# Inculcating Systems Thinking in Public Health – A Dire Need of Time

**Farah Rashid, Shahzad Ali Khan**

[1]Nust School of Health Sciences, National University of Science and Technology, Islamabad,
[2]Vice Chancellor Health Services Academy, Islamabad

***DOI: https://doi.org/10.51273/esc23.25192.24***

There has been a growing interest in the application of systems thinking to public health over the last decade. Systems thinking and science is a broad category of analytical methodologies aimed at exploring the behavior of complex systems.[1] It is an approach to problem-solving places more emphasis on understanding complex systems and their interrelationships, rather than just focusing on individual components. In general, a systems thinking perspective requires curiosity, clarity, compassion, choice, and courage.

In public health and health promotion, systems thinking is a fundamental ability that aids professionals in developing policies and initiatives that are conscious of and prepared for unintended consequences when complex systems of factors interact to affect health outcomes. Understanding broader health variables including social and economic factors is made easier by this. The social determinants of health are a group of variables that can have a significant impact on health outcomes. These variables include income, education, housing, and social support. Understanding these components' interactions with one another and with other systems, such as the healthcare system or the environment, is facilitated by systems thinking.[2]

By applying systems thinking approach in design and implementation of public health programs provide assistance in recognizing the potential unintended consequences or areas where the program may need to be strengthened or modified. One example of the importance of systems thinking in public health is the study of infectious diseases; a complex interaction of environmental, social, and biological factors underlies the development of many infectious diseases. For instance, factors like poverty, social inequality, a lack of access to healthcare, and poor public health systems have an impact on the development of diseases like HIV and tuberculosis.[3]

Same stands true for chronic diseases and as a developing nation we are facing double burden of diseases. In Diabetes and Breast cancer Pakistan is at the edge of volcano. These diseases are complex problems that requires collaboration among various stakeholders, including healthcare providers, public health officials, policymakers, and the community. Systems thinking encourages a collaborative approach, bringing together diverse perspective and expertise from policy makers to practitioners working to prevent chronic disease and inform their decision making about how to intervene; systems thinking and systems change are prioritized as core elements of preventive research.[4]

Understanding these complex interactions is essential for developing effective public health interventions as the world experienced recently in Covid-19 Pandemic.[5] This comprehensive and multidisciplinary systems approach relies on these four key components: (1) rapid and massive data collection from wide variety of sources; (2) rapid communication to a broad array of sources; (3) transdisciplinary science, to understand and analyze data from various sources; and (4) modeling of the complex relationships among the components in the system. These four elements are necessary for precise predictions and recommendations that can be used by policymakers to protect the health of the public.[6]

In conclusion, systems thinking is a powerful tool for understanding the complex systems that shape public health outcomes. Public health professionals need to recognize that it is a lifelong practice. By applying a systems thinking approach, public health professionals can better understand the interplay of

various factors and design more effective interventions to improve health outcomes for populations.

## References


1. Clark TR. The 4 Stages of Psychological Safety Defining the Path to Inclusion and Innovation. Oakland, CA: Berrett-Koehler Publishers, Inc; 2020.
2. Edmondson AC. The Fearless Organization: Creating Psychological Safety in the Workplace for Learning, Innovation, and Growth. Hoboken (NJ): John Wiley & Sons; 2019.
3. Alam L, Khan J, Alam M, Faraid V, Ajmal F, Bahadur L. Residents' perspective on the quality of postgraduate training programs in Pakistan – the good, the bad and the ugly. Pak J Med Sci. 2021;37(7):1819-1825. https://doi.org/10.12669/pjms.37.7.4297
4. IsHak W, Lederer S, Mandili C, Nikravesh R, Seligman L, Vasa M et al. Burnout During Residency Training: A Literature Review. *J Grad Med Educ* (2009) 1 (2): 236–242 . https://doi.org/10.4300/jgme-d-09-00054.1
5. Balhatchet B, Schütze H, Williams N, Ashford B. Factors that impact burnout and psychological wellbeing in Australian postgraduate medical trainees: a systematic review protocol. Syst Rev. 2021 Sep 24;10(1):257. doi: 10.1186/s13643-021-01809-z.
6. Appelbaum NP, Dow A, Mazmanian PE, Jundt DK, Appelbaum EN. The effects of power, leadership and psychological safety on resident event reporting. Med Educ. 2016 Mar;50(3):343-50. doi: 10.1111/medu.12947..
7. Grailey, K. E., Murray, E., Reader, T., & Brett, S. J. The presence and potential impact of psychological safety in the healthcare setting: an evidence synthesis. *BMC Health Services Research*. 2021 https://doi.org/10.1186/s12913-021-06740-6
8. McClintock A H, Fainstad T, Blau K, & Jauregui J. Psychological safety in medical education: A scoping review and synthesis of the literature. *Medical Teacher*, 2023:1–10. https://doi.org/10.1080/0142159X.2023.2216863