

VIEWPOINT

INNOVATIONS IN HEALTH CARE DELIVERY

Does the Country of Origin Matter in Health Care Innovation Diffusion?

Matthew Harris, DPhil, MBBS, FFPH
Institute of Global Health Innovation, Imperial College London, London, England.

Yasser Bhatti, DPhil, MSc, MoT, MSc, BEng
Institute of Global Health Innovation, Imperial College London, London, England.

Ara Darzi, OM, KBE, PC, FRS, FMedSci
Institute of Global Health Innovation, Imperial College London, London, England.

There is no shortage of US health care research centers advocating the adoption of innovations from other countries. The Institute for Healthcare Improvement (Boston, MA), the Commonwealth Fund (New York, NY), Innovations in Health at Duke University (Durham, NC), and the Network for Excellence in Healthcare Innovation (Cambridge, MA) are all promoting innovations from low-, middle-, and high-income countries for potential adoption into the United States. However, does it matter to patients if a proposed innovation is from India, rather than from, say, Sweden; or from Rwanda, rather than from, say, the United Kingdom? Very little is known about whether and how the country of origin of a proposed innovation matters in its diffusion.

The question of country of origin matters considerably to those in the marketing industry. Research spanning several decades has shown that up to 30% of a consumer's attitude toward a product can be influenced by the country of origin of that product.¹ There is a complex interaction among the product type, where it is from, where the consumer is from, the demographic

international study of the cultural dynamics to support innovation diffusion, Keown et al⁵ note the importance of empowering patients, engaging health care professionals, promoting learning, refining the innovation, and eliminating legacy practices, but again, say little on the effect of the source of an innovation.

None of these models or theories refers to the role of the adopters' perception of the innovator source as a mediating factor in the adoption of an innovation. This is perhaps because such perception does not fit neatly into current conceptualizations of mediating factors in innovation diffusion; ie, is it a feature of the innovation, of the adopter, or of both?

The paucity of research in this area could lead to the assumption that even though country of origin matters when choosing to purchase products such as a car or some foods, it does not apparently matter when choosing whether to pilot a health care innovation as long as the innovation has been approved by the adopting country's regulatory body. The reality is that the effect that source may have on the perception of an innovation is simply a neglected and yet potentially considerably significant issue for health care practitioners and organizations as well as recipients of health care. Some evidence suggests that the country of origin matters in research evaluation and publication. A recent randomized trial showed that a source from a low-income country

More research is needed to understand the effect of source in interpretation of health care research and in the appetite to learn from other countries.

negatively influenced US public health professors' opinion of research abstracts in some instances.⁶ Participants (n = 899) were more likely to refer 1 abstract of the 4 abstracts that were included in the trial to a peer if the source was from a high-income country compared with a low-income country (odds ratio, 1.28; 95% CI, 1.02-1.62). Although the effect size was small under experimental conditions, it may be "clinically" significant considering how much research is published and consumed on a daily basis. This study established a benchmark with respect to the measurable effect of source on research interpretation and evaluation but needs to be repeated using different types of health care professionals and different types of research abstracts as well as the relationship between perception of research and of innovation.

characteristics of the consumer, and the geopolitical characteristics of the 2 countries. For example, products from England tend to be rated higher by Indian students than by Taiwanese students because of the colonial ties between India and England. White consumers tend to rate products from North America more highly than nonwhite consumers, who instead rated products from Nigeria, Latin America, and India more highly. Complex as this interaction is, it is also likely to change over time as preferences, political ties, and cultures constantly shift and change as well.

The diffusion of innovation literature in health care is silent on the issue. Rogers² limits his diffusion of innovation theory only to the characteristics of the adopter. Greenhalgh et al³ incorporate characteristics of the adopting organization, of the innovation, and of the change process but not of the source. Damschroder et al⁴ adds to the model of Greenhalgh et al and refers to the source of the innovation needing to be "legitimate" but sheds little light on what constitutes legitimate, for whom, and under what circumstances. In their

The so-called reverse innovation process—the adoption of low-income country innovations into high-income country contexts—is thwarted in part by perceptions that low-income countries are unlikely to offer innovations of value and that these contexts are

Corresponding Author: Matthew Harris, DPhil, MBBS, FFPH, Institute of Global Health Innovation, Academic Surgical Unit, 10th Floor, QEQM Bldg, St Mary's Hospital, Praed St, London W2 1NY, England (m.harris@imperial.ac.uk).

“too different” from their own for the innovation to “fit.”⁷ This will lead to missed opportunities to learn from many exciting innovations arising from these contexts in areas as diverse as cardiac surgery, ophthalmic surgery, community health, mobile phone screening apps, diagnostic support tools, and ambulatory services. For example, Narayana and Aravind are widely acclaimed Indian health care models in cardiac and ophthalmic surgery, respectively, yet they have not successfully diffused into more developed markets. The Brazilian Family Health Strategy systematically deploys more than 250 000 community health workers to provide cradle-to-grave health advice, universally, through home visits. Peek Vision is a mobile phone–based tool for retinography imaging used in Kenya. Ziqitza uses a novel cost-sharing finance model to provide ambulatory services to poor communities in India.

Understandably, most innovations must be incorporated into delivery systems, and how health care is financed, organized, and delivered varies from country to country. Adoption processes are likely to be different for services and products. However, given that no two, even neighboring, contexts are the same, differential preference for innovations from one country as opposed to another speaks to biases rather than objective assessments of reality. To this extent, methods from the cognitive psychology literature can be used to examine further assumptions, biases, and prejudices⁸ concerning how to determine what is and what is not generalizable from one context to another.

More research is needed to better understand the effect of source in interpretation of health care research and in the appetite to learn from other countries. It is time to establish a comprehensive research agenda that applies the knowledge and methods from the marketing and consumer affairs literatures to the assessment of health care research and innovation. Just as the marketing literature examines the effect of the phrase “Made in [country],” research into the effect of the phrase “Authors’ affiliation” in biomedical research is needed. It is important to know, using adequately powered, controlled studies, whether research from certain institutions has been given less attention and credibility than from others, all other things being equal. It must be clear if the powerful brand associated with high-impact journals influences readers’ perceptions of the research, all things being equal. The relative impor-

tance of where the research was conducted compared with who conducted it and where it was published needs to be clarified. For example, what is the relative importance of bibliometric or scientometric markers of legitimacy, such as citation indices, to organizational markers of legitimacy such as university rankings, to socioeconomic measures of legitimacy, such as gross domestic product per capita, Human Development Index, infant mortality rates, and Gini Index?

In addition, the interactions between these characteristics and those of the “consumer” (the health care professional or equivalent) and the “product” (the research article or the innovation) need to be assessed. Using adequately powered, controlled studies, how is the source of a research article or innovation affected by the age, sex, race, and academic, clinical, or managerial experience of the person reviewing it, and how does this change based on the type of innovation—technological innovations, service delivery innovations, or pharmaceutical interventions? For example, are US health care managers more amenable to adopting technological innovations from the United Kingdom than US clinicians? Is this the case if the innovation is from Sweden or Rwanda, or if it is a service delivery innovation? Does it matter if the innovation is published in a high-impact, widely disseminated, general medical journal (such as *JAMA* or the *New England Journal of Medicine*) or a more focused journal (such as the *Scandinavian Journal of Public Health*)?

Significant resources are allocated to better understand the influence of country of origin for consumers. Advertising agencies go to great lengths to develop counterstereotyping and stereotyping campaigns and to create effective brands that build on (or, indeed, minimize) the image of the source country. It is why it is acceptable to perceive that cars from Japan are efficient, chocolate from Switzerland is delicious, and perfume from France is of high quality. A consumer might have considerably different perceptions of cars, chocolate, and perfume if those products were from Ethiopia, Botswana, and India, respectively. These stereotypes are enduring and well managed through the long-standing efforts of manufacturers and advertisers.

It is time to examine much more closely how these preferences affect the evaluation of research and influence the diffusion of health care innovations.

ARTICLE INFORMATION

Conflict of Interest Disclosures: All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

REFERENCES

- Dinnie K. Country-of-origin 1965-2004: a literature review. *J Customer Behav*. 2004;3(2):165-213.
- Rogers EM. *Diffusion of Innovations*. New York, NY: Free Press; 1995.
- Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q*. 2004;82(4):581-629.
- Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci*. 2009;4:50.
- Keown OP, Parston G, Patel H, et al. Lessons from 8 countries on diffusing innovation in health care. *Health Aff (Millwood)*. 2014;33(9):1516-1522.
- Harris M, Macinko J, Jimenez G, Mahfoud M, Anderson C. Does a research article’s country of origin affect perception of its quality and relevance? A national trial of US public health researchers. *BMJ Open*. 2015;5(12):e008993.
- Harris M, Weisberger E, Silver D, Macinko J. “They hear ‘Africa’ and they think that there can’t be any good services”—perceived context in cross-national learning: a qualitative study of the barriers to reverse innovation. *Global Health*. 2015;11(1):45.
- Nosek B, Greenwald A, Banaji M. The Implicit Association Test at age 7: a methodological and conceptual review. In: Bargh JA, ed. *Social Psychology and the Unconscious*. East Sussex, England: Psychology Press; 2007:265-292.