

*In the name of God*





# جستجوی نظام مند منابع اطلاعاتی

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دبیر کمیته طرح های نوآورانه آموزشی مبتنی بر شواهد، رئیس کمیته دانشجویی توسعه آموزش

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# Level of medical studies



# Types of reviews

**<https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1471-1842.2009.00848.x>**

# Types of review article

**Table 1** Main review types characterized by methods used

Label	Description	Methods used (SALSA)			
		Search	Appraisal	Synthesis	Analysis
Critical review	Aims to demonstrate writer has extensively researched literature and critically evaluated its quality. Goes beyond mere description to include degree of analysis and conceptual innovation. Typically results in hypothesis or model	Seeks to identify most significant items in the field	No formal quality assessment. Attempts to evaluate according to contribution	Typically narrative, perhaps conceptual or chronological	Significant component: seeks to identify conceptual contribution to embody existing or derive new theory
Literature review	Generic term: published materials that provide examination of recent or current literature. Can cover wide range of subjects at various levels of completeness and comprehensiveness. May include research findings	May or may not include comprehensive searching	May or may not include quality assessment	Typically narrative	Analysis may be chronological, conceptual, thematic, etc.
Mapping review/ systematic map	Map out and categorize existing literature from which to commission further reviews and/or primary research by identifying gaps in research literature	Completeness of searching determined by time/scope constraints	No formal quality assessment	May be graphical and tabular	Characterizes quantity and quality of literature, perhaps by study design and other key features. May identify need for primary or secondary research
Meta-analysis	Technique that statistically combines the results of quantitative studies to provide a more precise effect of the results	Aims for exhaustive, comprehensive searching. May use funnel plot to assess completeness	Quality assessment may determine inclusion/exclusion and/or sensitivity analyses	Graphical and tabular with narrative commentary	Numerical analysis of measures of effect assuming absence of heterogeneity

# Types of review article

		<i>search completeness</i>	<i>sensitivity analysis</i>		
Mixed studies review/mixed methods review	Refers to any combination of methods where one significant component is a literature review (usually systematic). Within a review context it refers to a combination of review approaches for example combining quantitative with qualitative research or outcome with process studies	Requires either very sensitive search to retrieve all studies or separately conceived quantitative and qualitative strategies	Requires either a generic appraisal instrument or separate appraisal processes with corresponding checklists	Typically both components will be presented as narrative and in tables. May also employ graphical means of integrating quantitative and qualitative studies	Analysis may characterise both literatures and look for correlations between characteristics or use gap analysis to identify aspects absent in one literature but missing in the other
Overview	Generic term: summary of the [medical] literature that attempts to survey the literature and describe its characteristics	May or may not include comprehensive searching (depends whether systematic overview or not)	May or may not include quality assessment (depends whether systematic overview or not)	Synthesis depends on whether systematic or not. Typically narrative but may include tabular features	Analysis may be chronological, conceptual, thematic, etc.
Qualitative systematic review/qualitative evidence synthesis	Method for integrating or comparing the findings from qualitative studies. It looks for 'themes' or 'constructs' that lie in or across individual qualitative studies	May employ selective or purposive sampling	Quality assessment typically used to mediate messages not for inclusion/exclusion	Qualitative, narrative synthesis	Thematic analysis, may include conceptual models



# Types of review article

Label	Description	Methods used (SALSA)			
		Search	Appraisal	Synthesis	Analysis
Rapid review	Assessment of what is already known about a policy or practice issue, by using systematic review methods to search and critically appraise existing research	Completeness of searching determined by time constraints	Time-limited formal quality assessment	Typically narrative and tabular	Quantities of literature and overall quality/direction of effect of literature
Scoping review	Preliminary assessment of potential size and scope of available research literature. Aims to identify nature and extent of research evidence (usually including ongoing research)	Completeness of searching determined by time/scope constraints. May include research in progress	No formal quality assessment	Typically tabular with some narrative commentary	Characterizes quantity and quality of literature, perhaps by study design and other key features. Attempts to specify a viable review
State-of-the-art review	Tend to address more current matters in contrast to other combined retrospective and current approaches. May offer new perspectives on issue or point out area for further research	Aims for comprehensive searching of current literature	No formal quality assessment	Typically narrative, may have tabular accompaniment	Current state of knowledge and priorities for future investigation and research
Systematic review	Seeks to systematically search for, appraise and synthesis research evidence, often adhering to guidelines on the conduct of a review	Aims for exhaustive, comprehensive searching	Quality assessment may determine inclusion/exclusion	Typically narrative with tabular accompaniment	What is known; recommendations for practice. What remains unknown; uncertainty around findings, recommendations for future research



# Types of review article

Systematic search and review	Combines strengths of critical review with a comprehensive search process. Typically addresses broad questions to produce 'best evidence synthesis'	Aims for exhaustive, comprehensive searching	May or may not include quality assessment	Minimal narrative, tabular summary of studies	What is known; recommendations for practice. Limitations
Systematized review	Attempt to include elements of systematic review process while stopping short of systematic review. Typically conducted as postgraduate student assignment	May or may not include comprehensive searching	May or may not include quality assessment	Typically narrative with tabular accompaniment	What is known; uncertainty around findings; limitations of methodology
Umbrella review	Specifically refers to review compiling evidence from multiple reviews into one accessible and usable document. Focuses on broad condition or problem for which there are competing interventions and highlights reviews that address these interventions and their results	Identification of component reviews, but no search for primary studies	Quality assessment of studies within component reviews and/or of reviews themselves	Graphical and tabular with narrative commentary	What is known; recommendations for practice. What remains unknown; recommendations for future research

# Types of medical systematic reviews

<https://bmcmedresmethodol.biomedcentral.com/track/pdf/10.1186/s12874-017-0468-4.pdf>

# Types of systematic review

**Table 1** Types of reviews

Review Type	Aim	Question Format	Question Example
Effectiveness	To evaluate the effectiveness of a certain treatment/practice in terms of its impact on outcomes	Population, Intervention, Comparator/s, Outcomes (PICO) [23]	What is the effectiveness of exercise for treating depression in adults compared to no treatment or a comparison treatment? [69]
Experiential (Qualitative)	To investigate the experience or meaningfulness of a particular phenomenon	Population, Phenomena of Interest, Context (PICo) [13]	What is the experience of undergoing high technology medical imaging (such as Magnetic Resonance Imaging) in adult patients in high income countries? [70]
Costs/Economic Evaluation	To determine the costs associated with a particular approach/treatment strategy, particularly in terms of cost effectiveness or benefit	Population, Intervention, Comparator/s, Outcomes, Context (PICOC) [14]	What is the cost effectiveness of self-monitoring of blood glucose in type 2 diabetes mellitus in high income countries? [71]
Prevalence and/or Incidence	To determine the prevalence and/or incidence of a certain condition	Condition, Context, Population (CoCoPop) [15]	What is the prevalence/incidence of claustrophobia and claustrophobic reactions in adult patients undergoing MRI? [72]

# Types of systematic review

Diagnostic Test Accuracy	To determine how well a diagnostic test works in terms of its sensitivity and specificity for a particular diagnosis	Population, Index Test, Reference Test, Diagnosis of Interest (PIRD) [16]	What is the diagnostic test accuracy of nutritional tools (such as the Malnutrition Screening Tool) compared to the Patient Generated Subjective Global Assessment amongst patients with colorectal cancer to identify undernutrition? [73]
Etiology and/or Risk	To determine the association between particular exposures/risk factors and outcomes	Population, Exposure, Outcome (PEO) [17]	Are adults exposed to radon at risk for developing lung cancer? [74]
Expert opinion/policy	To review and synthesize current expert opinion, text or policy on a certain phenomena	Population, Intervention or Phenomena of Interest, Context (PICo) [18]	What are the policy strategies to reduce maternal mortality in pregnant and birthing women in Cambodia, Thailand, Malaysia and Sri Lanka? [75]

# Types of systematic review

Psychometric	To evaluate the psychometric properties of a certain test, normally to determine how the reliability and validity of a particular test or assessment.	Construct of interest or the name of the measurement instrument(s), Population, Type of measurement instrument, Measurement properties [31, 32]	What is the reliability, validity, responsiveness and interpretability of methods (manual muscle testing, isokinetic dynamometry, hand held dynamometry) to assess muscle strength in adults? [76]
Prognostic	To determine the overall prognosis for a condition, the link between specific prognostic factors and an outcome and/or prognostic/prediction models and prognostic tests.	Population, Prognostic Factors (or models of interest), Outcome (PFO) [20, 34–36]	In adults with low back pain, what is the association between individual recovery expectations and disability outcomes? [77]
Methodology	To examine and investigate current research methods and potentially their impact on research quality.	Types of Studies, Types of Data, Types of Methods, Outcomes [39] (SDMO)	What is the effect of masked (blind) peer review for quantitative studies in terms of the study quality as reported in published reports? (question modified from Jefferson 2007) [40]

# Step one: are there similar systematic studies to our study

- Prospero: <https://www.crd.york.ac.uk/prospero/>
- PubMed
- Cochrane library

# Asking the Question: PICO, PICOT, PICOS for effectiveness studies

- **Patient, Population or Problem**
  - What are the characteristics of the patient or population?
  - What is the condition or disease you are interested in?
- **Intervention or exposure**
  - What do you want to do with this patient (e.g. treat, diagnose, observe)?
- **Comparison**
  - What is the alternative to the intervention (e.g. placebo, different drug, surgery)?
- **Outcome**
- **S or T= type of study**
  - What are the relevant outcomes (e.g. improvement)?
  - Example= What is the **effectiveness** of **exercise** for treating **depression in adults** compared to **no treatment or a comparison treatment**?



# PICo for Experiential (Qualitative) or Expert opinion/policy studies

- P= population
- I= Intervention or Phenomena of Interest
- Co= Context
- Example for experiential study
  - What is the experience of undergoing high technology medical imaging (such as **Magnetic Resonance Imaging**) in **adult patients** in **high income countries**?
- Example for expert opinion study
  - What are the policy strategies to reduce **maternal mortality** in **pregnant and birthing women** in **Cambodia, Thailand, Malaysia and Sri Lanka**?

# PICOC for Costs/Economic Evaluation studies

- P= population
- I= Intervention
- C=Comparator
- O= Outcomes
- C= Context
- Example

What is the cost effectiveness of self-monitoring of blood glucose in type 2 diabetes mellitus in high income countries

# CoCoPop for Prevalence and/or Incidence studies

- Co= Condition
- Co= Context
- Pop= Population
- Example

What is the prevalence/incidence of **claustrophobia and claustrophobic reactions** in **adult patients** undergoing **MRI**?

# PIRD for Diagnostic Test Accuracy studies

- P= population
- I= Index test
- R=Reference test
- D= Diagnosis of interest
- Example

What is the diagnostic test accuracy of **nutritional tools** (such as the Malnutrition Screening Tool) compared to the **Patient Generated Subjective Global Assessment** amongst **patients with colorectal cancer** to identify **undernutrition**?

# PEO for Etiology and/or Risk studies

- P= population
- E= Exposure
- O= Outcomes
- Example

Are **adults** exposed to **radon** at risk for developing **lung cancer**?

# Psychometric studies

- Construct of interest or the **name of the measurement instrument(s)**, **Population**, **Type of measurement instrument**, **Measurement properties**
- Example  
What is the **reliability, validity, responsiveness and interpretability** of methods (**manual muscle testing, isokinetic dynamometry, hand held dynamometry**) to assess **muscle strength** in **adults**?

# PFO for prognostic studies

- P=Population
- F= Prognostic Factors (or models of interest)
- O= Outcomes
  
- Example

In **adults with low back pain**, what is the association between **individual recovery expectations** and **disability** outcomes?



# SDMO for Methodology studies

- S= Types of Studies
- D= Types of Data
- M= Types of Methods
- O= Outcomes
- Example

What is the effect of **masked (blind) peer review** for **quantitative studies** in terms of the **study quality** as reported in published reports? (question modified from Jefferson 2007?)

# Recall and precision in information retrieval

- **Precision** (also called [positive predictive value](#)) is the fraction of relevant instances among the retrieved instances
  - Using specific tags or fields like tiab, publication type, publication date

**Recall** (also known as [sensitivity](#)) is the fraction of relevant instances that were retrieved to all related records in database

- Using general tags or fields like ALL, TW

# PICO search

**QUESTION: Is Vitamin C helpful in treating the flu?**

<b>P</b>	<b>I</b>	<b>C</b>	<b>O</b>
Influenza	Vitamin C	-	Treatment
Flu	Ascorbic acid	-	Therapy
		-	healing

# PICO search in Pubmed

- **P**= (“Human Influenzas”[tiab] OR (Influenzas[tiab] AND Human[tiab]) OR Influenza[tw] OR Influenzas[tw] OR “Human Flu”[tiab] OR (Flu[tiab] AND Human[tiab]) OR “Human Influenza”[tiab] OR “Influenza in Humans”[tiab] OR “Influenza in Human”[tiab] OR Grippe[tiab] OR flu[tw])
- **I**=((Acid[tiab] AND Ascorbic[tiab]) OR “L-Ascorbic Acid”[tiab] OR (Acid[tiab] AND “L-Ascorbic”[tiab]) OR “L Ascorbic Acid”[tiab] OR “Vitamin C”[tiab] OR Hybrin[tiab] OR Magnorbin[tiab] “Sodium Ascorbate”[tiab] OR (Ascorbate[tiab] AND Sodium[tiab]) OR (“Ascorbic Acid”[tiab] AND “Monosodium Salt”[tiab]) OR “Ferrous Ascorbate”[tiab] OR (Ascorbate[tiab] AND Ferrous[tiab]) OR “Magnesium Ascorbate”[tiab] OR (Ascorbate[tiab] AND Magnesium[tiab] OR “Magnesium di-L-Ascorbate”[tiab] OR “Magnesium di L Ascorbate”[tiab] OR (“di-L-Ascorbate”[tiab] AND Magnesium[tiab]) OR “Magnesium Ascorbicum”[tiab])
- **C**=-

# PICO search in Pubmed

- O=(Therapeutic[tiab] OR Therapy[tiab] OR Therapies[tiab] OR Treatment[tiab] OR healing[tw])  
("Human Influenzas"[tiab] OR (Influenzas[tiab] AND Human[tiab]) OR Influenza[tw] OR Influenzas[tw] OR "Human Flu"[tiab] OR (Flu[tiab] AND Human[tiab]) OR "Human Influenza"[tiab] OR "Influenza in Humans"[tiab] OR "Influenza in Human"[tiab] OR Grippe[tiab] OR flu[tw]) AND ((Acid[tiab] AND Ascorbic[tiab]) OR "L-Ascorbic Acid"[tiab] OR (Acid[tiab] AND "L-Ascorbic"[tiab]) OR "L Ascorbic Acid"[tiab] OR "Vitamin C"[tiab] OR Hybrin[tiab] OR Magnorbin[tiab] OR "Sodium Ascorbate"[tiab] OR (Ascorbate[tiab] AND Sodium[tiab]) OR ("Ascorbic Acid"[tiab] AND "Monosodium Salt"[tiab]) OR "Ferrous Ascorbate"[tiab] OR (Ascorbate[tiab] AND Ferrous[tiab]) OR "Magnesium Ascorbate"[tiab] OR (Ascorbate[tiab] AND Magnesium[tiab]) OR "Magnesium di-L-Ascorbate"[tiab] OR "Magnesium di L Ascorbate"[tiab] OR ("di-L-Ascorbate"[tiab] AND Magnesium[tiab]) OR "Magnesium Ascorbicum"[tiab]) AND (Therapeutic[tiab] OR Therapy[tiab] OR Therapies[tiab] OR Treatment[tiab] OR healing[tw])

# PICO search in Embase

("Human Influenzas":ti,ab OR (Influenzas:ti,ab AND Human:ti,ab) OR Influenza/exp OR Influenzas/exp OR "Human Flu":ti,ab OR (Flu:ti,ab AND Human:ti,ab) OR "Human Influenza":ti,ab OR "Influenza in Humans":ti,ab OR "Influenza in Human":ti,ab OR Grippe:ti,ab OR flu/exp) AND ((Acid:ti,ab AND Ascorbic:ti,ab) OR "L-Ascorbic Acid":ti,ab OR (Acid:ti,ab AND "L-Ascorbic":ti,ab) OR "L Ascorbic Acid":ti,ab OR "Vitamin C":ti,ab OR Hybrin:ti,ab OR Magnorbin:ti,ab OR "Sodium Ascorbate":ti,ab OR (Ascorbate:ti,ab AND Sodium:ti,ab) OR ("Ascorbic Acid":ti,ab AND "Monosodium Salt":ti,ab) OR "Ferrous Ascorbate":ti,ab OR (Ascorbate:ti,ab AND Ferrous:ti,ab) OR "Magnesium Ascorbate":ti,ab OR (Ascorbate:ti,ab AND Magnesium:ti,ab) OR "Magnesium di-L-Ascorbate":ti,ab OR "Magnesium di L Ascorbate":ti,ab OR ("di-L-Ascorbate":ti,ab AND Magnesium:ti,ab) OR "Magnesium Ascorbicum":ti,ab) AND (Therapeutic:ti,ab OR Therapy:ti,ab OR Therapies:ti,ab OR Treatment:ti,ab OR healing/exp)

# PICO search in Scopus

TITLE-ABS-KEY("Human Influenzas" OR (Influenzas AND Human) OR Influenza OR Influenzas OR "Human Flu" OR (Flu AND Human) OR "Human Influenza" OR "Influenza in Humans" OR "Influenza in Human" OR Grippe OR flu) AND TITLE-ABS-KEY((Acid AND Ascorbic) OR "L-Ascorbic Acid" OR (Acid AND "L-Ascorbic") OR "L Ascorbic Acid" OR "Vitamin C" OR Hybrin OR Magnorbin OR "Sodium Ascorbate" OR (Ascorbate AND Sodium) OR ("Ascorbic Acid" AND "Monosodium Salt") OR "Ferrous Ascorbate" OR (Ascorbate AND Ferrous) OR "Magnesium Ascorbate" OR (Ascorbate AND Magnesium) OR "Magnesium di-L-Ascorbate" OR "Magnesium di L Ascorbate" OR ("di-L-Ascorbate" AND Magnesium) OR "Magnesium Ascorbicum") AND TITLE-ABS-KEY(Therapeutic OR Therapy OR Therapies OR Treatment OR healing)



# PICO search in Web of Science

TS=("Human Influenzas" OR (Influenzas AND Human) OR Influenza OR Influenzas OR "Human Flu" OR (Flu AND Human) OR "Human Influenza" OR "Influenza in Humans" OR "Influenza in Human" OR Grippe OR flu) AND TS=((Acid AND Ascorbic) OR "L-Ascorbic Acid" OR (Acid AND "L-Ascorbic") OR "L Ascorbic Acid" OR "Vitamin C" OR Hybrin OR Magnorbin OR "Sodium Ascorbate" OR (Ascorbate AND Sodium) OR ("Ascorbic Acid" AND "Monosodium Salt") OR "Ferrous Ascorbate" OR (Ascorbate AND Ferrous) OR "Magnesium Ascorbate" OR (Ascorbate AND Magnesium) OR "Magnesium di-L-Ascorbate" OR "Magnesium di L Ascorbate" OR ("di-L-Ascorbate" AND Magnesium) OR "Magnesium Ascorbicum") AND TS=(Therapeutic OR Therapy OR Therapies OR Treatment OR healing)

# PICO search in BMJ

- Publishing weekly from 1840-present
- British Medical Journal
- Search by keyword in title, title & abstract, title & abstract & text

# Do you have any question



Thanks for your attendance  
Be happy and successful

