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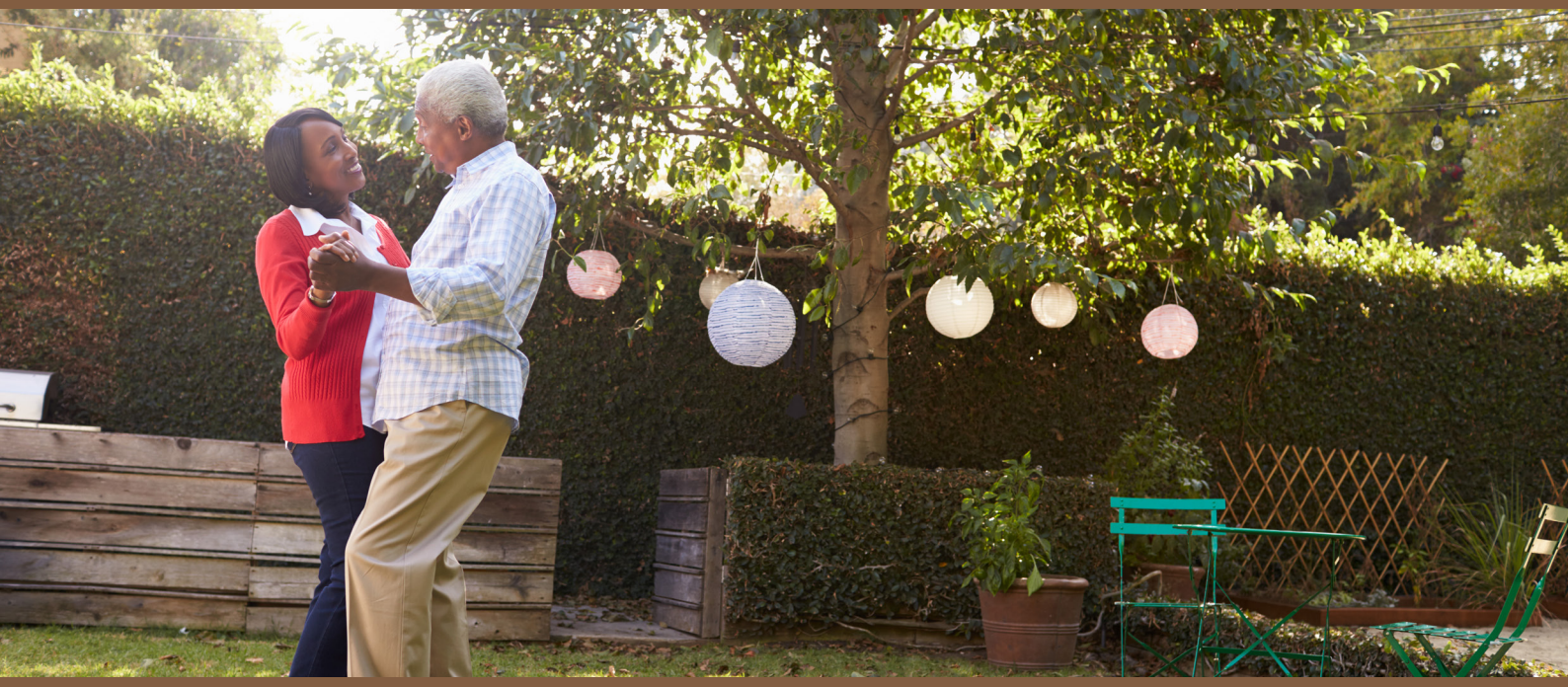
Global dialogue on prevention: Reflections

The dementia landscape project

Essays from international leaders in dementia



Dementia prevention "for all": Between enthusiasm and prudence

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Population health studies paint an optimistic picture: Up to 35, if not 40 per cent of all dementia cases could be prevented if a number of modifiable social and behavioural risk factors were eliminated.[1] Preventing risk factors from occurring, such as low education, mid-age hearing loss, smoking or depression, would prevent dementia, or at least delay its onset until very advanced ages. Consequently, public health efforts should be increased to prevent the development of these risk factors. With this strategy of primordial prevention, additionally, cumulative benefits for the prevention of morbidity and mortality at large can be expected, as risk factors for dementia are linked to a number of other adverse health outcomes. This is reason to be enthusiastic, and serious efforts of preventing risk factors to develop will help to reduce dementia burden of future generations.

However, practitioners and policymakers usually don't have decades to plan preventative efforts. Dementia prevention in practice often deals with individuals or cohorts with substantial dementia risk due to chronic conditions or less-than-optimal lifestyles. What is the scientific evidence for lifestyle changes to reduce dementia risk in individuals who already accumulated dementia risk factors?

Clinical and epidemiological researchers know the successful trials by heart. There is evidence for cognitive benefits of single-domain interventions focusing on exercise and resistance training, intensive blood pressure control, or cognitive training, which in some trials also decreased the risk of cognitive impairment. Among several multidomain interventions, the FINGER trial showed benefits on cognitive functioning over two years. However, unfortunately, a larger number of dementia risk reduction trials have failed. In all of these trials, issues of sample recruitment and limited power may have contributed to the null findings. Still, we must concede that, at this moment in time, we do not have solid evidence on the actual potential of dementia risk reduction interventions in the presence of risk factors, and we are still quite far from understanding what works best for whom and when in at-risk individuals.

Therefore, some prudence before rolling out mass programs advocating lifestyle changes for older adults with presence of risk factors seems warranted.

Additionally to the need of further studies to increase knowledge on potential for dementia prevention, and similar to other public health interventions, we also need to weigh beneficial effects of dementia prevention programs against the required individual

1. Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., ... & Mukadam, N. (2020). Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. The Lancet, 396(10248), 413-446.

efforts and, not least, considerations of cost effectiveness. Time, economic or cultural constraints may hinder individuals to follow a healthy lifestyle.

Therefore, possible drawbacks from dementia prevention programs are to overplay individuals' capacity to substantially modify their individual risk of dementia. This could result in overemphasizing individual responsibility to maintain cognitive health, and increase guilt, blame, and stigma for those affected by dementia. These issues are problematic per se; however, in the light of limited knowledge of what works, we need to be even more cautious that large-scale dementia prevention programs would not result in largely negative unintended consequences on older-age quality of life – additionally to not being able to reduce dementia prevalence.

There are several ways to address this dilemma. First, larger and longer trials could provide more solid evidence on the dementia risk reduction potential of lifestyle interventions, and improve our understanding of what works in which subgroups. The worldwide FINGERS Network[2] is an important step towards that goal. Another way forward is to estimate dementia risk reduction potential in observational data. The necessary time window for trials to fully understand the potential of lifestyle changes is often beyond the limits of both funding and researcher careers. Here, aging surveys such as the family of Health and Retirement Studies have assessed (changes in) risk factors in large samples and followed respondents in some cases over decades. Quasi-experiments, instrumental-variable analysis, and the possibility to 'emulate' clinical trials in observational data[3] can improve data analysis, methods which have potential to substantially improve our understanding of dementia risk reduction. Our CRISP Cognitive Ageing project funded by the European Research Council (grant agreement no. 803239) explores these and other ideas to accelerate research in dementia prevention.

Finally, we ought to adopt pragmatic solutions such as the WHO guidelines for dementia risk reduction.[4] Physical activity is among the few established protective factors of dementia. However, even in the light of scarce high-quality evidence for dementia risk reduction specifically, we know that some lifestyle behaviours such as smoking or hazardous drinking come with unnecessary morbidity burden on individuals. We should offer interventions for these lifestyle behaviours because of their proven health benefits, and may offer other interventions such as cognitive trainings to those who are interested. Still, before advocating lifestyle interventions for all, we should strive to back up claims on individual potential for dementia risk reduction with high-quality evidence.

2. Kivipelto, M., Mangialasche, F., Snyder, H. M., Allegri, R., Andrieu, S., Arai, H., ... & Carrillo, M. C. (2020). World Wide FINGERS Network: A global approach to risk reduction and prevention of dementia. Alzheimer's & Dementia, 16(7), 1078-1094.

3. Hernán, M. A., & Robins, J. M. (216). Using big data to emulate a target trial when a randomized trial is not available. American Journal of Epidemiology, 183(8), 758-764.

4. World Health Organization. (2019). Risk reduction of cognitive decline and dementia: WHO guidelines. Retrieved 15 June 2021 from https://apps.who.int/iris/bitstream/handle/10665/312180/9789241550543-eng.pdfs