

Characterization of polypharmacy in middle-aged and elderly adults in the UK: an analysis of 0.5 million people in UK biobank

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Introduction

Concurrent use of multiple medicines or polypharmacy is a growing concern for public health. Understanding polypharmacy can help differentiate appropriate and inappropriate drug use and minimize its negative impact on patient health and healthcare costs.

Aim

To estimate the rate of use of multiple medicines concurrently among middle-aged and elderly people in the UK.

Methods

We used data from the UK Biobank participants aged 40-73 years old at recruitment. Information on medicines use was self-reported at baseline using a touchscreen questionnaire guided by a trained nurse, including a range of common prescriptions and over-the-counter drugs, vitamins, and other supplements. We pre-processed the medication text data using a bespoke algorithm (see separate abstract) and grouped them according to international non-proprietary names (INN). We defined polypharmacy as the use of five or more drugs regularly taken by an individual, as recommended by Nashwa et al ¹. We calculated the prevalence of each INN and proportion of polypharmacy overall and stratified by age and sex.

Results

A total of 502,510 participants were included. The top 10 most commonly used medicines in the UK Biobank were paracetamol, aspirin, ibuprofen, simvastatin, glucosamine, sodium, omeprazole, bendroflumethiazide, ramipril and amlodipine, with prevalences descending from 18.7% to 5.5% accordingly. Overall, 22.8% of participants were recorded to be on polypharmacy, ranging from 6.9% in men aged 40-44 years to 40.3% in women aged 70 years or older.

Conclusion

Painkillers, proton pump inhibitors, and anti-hypertensives cover the top 10 most used medicines in UK Biobank. More than 1 in 5 participants are on polypharmacy, with much higher prevalence in women and elderly people. Our data shows lower prevalence of drug use in the general population than reported by previous studies, likely due to healthy participants bias and/or incomplete self-reporting.

References

- 1** Masnoon N, Shakib S, Kalisch-Ellett L, Caughey GE. What is polypharmacy? A systematic review of definitions. *BMC Geriatr.* 2017;17(1):230. doi:10.1186/s12877-017-0621-2.