



Syndemic and public health

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Editorial

A **syndemic** or synergistic epidemic is a recent concept in epidemiology formed by uniting “synergy” (the interaction of two or more entities) and “emic” (on the people). Syndemic is defined as the aggregation of two or more concomitant or successive epidemics or disease clusters in a defined population with biological interactions, which exacerbate the prognosis and burden of disease and brought about by changes in socio-economic, environmental, cultural and/or political factors over time.¹⁻³

Syndemogenesis is the processes, stages and ways of interactions that cause syndemic. The syndemic approach does not follow the biomedical approach to diseases in diagnosis, clinical description, and treatment independent of interaction with social contexts. There are three concomitant ways for syndemic interactions (Figure 1).

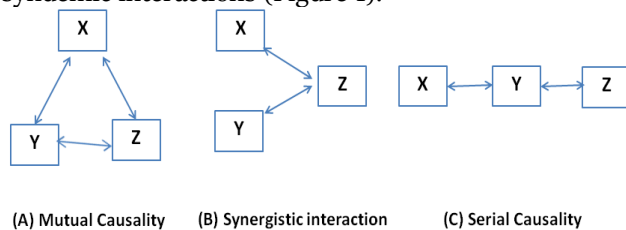


Figure 1: Ways of syndemic interactions

First is mutual causality of diseases of the syndemic (e.g., disease X and disease Y, or disease Y and disease Z, or disease X and disease Z can cause of each). Secondly the synergistic interaction between the two diseases lead to an increase in the third one (both disease X and disease Y are effective on disease C separately and cause more burden of disease Z than the summation of increased disease X and disease Y would cause alone). Lastly serial causality (disease X

causes disease Y and disease Y causes disease Z, and the increase of disease X and disease Y can lead to an excessive increase in disease Z).^{4,5}

Syndemics may involve communicable and/or or non-communicable diseases and many syndemics were described in the literature. The classic example is the SAVA syndemic (substance abuse, violence, and AIDS) in specific ethnic or social groups of one or more country.³ The recent example is COVID-19 syndemic. COVID-19 epidemic is combined with the epidemic of non-communicable diseases as both are interacting on social backgrounds of poverty and inequality.⁶

Public health importance of syndemic

Syndemic tends to reduce effectiveness of control measures and increase their costs. Control measures could be directed to some, but not all diseases and their causes so it may not be effective against others. Targeting all diseases of the syndemic and their causes will be costly. The syndemic approach shows the importance of social epidemiology in public health. It indicated the necessity of the holistic approach to public health problems as multiple problems are considered together rather than single disease being considered one at a time. It confirms the role of psychosocial bases of health and disease. Syndemic offers a conceptual framework for studying the global inequality in health.^{1,7}

Current syndemic research should focus on locally driven factors that cause clustering of disease and the social, ecological and political factors that drive that clustering specially in marginalized and disadvantages population in developing countries. There is a need for longitudinal research on causal pathways and effects of the current syndemics with testing feasibility of interventions that target the root causes of syndemics.

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Research should include methods to improve finding and engaging hidden and hard-to-reach populations; identifying local barriers of prevention and control; raising awareness of cultural factors and stigmatization in delaying and avoiding help-seeking and lastly recognition of the cost savings of early compared to late interventions.^{2,5}

In summary there is an increase in the interest of epidemiologists and academic researchers in syndemic that demonstrate the importance of social sciences in public health. Interaction, clustering, and high disease burden are the key features of syndemic. Failure to consider the syndemic nature of many pandemics will weaken the public health measures and policy-making processes to prevent and control many current pandemics.

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