

and communication skill, which are truly necessary for research and beyond. Detailed advice on various aspects such as Ph.D. from India or abroad, how a Ph.D. adviser should be chosen, etc. is given to a beginner in research. Unlike earlier days, now having multiple subject areas in mind while choosing an adviser has become a compulsion. However, this has to be taken positively by the beginners. Bagchi's advice for Ph.D. students and young faculty for success in science is to be sincere, creative and hard working as possible, which have been the keys to success in every aspect of life. Researchers should do a self-appraisal and self-criticism to improve themselves. However, the author warns that these need practice as well as determination. When it comes to understanding a difficult subject, he advises that reading alone will not be enough. Rather one should write, make a flowchart and discuss it with others. He quotes George Bernard Shaw who said: 'Too much reading rots the mind'. To be a reasonably good Ph.D. student, one should have a few qualities that a Ph.D. adviser looks for, such as quick thinking, being interactive, having a little humour, etc. Furthermore, for overall development, Ph.D. students should be good givers; in other words, they need to have helping minds. Along with self-evaluation, self-correction is highly recommended by the author, keeping away from self-justification. Bagchi has expressed his opinion about how to train students' minds to excel in studies and research, mentioning that they should stay away from using the internet and various mobile applications – this is a bit of crucial advice, and such advancement of technology does have a negative effect not only on researchers, but all students. Towards the end of the book, Bagchi urges students to leave their comfort zone, search continuously for new ideas and problems, and learn new techniques. In other words, they should choose challenge over comfort.

In one of the chapters (29) Bagchi comments on the topic of publishing. He suggests that people should follow C. V. Raman's approach to publish first in an Indian journal. However, this is not a practical advice for young minds. I refrain from elaborating on this in detail.

I have enjoyed reading this book and recommend it to every student. Bagchi has presented his advice, suggestions, and opinions nicely and precisely. The book can indeed motivate students. It is informative with impulsive stories of a few scientists

whom the author has personally met. The author's own story is also outlined for the sake of sharing his experiences. I appreciate and thank Bagchi for this commendable piece of writing for the young minds.

VINOD KUMAR SINGH

*Department of Chemistry,  
Indian Institute of Technology,  
Kanpur 208 016, India  
e-mail: vinodks@iitk.ac.in*

#### **Annual Review of Public Health, 2021.**

Jonathan E. Fielding, Ross C. Brownson and Lawrence W. Green (eds). *Annual Reviews*, 4139 El Camino Way, P.O. Box 10139, Palo Alto, California 94303-0139, USA. Vol. 42. xv + 553 pages. Price: US\$ 118.

At the time of writing this book review, the COP26 summit in Glasgow is underway, aimed at addressing the climate crisis, a real existential threat. Climate change impacts all facets of human existence, including health. In this volume of the *Annual Review of Public Health*, several articles address the issue of climate change and public health. Stephan Lewandowsky in his article 'Climate change disinformation and how to combat it', initially outlines the period of public hesitancy regarding climate change and an emerging consensus. He discusses the drivers of climate scepticism, the sources and strategies of disinformation as well as the approaches to countering disinformation and communicating in an adversarial environment. I found this article an excellent start to the volume – lucidly written yet comprehensive. It is a 'must-read' article that addresses the needs of generalists as well as those specifically interested in climate change. Binns *et al.* address the issue of 'Climate change, food supply and dietary guidelines'. The authors outline how climate change affects the global food supply – including the rise in temperature on plant growth and ripening, adverse weather events, spoilage, contamination at various stages of agriculture, processing, transport, storage and a decrease in food diversity, among others. They also review the current status of dietary guidelines, the changes that are needed to ensure sustainable food

production and the issue of food equity. Accelerated sea-level rises with climate change threaten those who live in coastal, low-lying areas. Solecki and Friedman in their article 'At the water's edge: coastal settlement, transformative adaptation, and well-being in an era of dynamic climate risk', discuss the options of people living in these locations, including the notion of managed retreat and relocation. They discuss the issue of place identity and place attachment, and the fact that the loss of sense of place is physical and social (for instance, in the loss of kinship), cultural and economic. While the loss of place is not a new phenomenon, the possible scale that this might entail with unmitigated climate change is worrying. Ebi *et al.* write about 'Extreme weather and climate change: population health and health system implications'. They focus on extreme events influenced by climate change in terms of heavy precipitation, intensity of droughts, desertification, dust storms and compound events. They further discuss the health-related impact of these extreme events on mortality, occupational health, infectious disease, exacerbation of non-communicable disease, injuries and mental health. These articles while discussing the issue of climate change and health at a macro-level, force us to reflect on our actions that contribute to climate change. In a broader context, I believe they also challenge public-health researchers to translate their research into action, since climate change is not an issue that we can be distantly passionate about.

Two articles in this volume will immediately resonate with issues we are facing during the current pandemic. Ali and Cowling discuss the tracking, prediction and forecasting of the influenza virus. The article highlights many methods of virus surveillance that have become commonplace during the COVID-19 pandemic. The authors highlight the need to track real-time transmissibility and forecast disease outbreaks in terms of peak timing, epidemic duration, attack rates and peak magnitude. The importance of these methods has become all too clear in the last two years, both for health planners as well as for economists and the political leadership to make evidence-based decisions. The article is also a reminder that health surveillance methods need to be strengthened across the globe, if we are to effectively address future pandemics. Holwell described the practice of variolation against smallpox in colonial India. Variolation gave

way to vaccination with Edward Jenner's experiments and soon a plethora of vaccines became available, including the celebrated anti-rabies vaccine of Louis Pasteur. Dubé *et al.* address the important issue of 'Vaccine hesitancy, acceptance, and anti-vaccination: trends and future prospects for public health'. The authors make the distinction between vaccine hesitancy and 'anti-vaccine'. This nuanced article is an essential read for those involved in public health. All too often, ideas of vaccine hesitancy are simplistic and responses to it excessively paternalistic. It behoves us to be more aware of the underlying issues to better address this problem.

An article that I particularly enjoyed reading was that by Nutbeam and Lloyd on 'Understanding and responding to health literacy as a social determinant of health'. In the first instance, it challenges us to look beyond the 'conventional' social determinants of health. Health literacy 'enables individuals to obtain, understand, appraise, and use the information to make decisions and take actions that will impact health status'. Again, the current pandemic with its accompanying 'infodemic' has exposed the faultlines between those who are health-literate and those who are less so. Every country has a gradient of health literacy; in some countries it is more pronounced. Health literacy is important because it is linked to the decisions that people make in relation to their individual health, their ability to distinguish valid from 'fake' data, and the stands that they take in relation to public health measures. The article discusses ways in which the health literacy of populations can be improved. A related

article by Kreuter *et al.* is entitled 'Addressing social needs in health care settings: evidence, challenges, and opportunities for public health'. Although written in the context of the United States, this article resonates with a similar situation across most countries of the world. Thus, while considerable lip service is paid to the social determinants of disease which may be differently described in different countries, relatively low functional relationships exist between healthcare providers and community-based organizations that address social needs in communities. This lacuna is important because unaddressed social needs, including financial strain, inadequate housing, food insecurity, and social support, among many others, are significant determinants of health and its outcomes. The problem is more acute in low- and low-middle income countries, where out-of-pocket expenses are considerable in relation to healthcare.

The forced home isolation during the prolonged lockdowns of the COVID-19 pandemic and the designation of general hospitals for COVID care, required hospitals and patients to transition to telemedicine as an alternative for repeated follow-up for chronic health conditions. Thus, the article by Barbosa *et al.* entitled 'Improving access to care: telemedicine across medical domains' is a timely one. The advantages of telemedicine in overcoming health access, including transportation and, ensuring timely and adequate care need to be balanced against the digital divide faced by patients who might likely most benefit from telemedicine. Then, there are other problems – the inability to perform com-

prehensive physical examinations, a loss in physician-patient interaction, fragmentation of care and over- or under-prescribing. The authors specifically focus on the use of telemedicine in stroke, diabetes, heart failure and pregnancy, and indicate that in specific conditions telemedicine works and has positive benefits in health access and care. Given the likely enhanced use of telemedicine in the future, this article addresses an important area in healthcare delivery.

Apart from the specific articles discussed above, this volume addresses various range issues across multiple categories – epidemiology and biostatistics, the social environment and behaviour, environmental and occupational health, public health practice and policy, and health services. The articles cover various categories of the life cycle, situations and diseases.

I found this volume of the *Annual Review of Public Health* engaging. The range of articles ensures that there is likely to be something for everyone. The topics covered also have a global appeal, even when an article is written within a particular geographical context. The social determinants of health receive special coverage, which will appeal to those embedded in community settings. I would urge those involved in public health practice and research to immerse themselves in this volume and the issues that it raises.

MARIO VAZ

*International Medical School,  
M.S. Ramaiah Nagar, Mathikere,  
Bengaluru 560 054, India  
e-mail: mariovaz361@gmail.com*