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Patterns in attribute selection and development reporting in patient preference studies: a systematic review

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ADMINISTRATIVE INFORMATION

Support - Acaster Lloyd.

Review Stage at time of this submission - Data extraction.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 January 2025 and was last updated on 17 January 2025.

INTRODUCTION

Review question / Objective The aim of this systematic review is to identify and synthesize reporting on attribute selection and development in DCE studies examining patient preferences for medical interventions that provide an in-depth description of attribute selection and/or development attributes. This search will focus on DCE studies eliciting patient preferences towards medical interventions and be unrestricted by date. Data extraction and synthesis will focus on content of reporting on attribute selection and development. The purpose of the review is to identify patterns and gaps in reporting on attribute and development to help inform the development of further reporting guidance for researchers. Such guidance may contribute to more consistent attribute selection and development reporting practices in patient medical intervention DCEs and other stated preference studies.

To this end, the proposed systematic review will address the following question: How is attribute selection and development in DCE studies examining patient preferences for medical interventions reported in studies that provide an in-depth description of attribute selection and/or development attributes?

Rationale Discrete choice experiments (DCE) are an enduringly popular quantitative method used to understand patient and other stakeholder preferences towards healthcare interventions. In a DCE, participants are presented with a series of choice tasks each showing two or more descriptions of hypothetical treatment alternatives. Each alternative is described by a common set of treatment characteristics or 'attributes' (e.g. efficacy, mode of administration, likelihood of side-effects) which vary according to descriptive levels. Participants make repeated choices between alternatives over a series of choice tasks where the levels of attributes are varied systematically. Responses are analysed to understand the relative importance of treatment attributes.

The importance of any given attribute is estimated relative to the other included attributes within a DCE. If central characteristics of an intervention are excluded or misunderstood by respondents, the results are likely to be biased and less valid in the context of the research question. The choice of attributes and associated levels within DCEs ultimately determines the legitimacy of results and therefore a rigorous approach to attribute selection is critical (1). Misspecification or misinterpretation of attributes may lead to attribute non-attendance and responses that lack external validity.

There is currently wide variation in reporting of attribute selection and development in DCE publications. There are a number of guidance documents on how to conduct or design a DCE and checklists to assess quality of a DCE (1–3). However, existing checklists generally provide limited guidance on reporting of attribute selection and development, instead focusing on reporting the type of methods used. Furthermore, detailed reporting on attribute selection is often limited by word limits of journals.

Diverse reporting practices in attribute selection and development can make it difficult to assess the validity, risk of bias, comparability of the results across studies, and the transferability of preference data. More recently, a reporting checklist, The DIRECT Checklist was also published to standardise the reporting of a DCE study (4). Additionally, there has been a recent increase in the separate publication of attribute development processes, piloting or study protocols in addition to the final results aiming to provide greater transparency (5–7).

Condition being studied Discrete choice experiments in any medical condition.

METHODS

Search strategy Search terms combine terms relating to 'patients', to 'discrete choice experiment' and 'attribute selection'. The search terms used in both Medline and Embase are listed below:

1. (Patient or patients or people living with or people diagnosed with or people being treated or people with).tw.
2. (Conjoint or conjoint analysis or conjoint measurement or conjoint studies or conjoint choice experiment or part-worth utilities or functional measurement or paired comparisons or pairwise choices or discrete choice experiment or DCE or discrete choice modeling or discrete choice modelling or discrete choice conjoint experiment or stated preference).tw.
3. DCE-MRI.mp.
4. 1 and 2
5. 4 not 3
6. protocol.tw.
7. ((attribute* adj3 select*) or (attribute* adj3 develop*)).tw.
8. (DCE adj3 develop*).tw.
9. 6 or 7 or 8
10. 5 and 9
11. remove duplicates from 10.

Participant or population Individuals with any health conditions will be eligible for this review, with no exclusions based on ethnicity or age.

Intervention Not applicable.

Comparator Not applicable.

Study designs to be included All studies that used discrete choice experiments to examine patient preferences for medical interventions.

Eligibility criteria The search question and eligibility criteria have been defined using the PICOS framework as detailed below. Exclusion criteria were studies not published in English, not peer-reviewed full-text manuscripts, and not full-text studies:

i. Population, or participants and conditions of interest: Patients - no restrictions on condition. Patients with any health condition requiring a medical intervention.
ii. Interventions or exposures: No restrictions
iii. Comparisons or control groups: Not applicable
iv. Outcomes of interest: Reporting on methods used to select and develop attributes for DCE studies examining patient preferences for medical interventions. Reporting on evidence used for and decision making relating to attribute selection and development of attributes for DCE studies examining patient preferences for medical interventions.
v. Setting: No restrictions.

Information sources Systematic searches were conducted in Embase and Medline using Ovid. Other search methods used for identifying relevant research included reference and forward citation checking of studies included in full text. There were no restrictions on the search dates, and no journals were hand searched.

Main outcome(s) Data extraction form will be developed and piloted in Microsoft Excel.

Each included full-text study will undergo data extraction by an independent reviewer. A subset of 10% (or a minimum of five) of included studies will be extracted by a second reviewer to compare results. If sufficient agreement is achieved, remaining data extraction will be conducted by a single reviewer. If insufficient agreement is achieved all full-text studies will be extracted by two reviewers and disagreements will be resolved by a third reviewer where necessary.
Data extracted from each included study:
• Author(s) and publication year
• Title
• Study Objective
• Attribute development methods (e.g. literature review, interviews and focus group discussions, expert consultations, quantitative and qualitative piloting of survey, quantitative prioritisation exercise)
• Documentation/transparency of the attribute development process. For example,
o Literature reviews – description of search terms and database, description of inclusion/exclusion criteria, data extraction content, how the results informed attribute development, list of attributes
o Primary data collection – type, objective of and rationale for method, sample recruitment and characteristics, description of and/or full copy of discussion guides or tasks, description of data collection process, analysis methods, research results, how the results informed attribute selection and development and attribute changes, list of attributes
o Patient and Public Involvement – full text and descriptions to be qualitatively coded by reviewers.

Additional outcome(s) Not applicable.

Data management The systematic review will be conducted and reported following PRISMA guidelines. This protocol will be registered with Inplasy. Any substantial deviations from the protocol will be submitted as an amendment and outlined in any reporting of results.

Searches will be run across all databases by a single reviewer. Search results will be extracted to and managed in Microsoft Excel during screening.

Two reviewers will independently assess the title and abstract of the first 10% (or minimum 200) of references to determine eligibility for full-text review. Decisions will be compared and any disagreement at this stage will be resolved by a third reviewer. If sufficient agreement (>80%) is achieved the remaining search hits will be divided and screened by one reviewer. This approach was decided by referring to the AMSTAR2 (A MeaSurement Tool to Assess systematic Reviews) checklist (8).

Full-text copies of eligible studies will be retrieved for further inspection and final decisions on inclusion. This process will follow the same procedures at screening of the title/abstract stage.

Quality assessment / Risk of bias analysis This systematic review aims to assess patterns in reporting and heterogeneity in reporting on DCE attribute selection and development as a primary objective. As such, quality assessment of methods used and studied health outcomes (e.g., the GRADE system) will not be performed as part of this study.

Strategy of data synthesis Narrative synthesis will be the primary form of analysis for this review and will be structured around patterns related to the content of reporting on the methods used for and evidence used for and decision-making regarding attribute selection and development across studies. Where appropriate, counts of studies reporting on each element of attribute selection and reporting will be provided.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Language restriction Only studies published in English will be considered for inclusion.

Country(ies) involved United Kingdom.

Keywords Discrete choice experiment; attribute identification; attribute selection; attribute development; attribute reduction; patient preferences; medical interventions; stated preferences.

Dissemination plans It is intended for the review results to be presented at conference presentations and its manuscript is to be submitted to a peer-reviewed journal.

Contributions of each author
Author 1 - Siu Hing Lo - Siu Hing Lo made or will make contributions to the following areas: conceiving the review, designing the review, coordinating the review, data management, analysis of the data, interpretation of the data, reviewing of the protocol, drafting the manuscript.
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