INPLASY

INPLASY2026110037
doi: 10.37766/inplasy2026.11.0037
Received: 10 November 2026
Published: 10 November 2026

Conceptualization and Characterization of Acupuncture Efficacy Curves: A Scoping Review Protocol

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ADMINISTRATIVE INFORMATION

Support - Research funding from BUCM.

Review stage at the time of initial registration - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2026110037

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 November 2026 and was last updated on 10 November 2026.

INTRODUCTION

Review question / Objective The objective of this scoping review is to systematically map and synthesize the terminology, definitions, and study characteristics related to acupuncture efficacy curves and associated time–effect and dose–response concepts. Specifically, the review will examine how these concepts are defined, described, and operationalized across research settings, and identify their shared attributes, differences, and conceptual boundaries. These findings will inform the development of a working definition of acupuncture efficacy curves and identify key elements for their description. Pharmacological time–effect and dose–response frameworks will serve as references for interpretation and comparison, without prespecifying the attributes or shapes of acupuncture efficacy curves.
The review will address the following questions:
1. What terms are used to describe changes in acupuncture effects over time, across treatment sessions, or with different stimulation parameters, and what concepts or processes do these terms represent?
2. How are these concepts defined or described, and what shared attributes, differences, and conceptual boundaries can be identified?
3. Across research settings, how are these processes characterized through intervention designs, outcome measures, measurement schedules, and analytical methods?
4. What candidate attributes and boundaries can be identified from these definitions and study characteristics to inform a working definition of acupuncture efficacy curves?

Background Evaluating treatment effects requires consideration of both their magnitude and how they change over time or vary with dose. In pharmacology, time–effect and dose–response frameworks describe these relationships and provide reference concepts for onset, peak effect, duration, decline, and cumulative effects. Their application to acupuncture requires consideration of the characteristics of acupuncture stimulation and treatment schedules.

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Acupuncture research encompasses different stimulation techniques, treatment frequencies, and treatment courses. Responses may be assessed through symptoms, functional outcomes, physiological measures, or biological indicators. Studies have examined relationships between treatment effects and the number or frequency of sessions and stimulation parameters. Acupuncture dose therefore involves multiple components and cannot be represented by a single parameter alone.

Within this context, the concept of an "acupuncture efficacy curve" raises questions about its relationship to time–effect relationships, dose–response relationships, immediate effects, after-effects, and cumulative effects. Clarification is needed regarding what these terms describe, which attributes their definitions include, and how the corresponding processes are characterized through outcomes, measurement schedules, and analytical methods. Clinical efficacy should also be distinguished from physiological or biological responses, while changes over time should be differentiated from relationships across dose levels. Examining both conceptual descriptions and their use in research may help clarify the meaning and boundaries of acupuncture efficacy curves.

Rationale Changes in acupuncture effects can be investigated from different perspectives. Related terms may refer to temporal changes, differences across dose levels, particular phases of an effect, or changes during repeated treatment. Similar terminology or co-occurrence alone does not establish conceptual equivalence. Likewise, describing study types and health conditions is insufficient to determine the defining attributes of acupuncture efficacy curves. Conceptual definitions therefore need to be examined alongside how the corresponding processes are characterized in research.

A scoping review provides a structured approach to this task. This review will distinguish explicit definitions, explanatory descriptions, and operational definitions, and examine the outcomes, dimensions of change, measurement schedules, and analytical methods used in the literature. These findings will inform the identification of candidate attributes and the clarification of boundaries between acupuncture efficacy curves and related concepts. Pharmacological frameworks will support interpretation and comparison rather than prescribe expected curve shapes. The findings are intended to inform a working definition and identify key elements for describing acupuncture efficacy curves.

METHODS

Strategy of data synthesis Descriptive summaries and qualitative conceptual synthesis will be used. Publication years, research types, research fields, intervention patterns, terminology, and characterization methods will be summarized using frequencies and, where appropriate, percentages. Denominators and categories allowing multiple responses will be specified.

Explicit conceptual definitions, explanatory descriptions, and operational definitions will be examined separately. Original wording will be retained alongside reviewers' coding. Initial coding will consider time, effect magnitude, single and repeated interventions, stimulation parameters, onset, peak, duration, decline, residual effects, and cumulative effects. These will be treated as provisional categories, allowing additional attributes to emerge from the literature.

Definitions will be compared with how the corresponding processes are measured and analyzed. Temporal trajectories will be distinguished from dose–response relationships, and clinical outcomes from physiological or biological responses. Convergent and conflicting evidence will inform candidate attributes, conceptual boundaries, and a proposed working definition. Pharmacological frameworks will support interpretation rather than determine the coding categories or expected curve shapes.

No meta-analysis of treatment effects is planned. Results will be presented in descriptive tables, a definition-and-attribute matrix, and a preliminary conceptual framework. Where one source contributes multiple records, source-level counts will be deduplicated. Evidence reported in reviews will not be counted as independently included primary research unless the original reports are separately eligible and included.

Eligibility criteria Eligibility will be defined using the Population–Concept–Context framework.

Population: Human participants, including patients and healthy volunteers, and animal models will be eligible. Conceptual and methodological publications without a defined participant population will also be considered.

Concept: Sources must provide extractable information relevant to the terminology, definition, description, or characterization of acupuncture effects changing over time, across treatment sessions, or with dose or stimulation parameters. Eligible content may concern time–effect or dose–response relationships, immediate or after-effects, cumulative effects, or features such as onset, peak, duration, and decline. Use of the exact

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expression “acupuncture efficacy curve” will not be required.

Context: Clinical and experimental settings will be eligible without restriction to a particular health condition or geographical setting.

Types of evidence: Eligible sources will include primary clinical and experimental studies, reviews, study protocols, and methodological or theoretical publications. Protocols will contribute planned methods or conceptual descriptions, not observed findings. Sources published in Chinese or English will be included.

Sources will be excluded if they:

(1) Do not concern needle-based acupuncture, or do not provide separately extractable acupuncture-related information.

(2) Report only a conventional treatment-effect comparison without relevant conceptual discussion or an explicit investigation of temporal or dose-related variation. A baseline-to-endpoint comparison alone will not establish eligibility.

(3) Mention relevant terminology only incidentally, without sufficient information to address the review questions.

(4) Are retracted, duplicate reports without additional relevant information, or brief publications lacking sufficient extractable content.

Potentially eligible reports that cannot be retrieved after reasonable attempts will be recorded separately as reports not retrieved. When multiple publications concern the same study, they will be linked and retained only where they provide complementary information.

Source of evidence screening and selection The review will combine the initial searches with updated searches of CNKI, Wanfang, VIP, SinoMed, PubMed, Web of Science Core Collection, and Embase.

Search strategies will combine acupuncture-related terms with terms concerning efficacy curves, time–effect relationships, dose–response relationships, immediate effects, after-effects, cumulative effects, and related temporal features. Controlled vocabulary, where available, will be combined with free-text terms. Search fields, truncation, and Boolean operators will be adapted to each database. Complete search strategies, database platforms, coverage, and execution dates will be retained.

Supplementary snowball searching will include backward reference checking and forward citation searching. Reference lists of included sources and relevant reviews will be examined, and publications citing the included sources will be identified using Web of Science Core Collection. Newly included sources will undergo the same citation-searching process until no additional eligible sources are identified. All records identified through snowball searching will be deduplicated and screened against the same eligibility criteria. The citation-searching platform, search dates, seed sources, and additional records identified will be documented.

Searches will be structured around two concept groups: acupuncture and temporal or dose-related changes in effects. Acupuncture terms will include “acupuncture,” “manual acupuncture,” and “electroacupuncture,” together with relevant controlled vocabulary and Chinese equivalents. The second group will include terms such as “efficacy curve,” “time–effect,” “time course,” “dose–response,” “dose–effect,” “immediate effect,” “after-effect,” and “cumulative effect.” Additional terms will be informed by relevant source terminology.

Database-specific strategies will be documented in full. Any modifications made during the updated search will be recorded, including their timing and rationale.

Data management Retrieved records will be imported into Noteexpress. Automated duplicate detection will be followed by manual verification. Records from the updated searches will be checked against the initial search library and previous screening records.

Two reviewers will independently screen titles and abstracts and assess potentially eligible full texts against the eligibility criteria. The criteria will first be piloted on a small sample, and ambiguities will be discussed before further screening. Disagreements will be resolved through discussion or consultation with a third reviewer. Reasons for exclusion at full-text assessment will be recorded, and the selection process will be presented in a PRISMA flow diagram.

A standardized Microsoft Excel charting form will be piloted on a small set of sources representing different evidence types. One reviewer will extract the data, and a second reviewer will check the entries against the original sources. Disagreements will be resolved by discussion, with third-reviewer consultation where necessary.

Charted information will include source identification, publication year, research type and field, acupuncture modality, intervention pattern, original terminology, definition evidence type, verbatim definitions or descriptions and their locations, definition attributes, outcomes, dimensions of change, measurement time points, analytical methods, curve features, and criteria used to identify those features.

Multiple records may be created for a source containing distinct concepts or characterization

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approaches, while retaining the same source identifier. Missing information, non-applicable fields, and uncertain interpretations will be distinguished. Revisions to the charting form will be documented and applied consistently to previously charted sources.

Language restriction English and Chinese.

Country(ies) involved China.

Keywords Acupuncture; Acupuncture efficacy curves; Time–effect relationship; Dose–response relationship; Conceptual definition.

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