorship, international research collaborations and highly cited articles in the health of international migrants.

have been focused on a specific region or country or groups of countries (Benach de Rovira, 1995; Almeida-Filho et al., 2003; Ritz et al., 2010), on health systems (Yao et al., 2014) or health reforms (Macías-Chapula, 2002). Other recent studies important to our analysis have considered citation practices, and the most productive authors and journals in health inequalities (Bouchard et al., 2015); North-South gaps and international collaborations (Cash-Gibson et al., 2018); and the citation-space and the roles of several factors on its structure (Collyer and Smith, 2020).

Considering the increasing relevance of migrants' health among the main emerging themes in research on inequalities (Sweileh et al., 2018), this paper is aimed at providing a comprehensive snapshot of national and international contributions to literature in migrants' health inequalities, information needed to identify gaps that future research could fulfil. In order to achieve this goal, firstly, we describe the evolution that the amount of the academic production on health inequalities/disparities/equity in migrant groups have had over an extended period of time (1991-2022) and, secondly, we identify which the main topics under study and map the specific roles that main topics have had within the academic production. Other authors have recently focused on Nordic countries (Laue et al., 2023; Kumar et al., 2022), analysing whether and how health inequalities in general, and inequalities due to migrant status, in particular, have been monitored. From a different perspec-

tive, some scholars inquired on the increasing inequalities on migrant health caused by the COVID pandemic (i.e.: Alarcão et al., 2022).

2. Data collection and methodology

In this paper we employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) model proposed by Moher et al. (2009) to retrieve scientific publications (Figure 1). PRISMA offers a comprehensive framework that outlines the criteria for selecting articles in a systematic literature review, ensuring transparent and reproducible selection processes. To retrieve the articles, we accessed the Web of Science (WoS) indexing database, specifically the Science Citation Index Expanded (SCI expanded) and the Social Science Citation Index (SSCI) Web of Science Core Collections maintained by Clarivate Analytics. We constructed a query using the commonly used English terms "Health" and "Inequality" to describe the topic. Following the initial phase of PRISMA, the query used for document search in the WoS database was as follows: health AND migrants AND inequalit* OR health AND ethnic AND inequalit* OR health AND race AND inequalit* OR health AND migrants AND inequit* OR healt AND ethnic AND inequit* OR health AND race AND inequit* OR health AND migrants AND disparit* OR health AND ethnic AND disparit* OR health AND race AND disparit*. Quotation marks were used to retrieve records with exact term sequences, while asterisks served as wildcards to capture term variations. Data collection occurred in early July 2023. We refined the search by selecting only articles, proceedings papers, review articles, and book chapters published in English between 1991 and 2022, based on the relevance of their content. We collected bibliographic data, including titles, abstracts, author names, keywords, and cited references. The documents were exported to PlainText format and screened by two selectors (AS and LD) to include only relevant and coherent documents. After excluding records without abstracts and those focusing on detailed medical procedures or practices, a total of 6,799 (you can see all detailed procedure in PRISMA chart, figure 1) documents were retrieved. For conducting bibliometric analyses on the entire collection, we employed the bibliometrix R open-source package (Aria and Cuccurullo, 2017), which facilitates quantitative research in scientometrics and bibliometrics. This study utilized bibliometric analysis to examine the conceptual structure of publications within a specific scientific field, enabling the generation of clusters that provide a comprehensive overview of diverse research in the field (Börner et al.,

2003). To explore the conceptual structure, we utilized two complementary analyses: co-occurrence network analysis and thematic mapping. These approaches facilitated the identification of relationships among terms, key research themes, and their development. The degree of similarity between publications was determined by the extent of shared keywords, indicating their association within the same research field. Co-occurrence network analysis (Wang et al., 2019) specifically captured themes represented by sets of terms extracted from documents, such as author and journal keywords. This technique quantified the frequency of term co-occurrence in the document collection and normalized the results using the association index proposed by Van Eck and Waltman (2009). The resulting co-occurrence matrix was represented as an undirected weighted network. Community detection, performed using the Walktrap algorithm (Pons & Latapy, 2006), identified strongly linked groups of terms sharing common characteristics or playing similar roles within the network (Aria et al., 2022). We employed thematic mapping, a two-dimensional representation of network findings proposed by Cobo et al. (2011), to visualize the identified themes. The x-axis represented Callon centrality, indicating the level of significance that a theme holds within the research field, while the y-axis represented Callon density, reflecting the degree of theme development (Callon et al., 1983). This combination of measures facilitated the identification of four types of topics based on their location on the map. The first quadrant of the map represented highly significant and well-developed motor themes. The second quadrant encompassed isolated or niche themes with limited external links, resulting in low centrality and limited importance for the broader research field. The third quadrant captured emerging or declining themes, indicating weak or marginal development. The fourth quadrant identified basic and transversal themes that cut across different research areas. Each theme was represented as a network cluster on the map, with the bubble name indicating the word with the highest occurrence within the cluster, and the bubble size representing the proportion of word occurrences within the cluster. By employing these methodologies, our study effectively mapped the conceptual structure of the collected scientific documents, thereby revealing significant research topics and trends in the field of population aging.

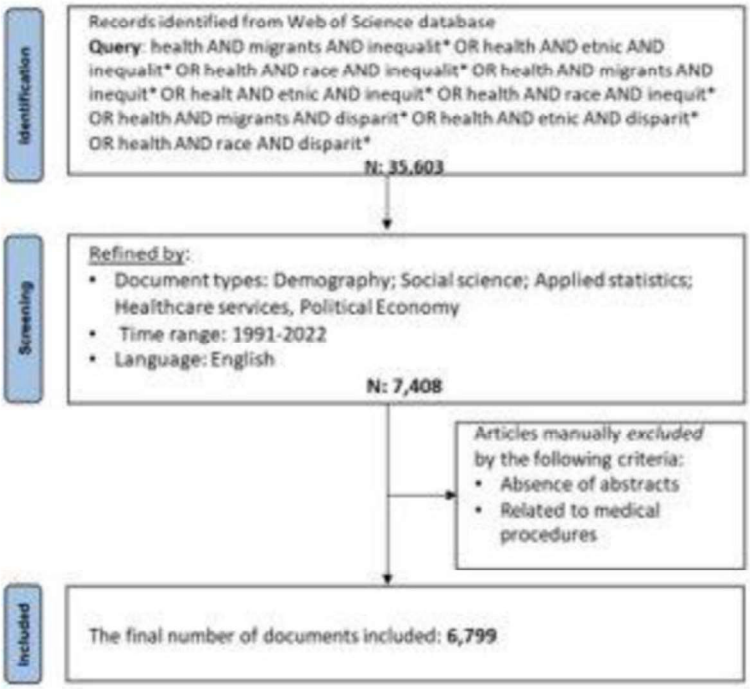

Figure 1. Data retrieval. PRISMA chart for migrants' health query.
Source: Own elaborations based on data retrieval.

3. Preliminary results

The initial information extracted from the utilized library allowed us to outline a descriptive overview of the analyzed corpus. There are 1,532 sources, a relatively high number considering the applied filters, this can suggest that there are a high number of journals interested in the theme. The average number of citations per document amount to approximately 37.44, high activity in the community about this field. The total number of authors is 19,189, with 762 documents having single authors. Figure 2 displays the growth of scientific production over the examined time interval for this analysis, with an overall annual growth rate of 20.17 %. The graph shows that the growth in scientific production has been very high in recent years. In fact, it can be seen that until 2012 the number of published papers was 1,780, and since 2013, in the last 10 years, have been published 4,751 papers. These results show high activity, with high collaborations and citations but a rather low number of actual publications.

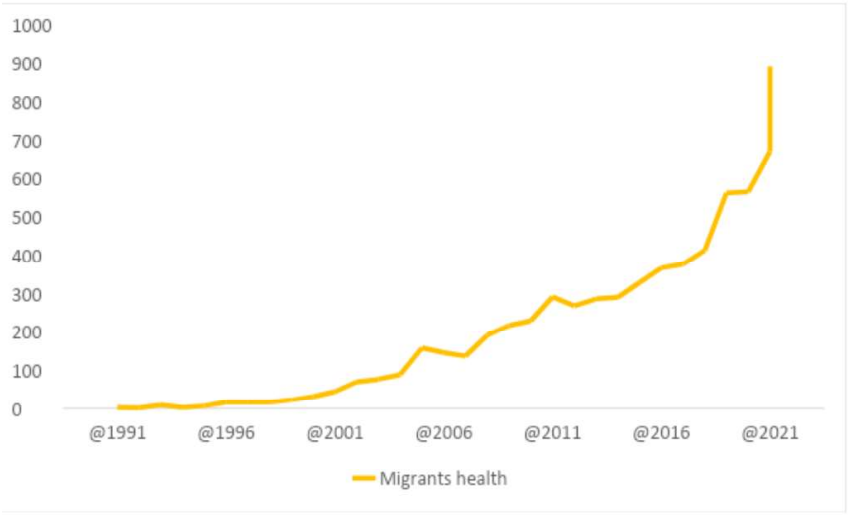

Figure 2. Temporal evolution of the scientific production about migrants' health.
Source: Own elaborations based on data retrieval.

The map in Figure 3 shows the five themes extracted from the papers by the model, the diameter of areas of each cluster represents the cluster frequency. The cluster with the higher frequency is labelled with keywords "racial disparities, population, women, ethnicity, racism", this represents basic themes with a transversal dictionary, low density but high centrality. The next three clusters have appreciably the same diameter. The first is "ethnic disparities, perception, cultural competence. physician, communication", this cluster represents a niche discourse, with low centrality but high density. Another is "african-american, residential segregation, us, infant-mortality, age", this cluster is a motor theme, with high density and centrality. While the cluster labelled with "stress, perceived discrimination, depressive symptoms, psychological distress" is difficult to classify. Because it is between the four quadrants we can not classify the theme inside a specific role. In conclusion, the theme with keywords "migrant, paradox, countries, rated health, europe" is emerging or declining. We can not be sure which of the two types because we need a longitudinal analysis to understand if the themes decline or emerge.

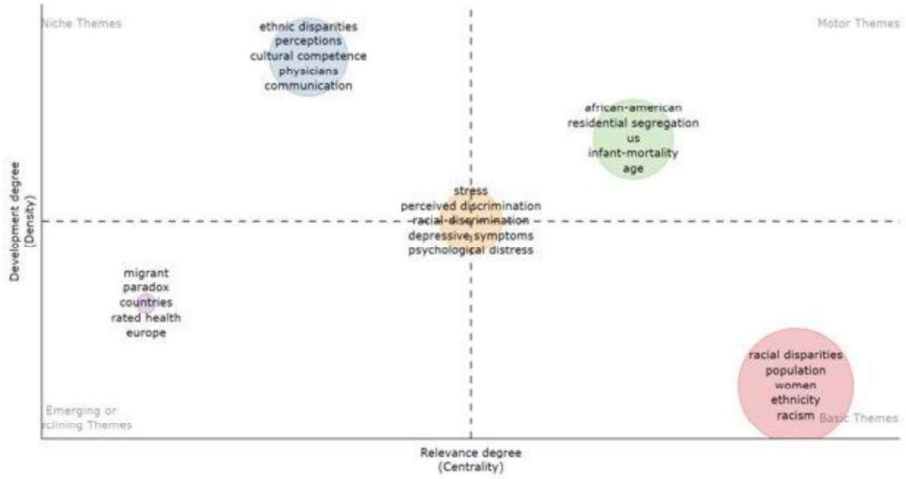

Figure 3. Thematic maps of the scientific production on migrants' health.
Source: Own elaborations based on data retrieval.

4. Concluding remarks and some recommendations

Undoubtedly, research on how to improve the health of migrants is relevant to inform not only policy makers and stakeholders but also the healthcare personnel. Our bibliometric analysis has shown that the attention given to migrants' health has significantly increased recently, as reflected by the growing number of publications. Through the mapping of research on migrants' health inequalities we identified some gaps (in terms of health differences among different migrant groups and the link to the context of the health system) and can suggest lines for future research that need to be further addressed. As most previous bibliographic research has focused on a specific territory, our contribution is to provide an overview of the main characteristics of the entire research activity on the different health challenges faced by migrants worldwide. However, enhancing the bridge between the results obtained by these studies and policy making and implementation remains the central issue that must be faced. One of these enhancing measures could be to look for more accurate and innovative forms of knowledge integration on health inequalities between natives and migrants or among migrant groups between researchers, policy makers, stakeholders and health personnel to measure the impact of actions and strategies that have been developed. Future research following a bibliometric perspective, must deal with the identification of policy guidelines and interventions

proposed and studied by the scientific production on migrants' health inequalities or disparities and their evolution over time and across and within countries and migrants' subgroups.

Finally, one of the most important findings arising from this study regards data availability. In fact, in order to further support the development of the academic production on migrants' health, data about their health status and health care access must be unlocked, guarantying availability.

References

Alarcão V, Virgolino A, Stefanovska-Petkovska M, Neves J. Exploring the Effects of the COVID-19 Pandemic on Mental Health and Well-Being of Migrant Populations in Europe: An Equity-Focused Scoping Review. Behav Sci (Basel). 2022 Oct 14;12(10):393. doi: 10.3390/bs12100393. PMID: 36285962; PMCID: PMC9598275.

Almeida-Filho, N., Kawachi, I., Filho, A. P., & Dachs, J. N. W. (2003). Research on health inequalities in Latin America and the Caribbean: bibliometric analysis (1971–2000) and descriptive content analysis (1971–1995). American Journal of Public Health, 93(12), 2037-2043.

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. Journal of informetrics, 11(4), 959-975.

Aria, Massimo, Cuccurullo Corrado, D'Aniello Luca, Misuraca Michelangelo, and Spano Maria. 2022. Thematic analysis as a new culturomic tool: The social media coverage on COVID-19 pandemic in Italy. Sustainability 14(6) 3643.

Börner, K., Chen, C., & Boyack, K. W. (2003). Visualizing knowledge domains. Annual review of information science and technology, 37(1), 179-255.

Callon, Michel, Courtial Jean Pierre, Turner William A., and Bauin Serge 1983. From translations to problematic networks: An introduction to co-word analysis. Social Science Information 22 (2), pp. 191-235

Cobo, Manuel J., López-Herrera A. G., Herrera-Viedma Enrique, and Herrera Francisco 2011. Science mapping software tools: Review, analysis, and cooperative study among tools. Journal of the American Society for information Science and Technology 62(7), 1382-1402.

De Rovira, Joan Benach. 1995. "Análisis bibliométrico de las desigualdades en n salud en españa (1980-1994)." Gaceta Sanitaria 9.49: 251-264.

Kumar BN, Diaz E, Castaneda AE, Ahrne M, NØrredam ML, Puthoopparambil SJ.

Migration health research in the Nordic countries: Priorities and implications for public health. Scandinavian Journal of Public Health. 2022;50(7):1039-1046. doi:10.1177/14034948221125037

Laue J, Diaz E, Eriksen L, Risør T. Migration health research in Norway: a scoping review. Scand J Public Health. 2023 May;51(3):381-390. doi: 10.1177/14034948211032494. Epub 2021 Oct 5. PMID: 34609260; PMCID: PMC10251465.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & TP Group. (2009). Linee guida per il reporting di revisioni sistematiche e meta-analisi: il PRISMA Statement. PLoS Med, 6(7), e1000097.

Pons, Pascal, and Latapy Matthier. 2006. Computing communities in large networks using random walks. J. Graph Algorithms Appl., 10(2), 191-218.

Sweileh, W.M., Wickramage, K., Pottie, K. et al. Bibliometric analysis of global migration health research in peer-reviewed literature (2000–2016). BMC Public Health 18, 777 (2018). https://doi.org/10.1186/s12889-018-5689-x

Van Eck, Nees, and Waltman Ludo. 2009. How to normalise co-occurrence data? An analysis of some well-known similarity measures. Journal of the American society for information science and technology 60, 1635–1651

Wang, Haifeng, Zhao Yapu, Dang Beilei, Han Pengfei, and Shi Xin. 2019. Network centrality and innovation performance: the role of formal and informal institutions in emerging economies, Journal of Business & Industrial Marketing 34(6), pp. 1388-1400Winston, A