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Protocol - A systematic review and meta-analysis on impact of suboptimal use of antidepressants, bisphosphonates, and statins on healthcare resource utilisation and healthcare cost

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ABSTRACT

We conduct a systematic literature review and meta-analysis for the impact of adherence to antidepressants, bisphosphonates or statins on healthcare resource utilisation or healthcare costs, using the articles finding these impacts published between November 2004 and April 2021 searched from PubMed, Cochrane Library, JSTOR, EconLit, and ClinicalTrials.gov.

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ABSTRACT

We conduct a systematic literature review and meta-analysis for the impact of adherence to antidepressants, bisphosphonates or statins on healthcare resource utilisation or healthcare costs, using the articles finding these impacts published between November 2004 and April 2021 searched from PubMed, Cochrane Library, JSTOR, EconLit, and ClinicalTrials.gov.

Summary of project

Medication adherence (MA) is typically measured as the proportion of days covered (PDC), a single percentage value representing the amount of medication taken relative to that prescribed over a period of time. This project explores the use of the group-based trajectory model (GBTM), which accounts for longitudinal patterns of medication consumption, enabling better understanding of alternative 'types' of non-adherence.
It explores using GBTM to define MA for Australians using antidepressants, statins and bisphosphonates. It identifies adherence types and their relationship with patient/ healthcare characteristics and healthcare costs. It also evaluates benefits of using GBTM in measuring MA compared to PDC. We utilises New South Wales 45 and Up Study linked with Admitted Patient Data Collection, Emergency Department Data Collection, Cause of Death Unit Record File, Medicare Benefit Schedule data and Pharmaceutical Benefit Schedule data to answer the research questions.

Review question

Finding the extent to which improving patterns of medication consumption saves valuable healthcare resources is critically important in determining how the research finding of our project will be used in practice. While our research includes the exploration of healthcare cost impacted by MA, we are also conducting this systematic review and meta-analysis to find the answer in broader context. There is lack of literature reviewing the relationship between MA and healthcare resource utilisation and healthcare cost.
The aim of this review and meta-analysis is to examine the impact of suboptimal use of

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antidepressants, statins and bisphosphonates on the pattern of healthcare resource utilisation and healthcare cost shown by use of hospital, visit to healthcare service providers other than hospital, healthcare cost and pharmacy cost.

Search strategy

Database searched

PubMed, Cochrane Library, JSTOR, EconLit, ClinicalTrials.gov

Search terms (PubMed and Cochrane Library)

Note: The final search phrase is the item 38 as shown below.

1. Medication Adherence (as MeSH Terms)
2. Patient Compliance (as MeSH Terms)
3. non-adherence (in either title or abstract)
4. Drug Therapy (as MeSH Terms)
5. medication (in either title or abstract)
6. (2 OR 3) AND (4 OR 5)
7. 1 OR 6

8. hmg coa statins (as MeSH Terms)
9. antidepressants (as MeSH Terms)
10. bisphosphonates (as MeSH Terms)
11. 8 OR 9 OR 10

12. Hospitalizations (as MeSH Terms)
13. hospital* (in either title or abstract)
14. Emergency Departments (as MeSH Terms)
15. emergency (in either title or abstract)
16. Practice, General (as MeSH Terms)
17. general practice* (in either title or abstract)
18. gp (in either title or abstract)
19. primary care (in either title or abstract)
20. visit* (in either title or abstract)
21. Costs and Cost Analysis (as MeSH Terms)
22. cost (in either title or abstract)
23. costs (in either title or abstract)
24. burden* (in either title or abstract)
25. accident and emergency (in either title or abstract)
26. A&E (in either title or abstract)
27. emergencies (in either title or abstract)
28. urgent medical aid service (in either title or abstract)
29. casualty department* (in either title or abstract)
30. secondary care (in either title or abstract)

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31. specialist* (in either title or abstract)
32. outpatient* (in either title or abstract)
33. day patient* (in either title or abstract)
34. medical consultation* (in either title or abstract)
35. resource use* (in either title or abstract)
36. physician* (in either title or abstract)
37. 12 OR 13 OR …… OR 36

38. 7 AND 11 AND 37

Search terms (JSTOR, EconLit and ClinicalTrials.gov)

We find the articles containing keywords (from their abstract for JSTOR and EocnLit and using keyword search for ClinicalTrials.gov) showing the names of medications studied (i.e., antidepressant, bisphosphonate or disphosphonate, or statin) and medication adherence or persistence (i.e., adherence, compliance, nonadherence, noncompliance or persistence).

Selection criteria

A	B	C
	Inclusion	**Exclusion**
Language	English	
Publication	Peer-reviewed, full articles	
Type of study		Review, correspondence (i.e., letters), editorial, expert opinion, discussion or commentary
Period	From November 2004 to April 2021	
Method	Quantitative analysis showing direct impact of MA on HRU	
Exposure measure	MA to antidepressants, statins or bisphosphonates (either as a whole class of medication or as any individual medication from each class)	Combined MA to multiple medications including a medication of interest
Outcome measure	Use of hospital; visits to other healthcare service providers; healthcare cost; or pharmacy cost	

Method of synthesis of findings

A data extraction template is developed to systematically capture information relevant to this project. The variables to be extracted are listed in the table as below.

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A	B
Study characteristics	- Title - Author - Year published - Whether it is peer-reviewed, funding - Conflict of interest
Context	Country
Type of study	Type of study (e.g., retrospective cohort study)
Aim of study	- Whether aims of study include finding relationship between medication adherence and healthcare resource utilisation or healthcare cost - Aim of study
Data	- Type of dataset - Data period - Data period breakdown for analysis
Sample	- Target population - Sampling method - Sample size - Age - Gender - Other inclusion/ exclusion criteria - Cohort demographics
Medication	- Antidepressants, statins or bisphosphonates - Name of medications (e.g. Alendronate)
Methods	- Measure of medication adherence - Measure of healthcare resource utilisation - Price level consideration - Other outcome measures - Type of statistical model used - What the statistical model is measuring - Covariates
Results	- Adherence profile - Size of predicted effects of suboptimal adherence on healthcare resource utilisation or healthcare cost - Measure of error - Factors associated with adherence if any - Other reported outcomes - Sensitivity analysis - Author's conclusion
Study limitations	- Any study limitations reported.

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Case/ Control (if applicable)	- Description and size of case - Description and size of control - Comparison between case and control - Answers for risk of bias questions defined by Cochrane review method

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