Characteristics, service use and mortality of clusters of multimorbid patients in England: a population-based study

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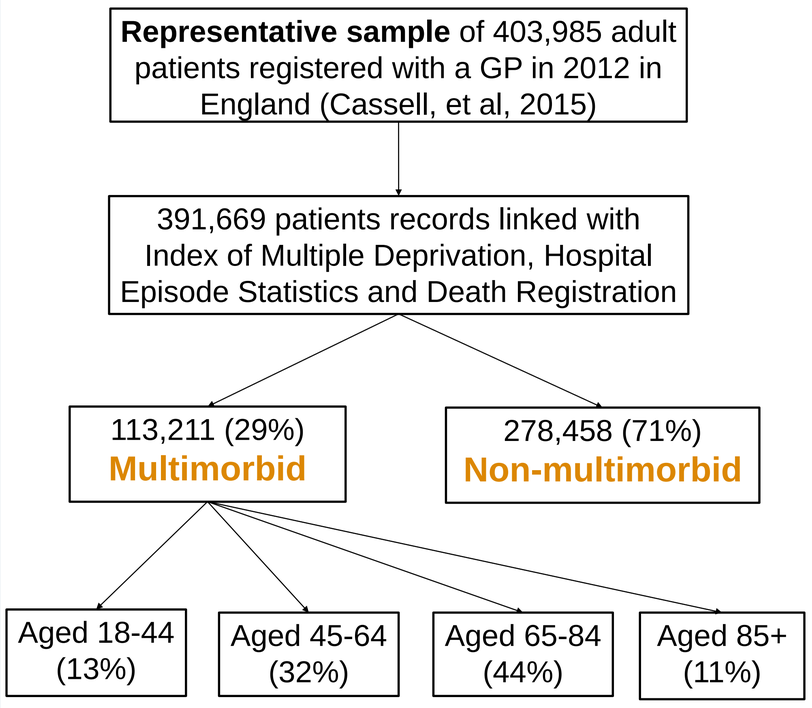
Introduction

Multimorbidity (co-existence of 2+ chronic conditions) is increasingly common in ageing societies. 25% English adults (~14 million people) have multimorbidity. Although it is common in old age, 30% of people with 4+ conditions are under 65s. Multimorbid patients are heavy users of medications, have greater mortality and requires substantial health care, which poses challenges on the single-disease-centred caring and treatment framework.

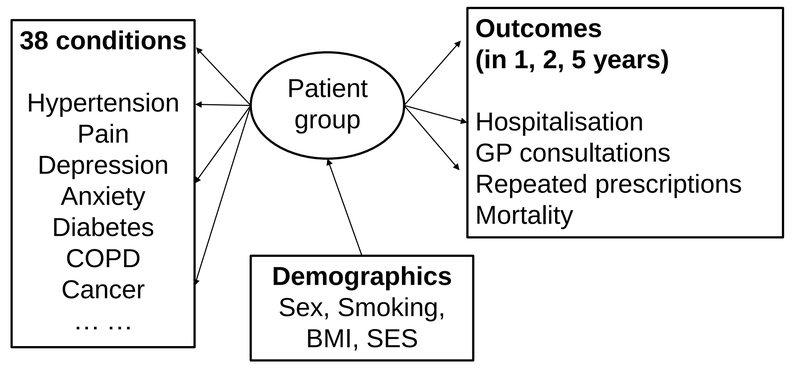
Aims are to investigate which diseases co-occur, their distributions across age groups, the social patterns of multimorbidity clusters and to highlight combinations that lead to the highest mortality and service use.

Health record data (CPRD)



Method

Latent class analysis (LCA) for 38 chronic conditions, stratified by age groups, using a random set of 80% of the multimorbid patients, with consistency of results checked in the remaining 20%. Associations between clusters, demographics and outcomes were quantified using generalised linear models.

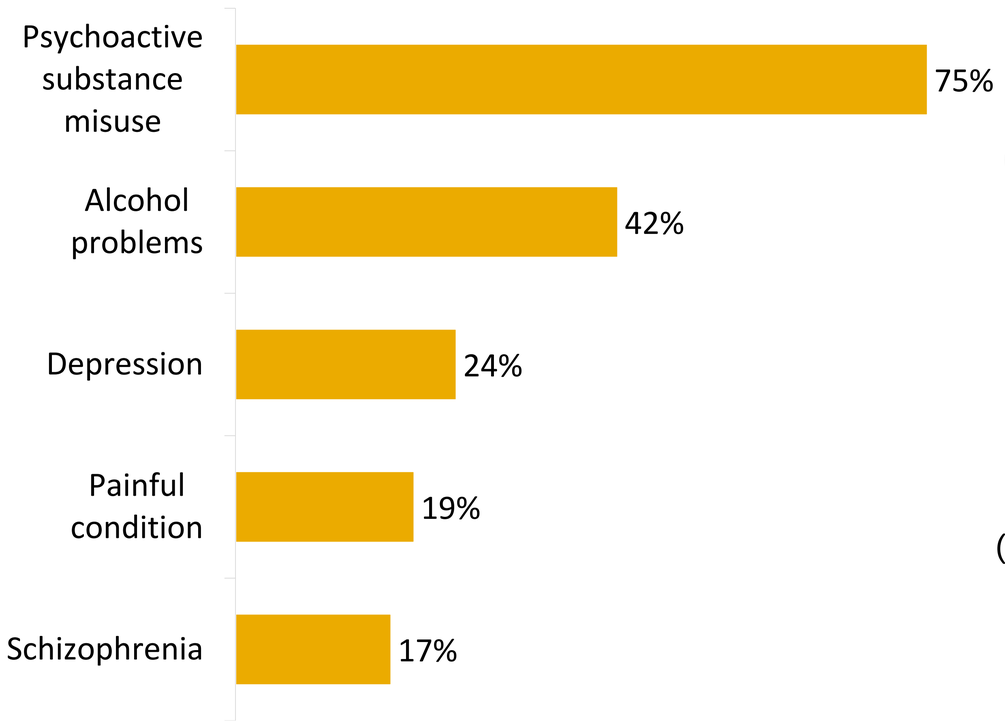


Multimorbidity profiles → NHS service use & mortality

18 – 44 years old: profile of clusters ordered by patient numbers

Lead condition	Multimorbid patients	Greater deprivation	Current smokers	5-year mortality
(%)	(%)	(%)	(%)	(%)
Depression (100%)	32	50	46	1.8
Pain (36%)	23	46	27	2.7
Asthma (100%)	20	41	29	0.6
IBS (100%)	18	37	28	0.4
PSM (75%)	7	63	76	3.9

18 – 44s : Top 5 conditions (prevalence %) in the highest-mortality cluster



18 - 44 (PSM cluster)

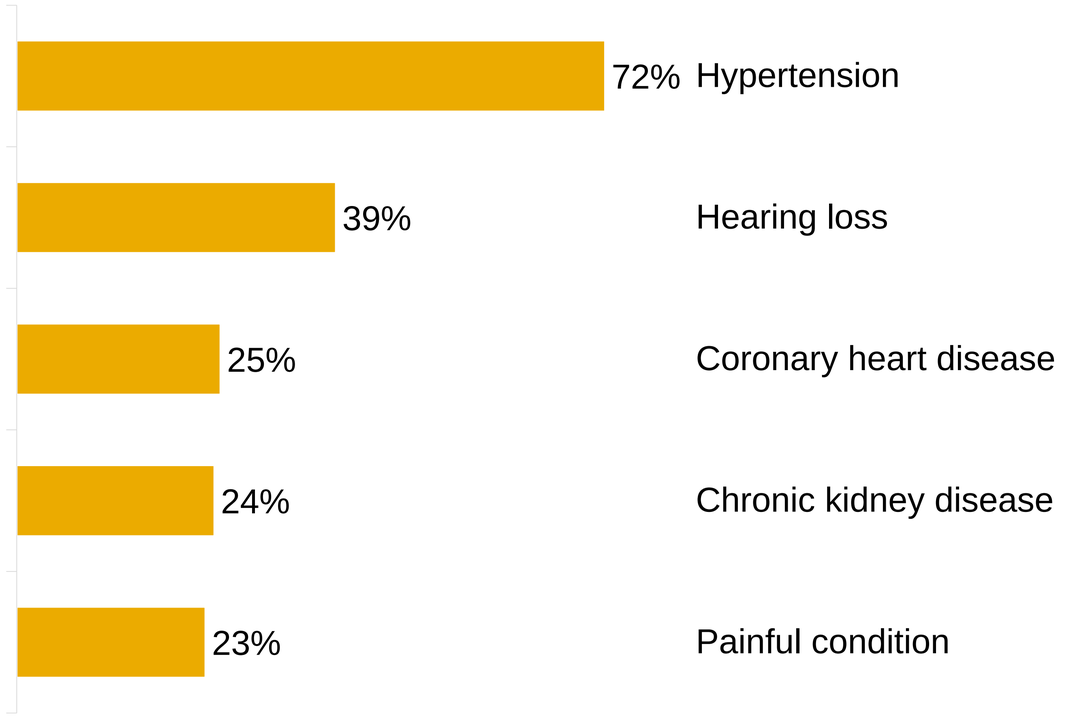
GP contacts: 7 [1-16]
(non-multimorbid): 1 [0-5]

5-year mortality: 4%
(non-multimorbid): 0.2%

Above 85 years old: profile of clusters order by patient numbers

Lead condition	Multimorbid patients	Greater deprivation	Current smokers	5-year mortality
(%)	(%)	(%)	(%)	(%)
Hypertension (72%)	58	30	5	49.5
Pain (64%)	23	30	5	62.9
CHD (61%)	11	30	4	70.8
Asthma (48%)	8	30	8	56.5

Above 85s: Top 5 conditions (prevalence %) in the lowest-mortality cluster



Above 85 (Hypertension cluster)

GP contacts: 10 [2-19]
(non-multimorbid): 3 [0-10]

5-year mortality: 50%
(non-multimorbid): 36%

Discussion

Provided a comprehensive mapping of multimorbidity cluster profiles across age spectrum

Validated cluster solutions in a representative English multimorbid population

Evidence-based policy implications:

- Supports the push for **parity of physical and mental health** within the healthcare system
- Unmet need to improve outcomes of **younger multimorbid patients with psychoactive substance misuse** given that risk factors (drug use, smoking, deprivation) are amenable to intervention
- The **majority of 85+ year old multimorbid patients have relatively low service use and mortality**

Results may be further strengthened by validation in external databases.

Future work

- Trajectories of multimorbidity over the life course (e.g. multi-state predictive models)
- Identify causes of multimorbidity, underlying pathways and early signs

Acknowledgements

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