

CLAHRCBITE

Brokering innovation through evidence

Patterns of Multimorbidity: An Analysis of the UK Biobank Data



Results

We identified patterns of multimorbidity in older adults and found conditions such as diabetes, hypertension, and asthma are the epicenter of disease clusters.

Who needs to know?

Our research may inform policy, research and clinical practice, with the aim of improving quality of life for patients with multimorbidity.

What did we do:

We utilised data on 36 chronic conditions from 502,643 participants aged 40 to 69 years from the UK Biobank. We combined cluster analysis and association rules mining to assess prevalence, disease clusters, and patterns of multimorbidity and their variation by age, gender, and ethnicity. This was a novel 2-stage approach demonstrating the applicability of data mining techniques to medical data where its use has generally been very limited.

What we found and what does this mean:

We found that nearly 20% of the participants had multimorbidity. We identified 3 clusters with distinct patterns of association between the conditions in each cluster. Conditions such as diabetes, hypertension, and asthma were at the epicenter of disease clusters and potentially part of the trajectories of several other chronic conditions. A more integrative multidisciplinary approach focusing on better management and prevention of these conditions may help prevent other conditions in the clusters.

What next:

Our research was based on a cross-sectional data, and further research focussing on longitudinal data to assess trajectories of the development of multimorbidity and their effects on health outcomes should be conducted. In addition to the introduction of specific multimorbidity guidelines, guidelines on the management of individual index conditions should also be examined and potentially revised to include the co-management of a myriad of conditions that cluster around it.

Evidence:

Zemedikun DT, Gray LJ, Khunti K, Davies MJ, Dhalwani NN. Patterns of Multimorbidity in Middle-Aged and Older Adults: An Analysis of the UK Biobank Data. Mayo Clinic Proceedings. 2018. <http://dx.doi.org/10.1016/j.mayocp.2018.02.012>

What is NIHR CLAHRC EM?

NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) are collaborations between the NHS, universities and local organisations. Our goals are to conduct applied health research across the East Midlands and translate our research findings into improved outcomes for the public.

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