

Long term economic evaluation of interventions targeting multiple mental health conditions: protocol for a rapid review of methods

Background. Interventions and services for people with mental health problems can have broad remits: they are often designed to treat people with a variety of diagnoses. Furthermore, addressing mental health problems can have long term implications for economic, social and health outcomes. This represents a challenge for economic evaluation, where long term trial data can be lacking. In this review we will seek to identify how analysts have sought to tackle this problem. We will review the methods used to extrapolate costs and outcomes for the purpose of economic evaluation, where long term trial data are not available.

Methods/design. We will carry out a review of the medical and economic literature evaluating long-term costs and outcomes for mental health interventions and services designed to treat or prevent more than two mental health conditions. We will search the key health economic databases, including: OVID Medline, Embase, Psycinfo, CINAHL, and EconLit. The two authors will independently screen the returned results. Any discrepancies will be resolved by deliberation between the two authors. Key information will be extracted from the papers which successfully pass through the screening process. The findings will be highlighted through a narrative analysis and tabulated data.

Discussion. This review will shed light on the existing methods used to model into the future when multiple mental health conditions are considered. The review will discuss the strengths and weakness within current methodologies, highlight existing flaws, and provide guidance for future economic evaluations of interventions targeting multiple mental health conditions.

Long-term economic evaluation of interventions targeting multiple mental health conditions: protocol for a rapid review of methods.

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Abstract

Background. Interventions and services for people with mental health problems can have broad remits: they are often designed to treat people with a variety of diagnoses. Furthermore, addressing mental health problems can have long-term implications for economic, social and health outcomes. This represents a challenge for economic evaluation, where long-term trial data can be lacking. In this review we will seek to identify how analysts have sought to tackle this problem. We will review the methods used to extrapolate costs and outcomes for the purpose of economic evaluation, where long-term trial data are not available.

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Background

Mental health problems are a common occurrence with nearly a quarter of the UK population experiencing a mental health problem in a given year (Mental Health Taskforce, 2016). Government policy has increased its focus on the improvement of mental health in recent years (Department of Health, 2015). In 2015 NHS England created the Mental Health Taskforce, which is designed to improve mental health outcomes for people of all ages in the health and care system. Many pharmaco- and psychotherapeutic interventions within the mental health field focus on one or two conditions, and the methods used to analyse such interventions reflect this. However, interventions that target a broad range of conditions are particularly common within the field of mental health. There are a number of possible reasons for this including the prevalence of co- and multimorbidity (Barnett et al., 2012), misdiagnosis (Meyer & Meyer, 2009) and transient classifications of disease (Fiorillo et al., 2013). Examples of such services that are designed to address multiple conditions include liaison psychiatry, forensic mental health care, Improving Access to Psychological Therapies (IAPT, in the UK), and transitional services for those moving from youth to adult care.

In a world of scarce resources there is a need to examine whether interventions such as these represent good value for money; that is, whether they are cost-effective. To assess the cost-effectiveness, it is necessary to examine both the costs and outcomes associated with the intervention to determine whether the intervention represents value for money. Economic evaluation within a trial setting is relatively unproblematic, as costs and outcomes can be captured alongside the trial for as long as follow-up measures are recorded. Challenges arise if the intervention is expected to impact costs or outcomes beyond the final follow up point of the trial. Methods for extrapolating costs and outcomes for a specific condition are well established, including in mental health (Ginnelly & Manca, 2003). However, there is a lack of guidance as to the most appropriate methods to adopt in evaluating interventions with a broad remit.

Transitional services in particular have been an area of recent interest, with interventions aiming to improve the management of transition from childhood services to adult services (Singh et al., 2010; Knapp et al., 2016). The purpose of a transitional intervention typically is to improve the transition of adolescents and young adults from child and adolescent mental health services (CAMHS) to adult mental health services (AMHS). Such interventions are targeted at CAMHS and AMHS services more generally, and not on any specific diagnosis. The patients receiving such a transitional intervention therefore will fall under one of many (or multiple) mental health diagnoses. Furthermore, extrapolation of costs and outcomes is particularly important for transitional services, which seek to address mental health problems in youth that are likely to otherwise persist into adulthood. Such an intervention is being evaluated within the MILESTONE study (Singh & Tuomainen, 2015), for which many diverse conditions are considered under the umbrella of ‘mental health’. We know of no guidance that can inform extrapolation of costs and outcomes beyond the trial in order to accurately estimate cost-effectiveness.

We will carry out a rapid systematic review (Schünemann & Moja, 2015) of studies that evaluate the cost-effectiveness of broad mental health interventions over the long-term (more than 5 years). The review is conceived specifically to inform an economic evaluation of a transitional service - to which the issues are particularly pertinent - with a view to inform future research more broadly. The review is concerned with examining how other researchers within the mental health field, when faced with multiple conditions, have extrapolated their cost-effectiveness estimates into the long-term.

Methods/Design

Review question

This review seeks to identify the methods of economic evaluation used to assess the costs and benefits of 'broad' mental health services/interventions, that target multiple diagnoses, beyond those observed in a single trial. It will assess different approaches to modelling and extrapolation of costs and outcomes over the long-term, when there is heterogeneity and/or instability in diagnosis.

Study eligibility

Inclusion Criteria

Only published studies written in English will be included.

Participants

The review will consider any study that includes human participants.

Intervention

The review will include studies that evaluate any intervention or service targeted at mental health, including preventive care, public health and individual pharmaco- and psychotherapy. An additional criterion is that the study must include an intervention or service designed to treat or prevent at least three separate mental health conditions as defined by the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013), or non-specific mental health problems. This is requisite due to the focus of the review being on the challenge presented by multiple conditions.

Outcome measures

This review is interested in the methods used to examine the long-term cost-effectiveness of broad mental health interventions. Therefore, only studies which seek to model the cost-effectiveness of the intervention in the long-term (at least five years) will be included within the study.

Study type

Only fully reported evaluative studies that estimate costs and outcomes over a period of more than five years (and not within trial) will be included within the review. This will include economic evaluations in the form of cost-utility, cost-benefit and cost-effectiveness analyses.

We will also include cost-consequences analyses where costs and outcomes are both extrapolated but not combined.

Exclusion criteria

- Any papers that are not published within the english language will be excluded.
- Trials on animals, plants or extra-terrestrial beings will be excluded from the study.
- Interventions which do not primarily target mental health will not be considered.
- Interventions that do not target mental health broadly will be excluded. That is, the intervention must target three or more specific mental health problems, or be a non-specific mental health intervention.
- Reviews, methodological papers and solely trial-based analyses will be excluded.
- Studies that focus only on the short-term (less than five years) or trial-based economic evaluation will be excluded.
- Studies with no full paper - for example published conference abstracts - will be excluded.

Literature search strategy

Key databases associated with the discipline of health economics and economic evaluation will be targeted for this review, these will include: OVID Medline, Embase, Psycinfo, CINAHL, and EconLit. There will be no limitation in terms of publication date.

The search will be based on specific words that are included within any search field associated with papers. Search fields include amongst others, titles, abstracts, words within the full text, medical subject headings, and associated keywords. Key terms relevant to the review were identified to facilitate the search strategy. The search strategy combining terms with Boolean operators is outlined in Table 1, and a full example search (for OVID Medline) is shown in Appendix 1. The first row refers to the type of study that this review is interested in, that is, studies concerned with the cost-effectiveness of interventions. Consequently all terms within this review reflect study types that aim to assess cost-effectiveness. These terms will be combined with the third row which reflects the context of this review, that is mental health. Consequently the terms in the third row reflect the conditions of interest, i.e. mental health problems and mental disorders. The final row is designed to detect papers which model beyond the scope of a trial, the terms in this row are therefore specifically related to long-term modelling and extrapolation. The search structure is therefore designed to detect studies that conduct the long-term economic evaluation of mental health interventions.

The first reviewer (AGC) will carry out a forward-backward citation search on included full papers in order to identify any remaining articles.

Table 1: Search strategy

1. Economic evaluation OR economics OR cost benefit analysis OR cost utility analysis OR cost effectiveness analysis OR cost minimisation analysis
AND
2. Mental health OR mental disorder OR mental health services
AND
3. Modelling OR modeling OR decision tree OR markov OR discrete event simulation OR decision analysis OR discrete event simulation OR cohort model OR cohort state transition model OR event-based model OR Monte-Carlo simulation OR microsimulation OR long-term effects OR extrapolation

Study selection

All citations will be exported to Mendeley reference manager. De-duplication will be conducted to remove duplicate entries. These entries will then be screened.

Screening shall be conducted in three stages: i) title screening, ii) abstract screening and iii) full paper screening.

Any papers that are clearly irrelevant from their titles will be excluded. If it is not clear from the title, then the paper will continue through to abstract screening. Title screening will be conducted independently by both reviewers (AGC and CJS) and any disagreements will be resolved by discussion.

Abstracts of included titles will be checked against the inclusion criteria. All papers that meet the inclusion criteria will proceed through to full paper screening. If it is unclear from the abstract whether the paper meets all the criteria, then the paper will proceed to full paper screening. Those which clearly do not meet the criteria will be excluded. All abstracts will be screened independently by both reviewers. Any discrepancies between AGC and CJS will be addressed through deliberation.

Full paper screening will be carried out by the first reviewer (AGC), and any exclusions will be reviewed by the second reviewer (CJS). The remaining papers that satisfy the eligibility criteria will be included within the review. A PRISMA flow diagram will be used to record and report the screening process.

Data extraction

Data extraction will be completed by AGC. Extracted data will be documented and stored using Google Forms. The data extraction form will capture all the key information relevant to answering the research questions. This includes: paper details (first author, year of publication, title of paper, country of publication), study details (population, intervention, mental health conditions, type of economic evaluation), analysis details (primary outcome measure, time horizon, data sources, method of extrapolation/modelling), limitations (any limitations discussed in regards to the modelling/extrapolation).

Data presentation

As the focus of this review is on the methodology of economic evaluation, there will be no summary measure as such. Instead, all papers that meet the inclusion criteria will have their key study data extracted as previously described. Of particular interest is the data pertaining to the methods of extrapolation and modelling. This data will be synthesised and tabulated to provide an overview of the methods used. Through a narrative analysis, the methodologies and their strengths and limitations will be examined. The analysis will attempt to draw out the relative merits of the different approaches that have been used to date.

Discussion

Mental health issues are prevalent within society and there have been renewed calls for interventions to address this. Given scarce resources, it is necessary to examine the cost-effectiveness of such interventions to justify increases in spending within this area. There exists more generally pre-specified guidelines to conducting economic evaluation, as best highlighted by the NICE reference case (National Institute for Health and Care Excellence, 2013). Mental health interventions however often offer specific challenges to existing methodologies, particularly in the case where multiple conditions are targeted. The purpose of the review is to examine the methods used within existing studies encountering this issue. By appraising the existing methods, it is anticipated that the review will be able to provide guidance on how future studies encountering this problem may wish to conduct economic evaluations in future. Furthermore, it is anticipated that the review will highlight areas for future research where current methodologies are limited.

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Association 14:358–361. DOI: 10.1002/wps.20266.

Appendix 1:

OVID Medline search steps:

1. ['Economic evaluation' OR 'economic analysis' OR 'economics' OR 'cost-benefit analysis' OR 'cost-benefit analys*' OR 'cost benefit analys*' OR 'cost-utility analys*' OR 'cost utility analys*' OR 'cost effectiveness analys*' OR 'cost-effectiveness analys*' OR 'cost minimisation analys*' OR 'cost-minimisation analys*'].af
2. ['Mental health' OR 'mental disorder' OR 'mental health services'].af
3. ['Modelling' OR 'modeling' OR 'decision tree' OR 'decision-tree' OR 'markov' OR 'discrete event simulation' OR 'discrete-event simulation' OR 'decision analysis' OR 'cohort model' OR 'state-transition model' OR 'state transition model' OR 'event-based model' OR 'event based model' OR 'Monte-Carlo simulation' OR 'Monte Carlo simulation' OR 'microsimulation' OR 'long-term effects' OR 'extrapolat*'].af
4. 1 AND 2 AND 3.