



Evidence and opportunity costs of lifestyle interventions in clinical medicine

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Evaluating the benefits and harms of interventions intended to change habits

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Cite this as: *BMJMED* 2022;1:e000336. doi:10.1136/bmjmed-2022-000336

Received: 24 August 2022
Accepted: 30 August 2022



► <http://dx.doi.org/10.1136/bmjmed-2022-000130>

Chronic disease and mental health conditions account for an overwhelming majority of annual health and economic costs in the US. Not only are these conditions the leading cause of death and disability in the US, but 90% of the estimated \$4.1tn (£3.57tn; €4.14tn) in US annual healthcare costs are also attributable to chronic diseases.¹ Global estimates of the burden of chronic diseases are even higher; over three in five global deaths are thought to be due to the four major chronic or non-communicable diseases (ie, cardiovascular disease, chronic lung disease, cancer, and diabetes), with the disproportionate burden within low income countries.² Risk factors for many chronic diseases are often preventable including tobacco use, poor nutrition, physical inactivity, and alcohol use.¹ Recognition of such risk factors has led to the emergence of lifestyle medicine and the prescription of lifestyle interventions to individual patients for the prevention and treatment of chronic conditions.

Guideline bodies including national expert panels such as the UK National Institute for Health and Care Excellence (NICE) and the US Preventative Services Task Force (USPSTF) have recommended the incorporation of individually oriented lifestyle interventions behavioural counselling as part of clinical practice. However, the strength of evidence behind such interventions can be varied and, at times, limited. For instance, a recently updated USPSTF guideline recommending behavioural counselling to encourage healthy diets and physical activity for the prevention of cardiovascular disease in adults 18 years or older had been based on evidence of moderate level of certainty showing a small net benefit.³

Moreover, in evaluating the evidence behind such recommendations, much of the focus has been on the benefits of such lifestyle recommendations. By comparison, there has been limited evaluation of the potential harms of targeting such interventions to individual patients. Further uncertainty persists around the opportunity costs to the healthcare system of employing such interventions in clinical practice.

In a linked *BMJ Medicine* research article (doi:10.1136/bmjmed-2022-000130), Albarqouni and colleagues sought to empirically evaluate these important questions in their cross sectional analysis of individually oriented lifestyle interventions recommended within NICE guidelines.⁴ Of 379 individually oriented lifestyle interventions recommended within the NICE guidelines, the authors found that nearly a

third did not include citations of supportive evidence and nearly half were based on weaker evidence regarding benefit. Possible psychosocial and physical harms from the interventions were considered in only 5% and 8% of recommendations, respectively. No recommendation mentioned treatment burden resulting from the recommended interventions, and only less than 1% considered any harm to the individuals beyond what was reported within the cited studies. Only one of the 379 recommended interventions reported opportunity costs to the healthcare system.

These findings suggest that high quality evidence underlying the recommendations for lifestyle interventions within NICE's guidelines is limited, including whether such interventions in the form of behavioural counselling around lifestyle habit changes lead to improved health outcomes. Such variability supporting these recommendations thus highlights the importance of transparency around evidence evaluation for clinicians as well as patients. For instance, the USPSTF uses letter grades to denote the evidence strength behind their recommendation as well as any potential limitations to their recommendations including whether the intervention should be targeted to more specific patient populations based on available evidence.⁵

As well as transparency, efforts should also be made to standardise how guideline committees evaluate available evidence, which could reduce variation in evidence strength for lifestyle interventions. Additionally, such committees could have a proactive role in incentivising rigorous research studies around lifestyle interventions, by setting the highest grade or level of evidence as being corroborated by randomised controlled trials where the intervention is compared with other alternatives including drug or surgical interventions. Moreover, guideline committees such as the USPSTF have also recognised the need for further research into the linkages behind specific interventions such as behavioural counselling and clinical outcomes, offering recommendations for this might be accomplished.⁶ Federal agencies could further encourage such research through funding support. For instance, in the US, the Patient-Centred Outcomes Research Institute provides research grants for comparative clinical effectiveness studies, examining the benefits and risks of two or more interventions across populations.⁷

Albarqouni and colleagues also suggest that although the recommended interventions rarely mention any potential harms to individuals, such harms might exist in receiving unrequested or

unhealthy lifestyle advice from healthcare professionals because such advice could detract from establishing the patient's intentions during a visit. However, this issue could be mitigated by continued efforts to modify training of healthcare professionals to take on a more patient centred approach. For instance, methods such as motivational interviewing, which are intended for clinicians to acknowledge and delve into patients' interest in changing their behaviour, are increasingly being incorporated into training and clinical practice.⁸

Another critical factor for robust evaluation of benefits and harms of lifestyle intervention is its impact on equity, as alluded to by the authors. For instance, lifestyle interventions might have differential effects across populations when compared with other alternatives. Although lifestyle interventions could be more cost effective and accessible for underserved populations compared to more expensive drug treatment or surgical alternatives, some lifestyle interventions might be out of reach for those same populations owing to structural and commercial determinants of health that preclude access to better nutritional options or safe venues for exercise.^{9 10} Generation of evidence of the true value of such interventions across varied patient populations will further provide reassurance to clinicians and patients.

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Competing interests I have read and understood the BMJ policy on declaration of interests and declare the following interests: RR receives research support from Arnold Ventures for the Yale Collaboration for Research Integrity and Transparency and receives additional research support from the Stavros Niarchos Foundation through Yale Law School for a project entitled "Re-envisioning publicly funded biomedical research and development."

Provenance and peer review Commissioned; not externally peer reviewed.

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