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Key lifestyles and interim health outcomes for effective interventions in general populations: A network analysis of a large international observational study

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Abstract


Background The interconnected nature of lifestyles and interim health outcomes implies the presence of the central lifestyle, central interim health outcome and bridge lifestyle, which are yet to be determined. Modifying these factors holds immense potential for substantial positive changes across all aspects of health and lifestyles. We aimed to identify these factors from a pool of 18 lifestyle factors and 13 interim health outcomes while investigating potential gender and occupation differences.

Methods An international cross-sectional study was conducted in 30 countries across six World Health Organization regions from July 2020 to August 2021, with 16 512 adults self-reporting changes in 18 lifestyle factors and 13 interim health outcomes since the pandemic. **Results** Three networks were computed and tested. The central variables decided by the expected influence centrality were consumption of fruits and vegetables (centrality = 0.98) jointly with less sugary drinks (centrality = 0.93) in the lifestyles network; and quality of life (centrality = 1.00) co-dominant (centrality = 1.00) with less emotional distress in the interim health outcomes network. The overall amount of exercise had the highest bridge expected influence centrality in the bridge network (centrality = 0.51). No significant differences were found in the network global strength or the centrality of the aforementioned key variables within each network between males and females or health workers and non-health workers (all P-values >0.05 after Holm-Bonferroni correction). **Conclusions** Consumption of fruits and vegetables, sugary drinks, quality of life, emotional distress, and the overall amount of exercise are key intervention components for improving overall lifestyle, overall health and overall health via lifestyle in the general population, respectively. Although modifications are needed for all aspects of lifestyle and interim health outcomes, a larger allocation of resources and more intensive interventions were recommended for these key variables to produce the most cost-effective improvements in lifestyles and health, regardless of gender or occupation. © 2023 The Author(s)

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