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Application of Discrete Choice Experiments in Healthcare Decision-Making Preferences of Patients with Chronic Obstructive Pulmonary Disease: A Scoping Review

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - The review has not yet started.

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 26 October 2025 and was last updated on 26 October 2025.

INTRODUCTION

Review question / Objective This study aims to systematically review the application of discrete choice experiments in the treatment and decision-making preferences of patients with chronic obstructive pulmonary disease (COPD). By comprehensively searching relevant literature, we will conduct a comprehensive analysis of the studies that meet the inclusion criteria, and summarize the research findings of discrete choice experiments in exploring COPD patients' preferences for treatment regimens (such as drug therapy, rehabilitation therapy, surgical treatment, etc.), treatment effects (such as the degree of symptom relief, improvement of lung function, etc.), treatment costs, and treatment convenience (such as medical distance, treatment time, etc.). It provides an evidence-based basis for clinicians to formulate treatment plans that better meet the needs of patients, and also provides scientific references for health policy makers to optimize the allocation of medical resources and improve the quality and efficiency of medical services.

Background Chronic Obstructive Pulmonary Disease (COPD) is a common, irreversible chronic respiratory disease requiring long-term treatment and management. With increasingly complex and personalized treatment options, understanding patients' preferences and values regarding treatment attributes is essential for developing patient-centered healthcare decisions. Discrete Choice Experiments (DCEs), as a quantitative method for studying preferences, can effectively quantify the importance patients place on different treatment attributes when making trade-offs, thereby revealing their decision-making drivers. This study aims to systematically summarize the application status, key findings, and methodological characteristics of DCEs in researching treatment preferences among COPD patients through a scoping review.

Rationale Clinical decision-making for Chronic Obstructive Pulmonary Disease (COPD) is increasingly complex, with treatment options varying across efficacy, safety, administration methods, and cost. Traditional clinical endpoints, such as lung function, cannot fully capture the trade-offs patients make in real-world decisions. Understanding patient preferences among these attributes is crucial for developing patient-accepted therapies, optimizing shared decision-making, and improving treatment adherence.

Discrete Choice Experiments (DCEs) are a robust methodology for measuring patient preferences. By simulating real-world choice scenarios, DCEs compel patients to make trade-offs between conflicting attributes, thereby quantifying their relative importance. While several studies have applied DCEs to explore preferences in COPD, these investigations have varied in their focus—examining different attributes, patient populations, and methodologies—leading to fragmented findings.

This scoping review therefore aims to systematically identify, map, and synthesize the existing DCE studies in this field. By charting the current research landscape, this review will identify key knowledge gaps and emerging trends. The findings will provide a methodological reference for future, more targeted preference studies and facilitate the effective translation of preference evidence into clinical practice and health policy formulation.

METHODS

Strategy of data synthesis

Literature Search Strategy

A systematic literature search will be conducted to identify all relevant studies published from inception to [Insert Date of Search]. The following electronic bibliographic databases will be searched:

* **English Databases:** PubMed/MEDLINE, Embase (via Ovid), Web of Science Core Collection, Cochrane Central Register of Controlled Trials (CENTRAL), CINAHL (via EBSCOhost), and EconLit.
* **Chinese Databases:** China National Knowledge Infrastructure (CNKI), WanFang Data, and VIP Database for Chinese Technical Periodicals (CQVIP).

The search strategy will be designed in consultation with a medical information specialist. It will combine controlled vocabulary terms (e.g., MeSH in MEDLINE, Emtree in Embase) and free-text keywords related to two core concepts:

1. **Chronic Obstructive Pulmonary Disease:** Terms such as "COPD," "Chronic Obstructive Pulmonary Disease," "chronic bronchitis," and "emphysema."
2. **Discrete Choice Experiment:** Terms including "Discrete Choice Experiment," "DCE," "choice experiment," "conjoint analysis," "patient preference," and "stated preference."

The search strategy for PubMed will be peer-reviewed using the PRESS guideline and subsequently adapted for the syntax and subject headings of the other databases. No language restrictions will be applied initially. The reference lists of all included studies and relevant review articles will be manually screened to identify additional potentially eligible publications.

Data Synthesis Strategy

Given the nature of a scoping review, which aims to map the extent and characteristics of the literature rather than appraise the quality of evidence or pool quantitative results, the synthesis will be primarily descriptive and narrative.

1. **Study Selection and Data Charting:** Following the search, all identified records will be imported into reference management software (e.g., EndNote) and duplicates will be removed. The study selection process will be conducted independently by two reviewers in two stages (screening of titles/abstracts, followed by full-text assessment) based on pre-defined eligibility criteria. Any disagreements will be resolved through discussion or by a third reviewer. Data from the included full-text studies will be extracted into a standardized data charting form. The extracted data will include:
* **Study Characteristics:** First author, publication year, country, study objective.
* **Methodology:** DCE design (e.g., number of attributes/levels, experimental design, model used for analysis), method of attribute development.
* **Participant Characteristics:** Sample size, population (e.g., patients, caregivers, clinicians), disease severity.
* **Key Attributes and Findings:** All treatment/service attributes investigated, their relative importance, willingness-to-pay/pay/accept key trade-offs, and subgroups analyses.

2. **Narrative Synthesis and Mapping:** The charted data will be analyzed to summarize and present the findings. This will involve:
* **Descriptive Summary:** Presenting tables and figures to describe the characteristics of the included studies, such as the geographical distribution, year of publication, and participant types.
* **Attribute Mapping:** Creating a comprehensive table or matrix to catalog all the attributes and levels used across the DCE studies, categorizing them into broader domains (e.g., Efficacy, Safety/Tolerability, Administration, Cost).
* **Narrative Summary:** Synthesizing the evidence thematically. We will describe the relative importance of different attributes as reported in the studies, identify consistent patterns and notable variations in patient preferences, and highlight any key trade-offs that patients are willing to make. The synthesis will also summarize methodological approaches used in the field and identify gaps in the existing research.

Eligibility criteria The study selection process will be guided by the following eligibility criteria, structured according to the PCC (Participants, Concept, Context) framework recommended for scoping reviews.

Types of Participants

We will include studies that focus on individuals directly involved in or affected by COPD management decisions. This includes:
* Adult patients (aged 18 years or older) with a clinical diagnosis of COPD.
* Informal caregivers (e.g., family members, friends) of COPD patients.
* Healthcare professionals (e.g., pulmonologists, general practitioners, nurses) involved in the treatment and management of COPD.

Studies focusing on the general public without a specified connection to COPD, or on patients with other primary respiratory conditions (e.g., asthma alone, bronchiectasis without COPD), will be excluded.

Concept

The core concept of this review is the application of Discrete Choice Experiments (DCEs) or related stated-preference methods (e.g., choice-based conjoint analysis) to quantify preferences for COPD treatment, management, or healthcare services.

Eligible studies must employ a methodology where participants are presented with a series of hypothetical scenarios or profiles, described by a set of attributes (e.g., efficacy, side effects, cost), and are asked to choose their preferred option from a set of two or more alternatives. The study must report quantitative results on the relative importance of attributes, preference weights, or trade-offs.

Studies that use other preference-elicitation methods (e.g., Likert scales, simple rankings without trade-offs, time trade-off, standard gamble) or that are qualitative in nature (e.g., interviews, focus groups) will be excluded.

Context

This review will consider studies in any healthcare setting (e.g., primary, secondary, or tertiary care) and any geographical or economic context (e.g., high, middle, and low-income countries). The interventions or subjects of choice can include, but are not limited to:
* Pharmacological treatments (e.g., inhalers, oral medications).
* Non-pharmacological interventions (e.g., pulmonary rehabilitation, oxygen therapy).
* Service delivery models (e.g., telemonitoring, integrated care programs).
* Screening or diagnostic procedures.

There will be no restrictions on the publication date. Both peer-reviewed journal articles and full-text conference abstracts/proceedings will be included. Editorials, letters, commentaries, and study protocols will be excluded.

Source of evidence screening and selection The screening and selection process for this scoping review will be conducted systematically and reported in accordance with the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guidelines.

The process will be managed using reference management software (e.g., EndNote) and a dedicated systematic review platform (e.g., Rayyan). The selection will be performed independently by two reviewers in a two-stage process:

1. **Title and Abstract Screening:** The titles and abstracts of all records retrieved from the database searches will be screened against the eligibility criteria by two reviewers independently. Records that clearly do not meet the criteria will be excluded. Studies that appear to be relevant or where relevance is uncertain based on the title/

abstract will be advanced to the full-text review stage.

2. **Full-Text Screening:** The full-text articles of all potentially eligible studies will be retrieved and assessed for eligibility by the two independent reviewers against the predefined PCC (Participants, Concept, Context) criteria.

Procedure for Solving Disagreements

At both stages of screening, any disagreements between the two reviewers regarding the eligibility of a study will be resolved through discussion and consensus. If a consensus cannot be reached, a third reviewer will be consulted to arbitrate and make a final decision. This process ensures the objectivity and reproducibility of the study selection.

The results of the search and the selection process will be presented in a PRISMA-ScR flow diagram, which will document the number of records identified, included, and excluded at each stage, along with the specific reasons for exclusion at the full-text stage.

Data management A structured data management plan will be implemented to ensure the integrity and traceability of the review process. All records retrieved from the database searches will be imported into EndNote reference management software for initial deduplication. The deduplicated library will then be exported to the systematic review platform Rayyan for the screening phase.

A standardized, pre-piloted data extraction form will be developed in Microsoft Excel. This form will capture all variables of interest as outlined in the data synthesis strategy (e.g., study characteristics, DCE methodology, key results). The form will be stored on a secure, shared institutional network drive with access restricted to the review team.

Two reviewers will independently extract data from the included studies using the standardized form. The lead reviewer will consolidate the extracted data into a single master file. Any discrepancies between the two extractions will be highlighted and resolved through consensus or, if necessary, by consulting a third reviewer. This master data file, along with the final selection of included studies and a record of all excluded studies with reasons, will be archived upon project completion to ensure reproducibility and facilitate potential future updates.

Language restriction None.

Country(ies) involved China.

Keywords Chronic Obstructive Pulmonary Disease; COPD; Discrete Choice Experiment; Patient Preferences; Scoping Review; Treatment Decision-Making.

Contributions of each author
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