Viewpoint

Creating psychoneuroimmunology research networks in Ibero-America

Maria Elisa Caetano-Silva*, Rafael J. González-Ricón**, Izan Chalen, Catherine A. Best-Popescu, Adrienne M. Antonson, Keith W. Kelley

University of Illinois at Urbana-Champaign, Edward R. Madigian Laboratory, 1201 West Gregory Drive, Urbana, IL, 61801, USA

Over 40 years ago, Robert Ader coined the term “psychoneuroimmunology” (PNI) (Kelley et al., 2021). This field brought together immunologists, neuroscientists, and behaviorists to advance systemic physiology at all levels. Subsequent advances in PNI were driven by many factors, with the PsychoNeuroImmunology Research Society (PNIRS) playing a leading role. Key developments include: (1) Launching of the scientific journal, *Brain, Behavior, and Immunity*, in 1987. This journal has long ranked in the top 15% of all periodicals in immunology, neuroscience, and psychiatry, with a current impact factor of 19.2. It became the official journal of PNIRS in 2000. Since then, the journal has grown substantially, expanding with two sister journals, *Brain, Behavior, and Immunity – Health and Brain, Behavior, and Immunity – Integrative*. (2) Establishing PNIRS as a formal biomedical research society in 1993 (www.pnirs.org). This organization has met every year since its formation (except in 2020 due to the COVID19 pandemic) and is the leading scientific society dedicated to promoting PNI research (Kelley et al., 2021). (3) Creating a standing committee of PNIRS in 2012 – designated PNIRSAsia-Pacific – to promote global collaborations on Eastern health practices and medicine. Thanks to this initiative, 18 formal PNI symposia featuring nearly 100 expert speakers from both the East and West have lectured in cities as far north as Beijing, China and south as Queenstown, New Zealand, including many countries in between (Kelley et al., 2020).

This Viewpoint introduces a fourth important PNIRS initiative that is also aimed at promoting global research in PNI: PNIRSIbero-America.

Ibero-America consists of American and European countries where Spanish or Portuguese are the predominant languages. Health issues in these regions are complex due to wide population diversity, mostly caused by migration during the last 50 years. Following the provision of economic resources to Ibero-America, however, countries with the greatest inequality and poverty have made considerable advancements. These countries achieved significant reductions in both the incidence and prevalence of numerous infectious diseases, including malaria, tuberculosis, and tetanus (Organizació n Panamericana de la Salud y Secretar í a General Iberoamericana, 2018). According to the 2018 Report of Cooperation South-South and Triangular in Ibero-America (Organizació n Panamericana de la Salud y Secretar í a General Iberoamericana, 2018), advances in primary medical care for mothers and newborns have dramatically reduced roughly 40% of maternal mortality over 10 years. On the other hand, chronic conditions such as cancer, diabetes, mental health disorders, as well as chronic respiratory and cardiovascular diseases have not been targeted and today represent 75% of health care costs. Systemic inflammation is especially important in various chronic health disorders, including heart disease, mental health, myalgia, fatigue, and age-associated changes in cognition. Inflammation has long been a major focus of PNI scientists, and PNIRSIbero-America aims to bring more of this expertise to all countries in the region.

From a broad perspective, Ibero-America lacks information about lifestyle patterns in the context of disease. Additionally, economic and societal changes related to late industrialization have raised new health issues that warrant investigation. During the SARS-CoV-2 pandemic, concern for the physical and psychological health of older adults increased. Ibero-America was disproportionately affected by the pandemic, and some of the challenges to its health systems were exposed. However, vaccination programs were successful (González et al., 2020; Mathieu et al., 2021), highlighting the importance of cooperative initiatives within the Ibero-American community. Additionally, state governments increased cooperation to share resources, including vaccine doses (Juliá and Toscano, 2021). This success forms an important precedent for establishing new research and clinical networks like PNIRSIbero-America to help tackle future health challenges.

Like much of the industrialized world, Ibero-America is experiencing disproportionate growth within the elderly population. It is unclear if Ibero-American health systems will be able to adjust appropriately to this new reality (Soto-Perez-de-Celis et al., 2018). The urgency of addressing these challenges has been recognized by the Ibero-America

* Corresponding author.
** Corresponding author.

E-mail addresses: elisacs@illinois.edu (M.E. Caetano-Silva), rafaelg4@illinois.edu (R.J. González-Ricón).

https://doi.org/10.1016/j.bbih.2022.100532
Received 30 September 2022; Accepted 1 October 2022
Available online 4 October 2022
2666-3546/© 2022 Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
Program of Cooperation on the Situation of Older Adults. This program is coordinated by two organizations in the Ibero-America system (the Ibero-America General Secretariat and the Ibero-America Organization of Social Security) and eight of the member countries (Soto-Pérez-de-Celis et al., 2018).

Despite these new initiatives, health research output, as well as the percentage of faculty with Doctorate of Philosophy (PhD) degrees remains relatively low. Throughout the previous decade, however, the total number of scientific publications from Ibero-American countries has grown, as has the number of faculty with doctoral degrees, indicating that health and economic growth is soon to follow. Integrative PNI research that brings together immunologists, neuroscientists, behaviorists, and psychiatrists in Ibero-America will be an essential component of this growth.

The authors of this Viewpoint article, including aspiring young scientists from Brazil, Ecuador, and Uruguay, have been inspired by the success of PNIRSAsia-Pacific. They aim to extend this idea to all Ibero-American countries. With the experience and guidance of Keith W.
Kelley, Professor Emeritus of Immunophysiology (University of Illinois at Urbana-Champaign), his faculty colleagues Adrienne M. Antonson and Catherine A. Best-Popescu, and the PNIRS, a pilot program is being created to form a network of PNI scientists from the entire Ibero-American community. The aim is to increase the number of PNI collaborations throughout the region, share relevant information such as funding opportunities and available positions, and organize symposia throughout Ibero-America with lectures by PNI experts from around the world.

Substantial early progress has already been made. The support and interest of several respected PNI scientists from different Ibero-American regions has been secured. The proposal to initiate PNIRS\textsuperscript{ibero-America} was presented to PNIRS President Neil Harrison and President-Elect Jeffrey Woods at the 2022 annual meeting (Zurich, Switzerland; Fig. 1). It was then presented to the PNIRS Board of Directors, who enthusiastically endorsed the concept of PNIRS\textsuperscript{ibero-America}. This initiative was also discussed in a joint meeting with PNIRS\textsuperscript{Asia-Pacific} during the PNIRS annual meeting (Fig. 2). An Executive Committee has been formed and will meet at the forthcoming PNIRS annual meeting to be held in Boulder, Colorado in 2023 (https://www.pnirs.org/future-meetings). The current plan is to organize a PNI symposium at a major meeting in Ibero-America in 2023.

Integrative approaches to health and medicine have revealed the importance of coordinated functioning among multiple physiological systems, including the brain and immune system, to promote optimal well-being. This new network of PNIRS\textsuperscript{ibero-America} aims to learn, share, and promote this emerging knowledge to benefit the entire Ibero-American region and beyond.

References

González, I.A., Natera, J.M., Suárez, D., 2020. Science, technology and innovation policies looking backwards, forwards and beyond. Rev. Econ. Mund. 56, 115–133.

Julià, B., & Toscano, A. ¿Qué ocurrió en la XXVII Cumbre Iberoamericana en Andorra? Red de Estudios Estratégicos y Diplomáticos. Access: https://www.redestudiosestrategicos.com/wp-content/uploads/2021/06/Articulo-RED-Cumbre-Iberoamericana-Julia-y-Toscano-1.pdf (last access: 27/09/2022).

Kelley, K., Peng, Y., Liu, Q., Chang, H., Spencer, S.J., Hutchinson, M.R., Shimada, A., 2020. Psychoneuroimmunology goes East: development of the PNIRSChina affiliate and its expansion into PNIRSAsia-Pacific. Brain Behav. Immun. 88, 75–87.

Kelley, K.W., 2021. From psychoneuroimmunology to immunopsychiatry: an historical perspective. In: Khandaker, G., Harrison, N., Dantzer, R., Bullmore, E. (Eds.), Immunopsychiatry: an Introduction. Cambridge University Press, Cambridge, United Kingdom, pp. 25–50. www.cambridge.org/9781108424042.

Mathieu, E., Ritchie, H., Ortiz-Ospina, E., Roser, M., Hasell, J., Appel, C., et al., 2021. A global database of COVID-19 vaccinations. Nat. Human Behav. 5 (7), 947–953.

Organización Panamericana de la Salud y Secretaría General Iberoamericana, 2018. La Cooperación Sur-Sur y triangular en el sector de la salud en Iberoamérica. OPS, SEGIB, Washington, D.C., 978-92-75-32055-5.

Soto-Perez-de-Celis, E., Cordoba, R., Girónès, R., Karnakis, T., Paredero, I., Chavarri-Guerra, Y., et al., 2018. Cancer and aging in Ibero-America. Clin. Transl. Oncol. 20 (9), 1117–1126.