Cost-effectiveness of a structured medication review approach for multimorbid older adults: Within-trial analysis of the OPERAM study

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4645482
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Year 2022
Title Cost-effectiveness of a structured medication review approach for multimorbid older adults: Within-trial analysis of the OPERAM study
Journal PLoS One
Volume 17
Number 4
Pages / **Article-Number** e0265507
Mesh terms Aged; Cost-Benefit Analysis; Humans; Medication Review; Multimorbidity; Polypharmacy; Quality of Life
Background: Inappropriate polypharmacy has been linked with adverse outcomes in older, multimorbid adults. OPERAM is a European cluster-randomized trial aimed at testing the effect of a structured pharmacotherapy optimization intervention on preventable drug-related hospital admissions in multimorbid adults with polypharmacy aged 70 years or older. Clinical results of the trial showed a pattern of reduced drug-related hospital admissions, but without statistical significance. In this study we assessed the cost-effectiveness of the pharmacotherapy optimisation intervention. Methods: We performed a preplanned within-trial cost-effectiveness analysis (CEA) of the OPERAM intervention, from a healthcare system perspective. All data were collected within the trial apart from unit costs. QALYs were computed by applying the crosswalk German valuation algorithm to EQ-5D-5L-based quality of life data. Considering the clustered structure of the data and between-country heterogeneity, we applied Generalized Structural Equation Models (GSEMs) on a multiple imputed sample to estimate costs and QALYs. We also performed analyses by country and subgroup analyses by patient and morbidity characteristics. Results: Trial-wide, the intervention was numerically dominant, with a potential cost-saving of CHF 3'588 (95% confidence interval (CI): -7'716; 540) and gain of 0.025 QALYs (CI: -0.002; 0.052) per patient. Robustness analyses confirmed the validity of the GSEM model. Subgroup analyses suggested stronger effects in people at higher risk. Conclusion: We observed a pattern towards dominance, potentially resulting from an accumulation of multiple small positive intervention effects. Our methodological approaches may inform other CEAs of multi-country, cluster-randomized trials facing presence of missing values and heterogeneity between centres/countries.
Publisher Public Library of Science
URL https://pubmed.ncbi.nlm.nih.gov/35404990/
edoc-URL https://edoc.unibas.ch/88707/
Full Text on edoc No;
Digital Object Identifier DOI 10.1371/journal.pone.0265507
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/35404990
ISI-Number WOS:000795158700011

Document type (ISI) Journal Article, Randomized Controlled Trial