McMaster University

Family Medicine

David Braley Primary Care Research Collaborative

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Scoping Reviews, Rapid Reviews, Systematic Reviews

Watch a recording of the session here

Housne Begum

February 26th, 2019

Michael G. DeGroote SCHOOL OF MEDICINE

McMaster University

Family Medicine

@PresentersTwitterHandles

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Overview of different types of reviews : Scoping Reviews, Rapid Reviews, Systematic Reviews

Housne Begum

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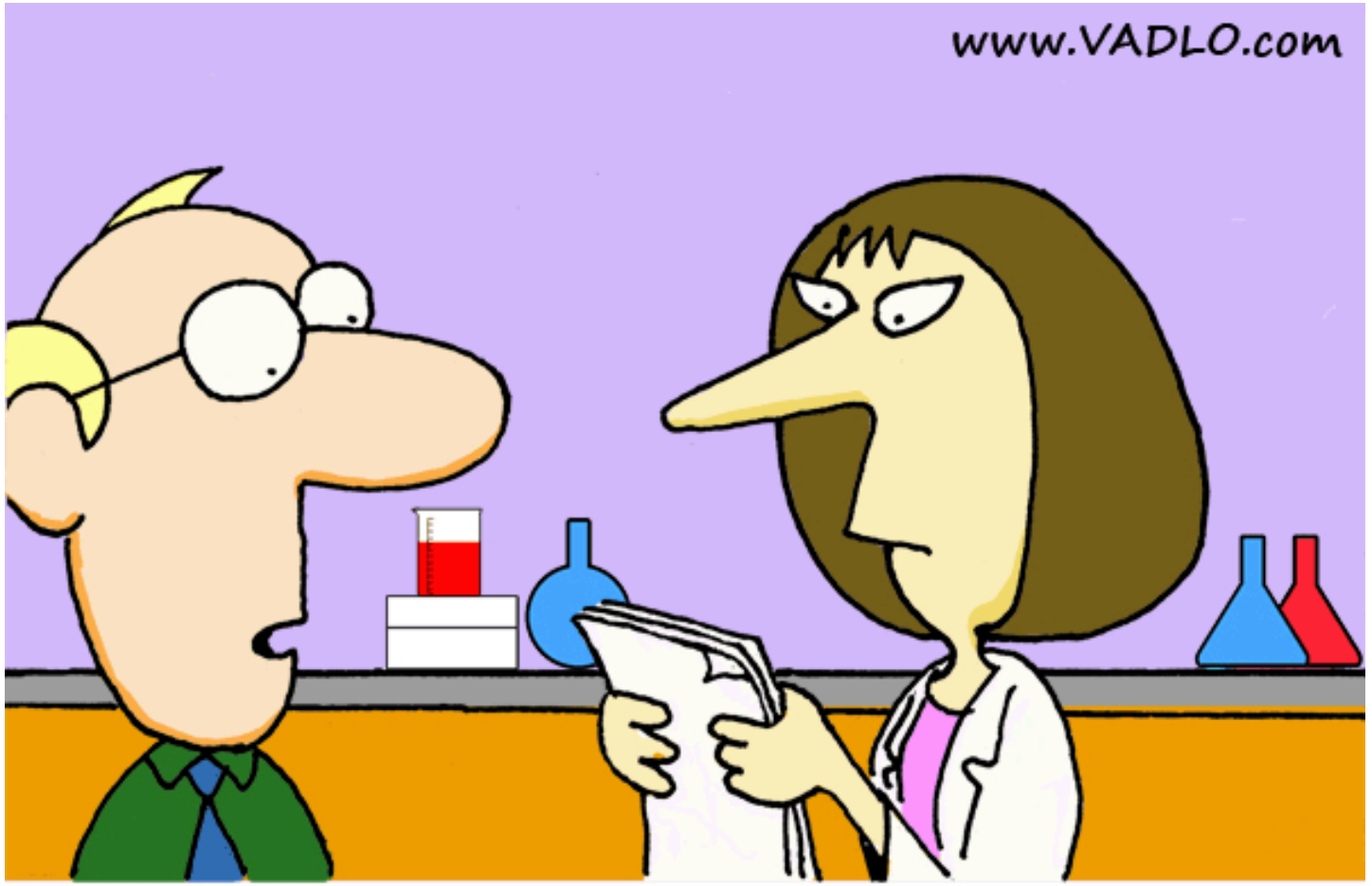
Yoga feasibility studies

"If a vegetarian diet is good for losing weight, how come they use grain to fatten pigs and cows?"



"With this much grant money, only experiment we can do is 'flip a coin'.

Objectives

- Describe 4 main types of reviews used in health research
- Understand when to use different types of reviews
- Recognize the process of Systematic Literature Review
- Identify resources used reviews

Literature (Narrative) Review

Describes and appraises previous work but does not describe specific methods

Journal of Public Health and Development
Vol. 15 No. 2 May-August 2017

REVIEW ARTICLE

Maternal and child health handbook: Utilization and lessons learned from selected evidence-based studies

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Available online: August 2017

Abstract

What is a Scoping Review?

- Preliminary assessment of potential size and scope of available research literature.
- Aims to identify nature and extent of research evidence

PLoS One. 2017 Oct 26;12(10):e0186897. doi: 10.1371/journal.pone.0186897. eCollection 2017.

Ethical issues in the development and implementation of nutrition-related public health policies and interventions: A scoping review.

Hurlimann T[1], Peña-Rosas JP[2], Saxena A[3], Zamora G[2], Godard B[1].

⊕ Author information

Erratum in

Correction: Ethical issues in the development and implementation of nutrition-related public health policies and interventions: A scoping review. [PLoS One. 2018]

Abstract

BACKGROUND: The limited integration of ethics in nutrition-related public health policies and interventions is one major concern for those who have the task of implementing them. Ethical challenges that are overlooked during the development of such interventions

Steps of a scoping Review

- Consult stakeholders
- Set the research question
- Literature search
- Select the studies
- Chart the data
- Summarize and report the results
- Consult with stakeholders to interpret the findings

What is a Rapid Review?

- A form of evidence synthesis that may provide more timely information for decision making compared with a short deadline.

Ontario
Health Quality Ontario
Qualité des services de santé Ontario

Criteria for Referral to Heart Failure Clinics: A Rapid Review

Rapid Review Methods

- Categorized by extent of synthesis

Evidence Inventory:
-lists what is available
-sometimes contextual information
-no synthesis
-no conclusions or recommendations

Rapid response:
-organize and evaluate the literature
-no formal synthesis
-often report conclusions of existing guidelines or SRs

Rapid review:
-qualitative, quantitative or mixed synthesis to provide an answer and possibly strength of evidence
-achieve efficiencies: limited scope, sacrificing quality control measures

Automated approaches:
-computer programs generate meta-analyses in response to user-defined queries

Systematic Review

Impact of food supplementation on weight loss in randomised-controlled dietary intervention trials: a systematic review and meta-analysis

Cinthya Wibisono [a1], Yasmine Probst [a2], Elizabeth Neale [a2] and Linda Tapsell [a2]

https://doi.org/10.1017/S0007114516000337 Published online: 18 February 2016

Please note a correction has been issued for this article.

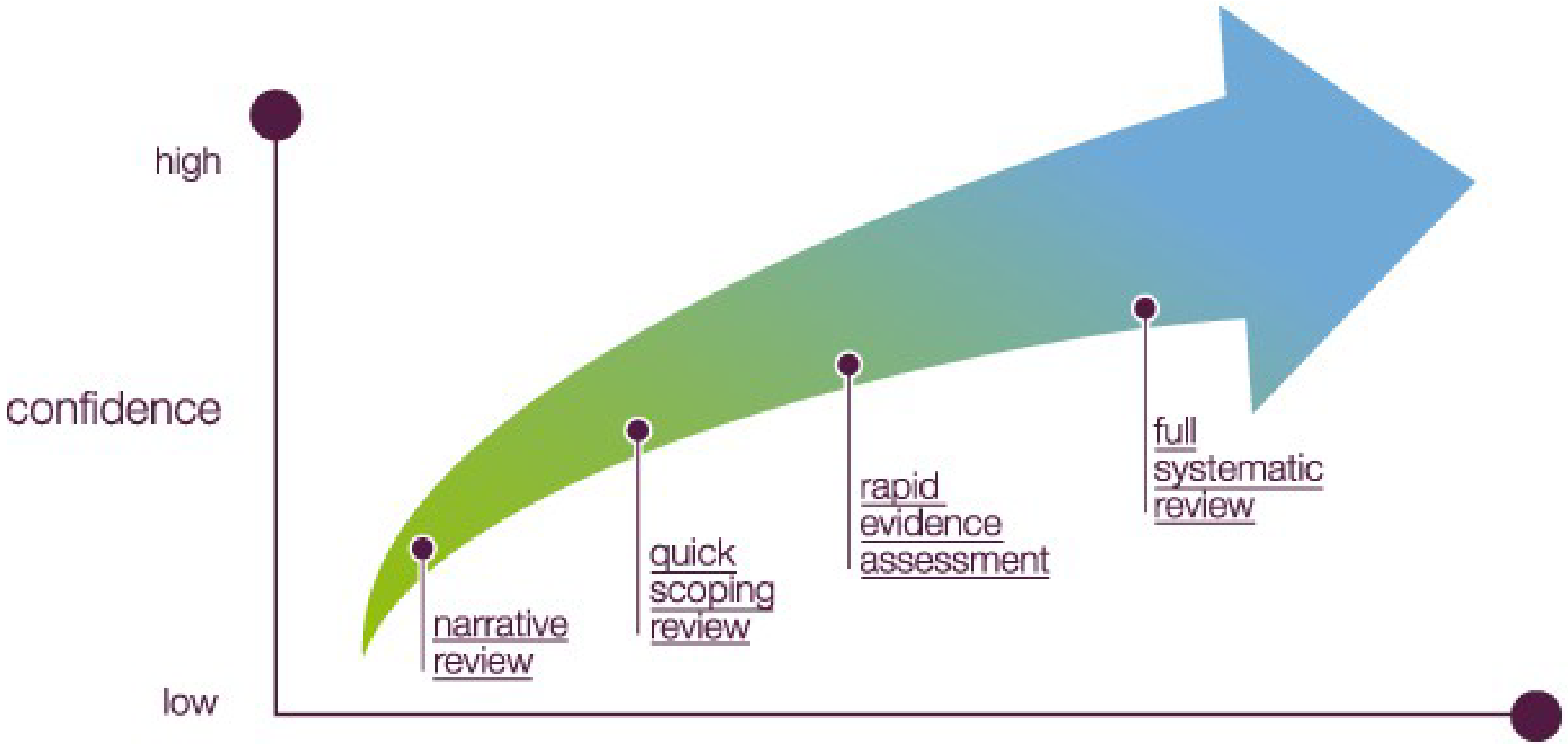
Abstract Dietary trials provide evidence for practice and policy guidelines, but poor adherence may confound results. Food

- **A review of the evidence on a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise relevant primary research, and to extract and analyze data from the studies that are included in the review.**
- **The methods used must be reproducible and transparent.**

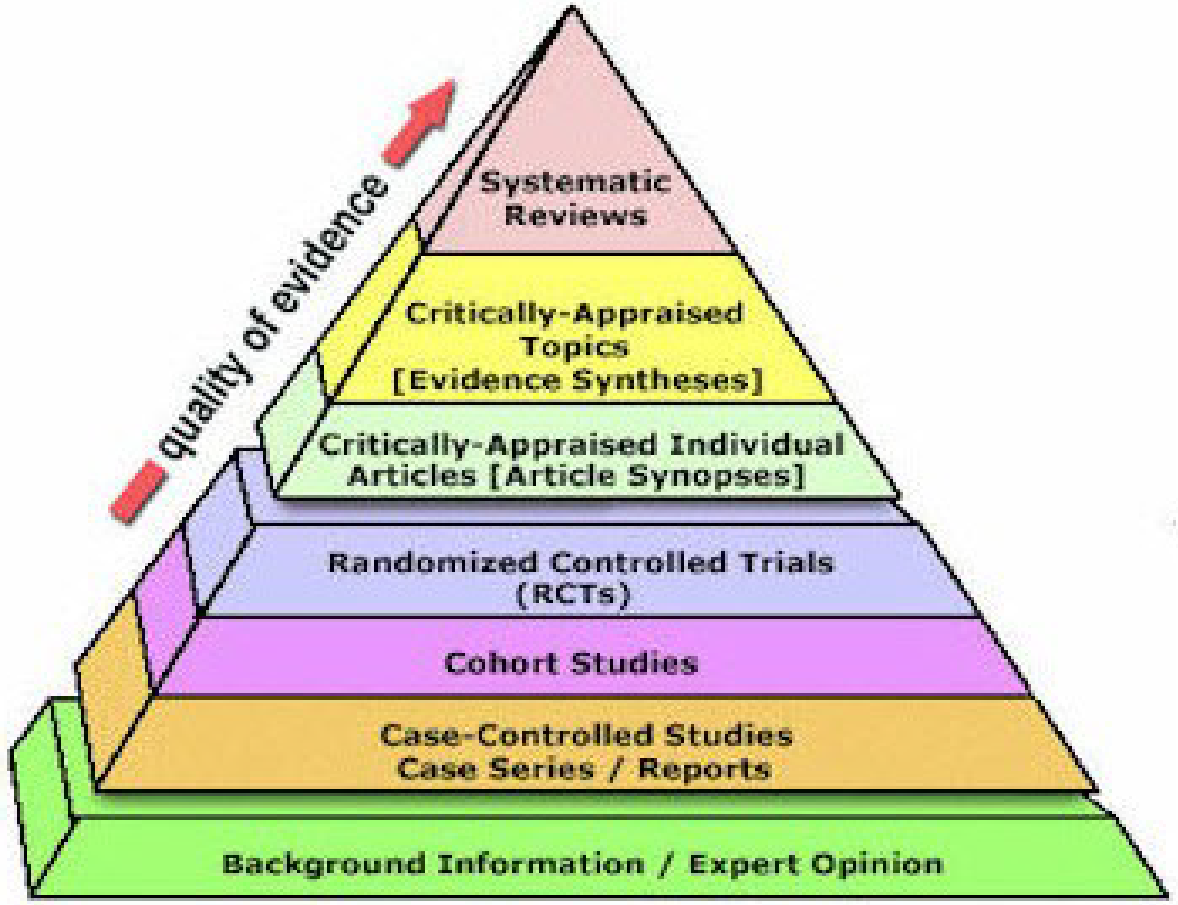
	Systematic Review	Literature Review
Question	Focused on a single question	Not necessarily focused on a single question, but may describe an overview
Protocol	A peer review protocol or plan is included	No protocol is included
Background	Both provide summaries of the available literature on a topic	
Objectives	Clear objectives are identified	Objectives may or may not be identified
Inclusion and Exclusion Criteria	Criteria stated before the review is conducted	Criteria not specified
Search Strategy	Comprehensive search conducted in a systematic way	Strategy not explicitly stated
Process of Selecting Articles	Usually clear and explicit	Not described in a literature review
Process of Evaluating Articles	Comprehensive evaluation of study quality	Evaluation of study quality may or may not be included
Process of Extracting Relevant Information	Usually clear and specific	Not clear or explicit
Results and Data Synthesis	Clear summaries of studies based on high quality evidence	Summary based on studies where the quality of the articles may not be specified. May also be influenced by the reviewer's theories, needs and beliefs
Discussion	Written by an expert or group of experts with a detailed and well grounded knowledge of the issues	

Systematic review	Scoping study
Focused research question with narrow parameters	Research question(s) often broad
Inclusion/exclusion usually defined at outset	Inclusion/exclusion can be developed *post hoc*
Quality filters often applied	Quality not an initial priority
Detailed data extraction	May or may not involve data extraction
Quantitative synthesis often performed	Synthesis more qualitative, and typically not quantitative
Formally assesses the quality of studies and generates a conclusion relating to the focused research question	Used to identify parameters and gaps in a body of literature

	Rapid Review	Systematic review
Timeframe	1-6 months	1 year
Resources	May include hand – searching and grey literature	Comprehensive
Searches	May apply limits such as years and language	Comprehensiveness is recommended
Synthesis	Descriptive summary of findings	Descriptive summary of findings that can also include a meta-analysis


high
confidence
low
narrative review
quick scoping review
rapid evidence assessment
full systematic review

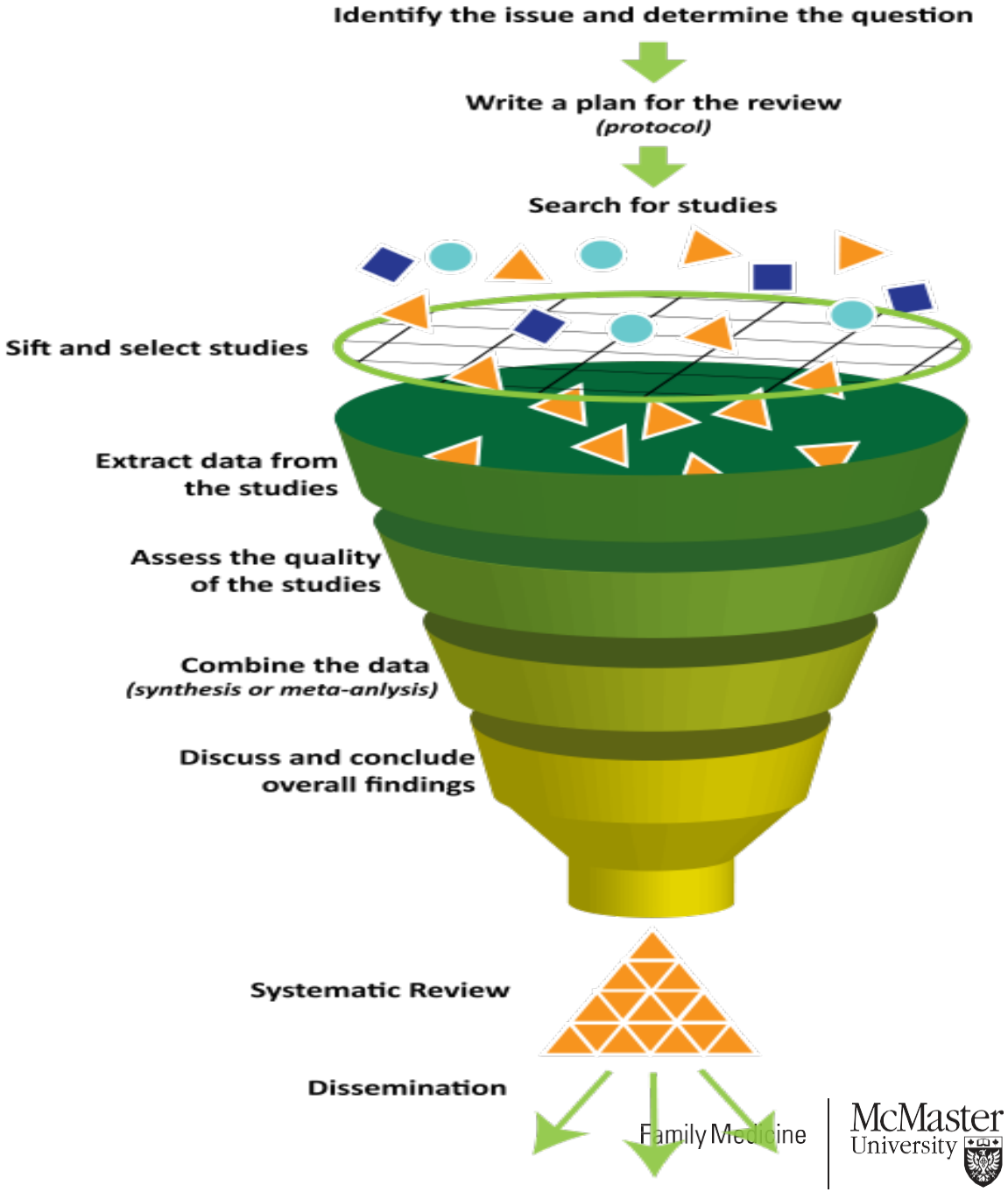
Hierarchy of Quality of evidence



Systematic reviews and meta-analyses of RCTs*
Randomized controlled trials
Cohort studies
Case-control studies
Cross-sectional studies, surveys
Case reports, case studies
Mechanistic studies
Editorials, expert opinion
Higher
Quality of evidence
Lower
Lower
Risk of bias
Higher

When is a Systematic Review the most appropriate study design?

- When answering questions of effectiveness comparing two different treatments or interventions.



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Question Formulation

Population(s)

Intervention(s)

Comparator(s)

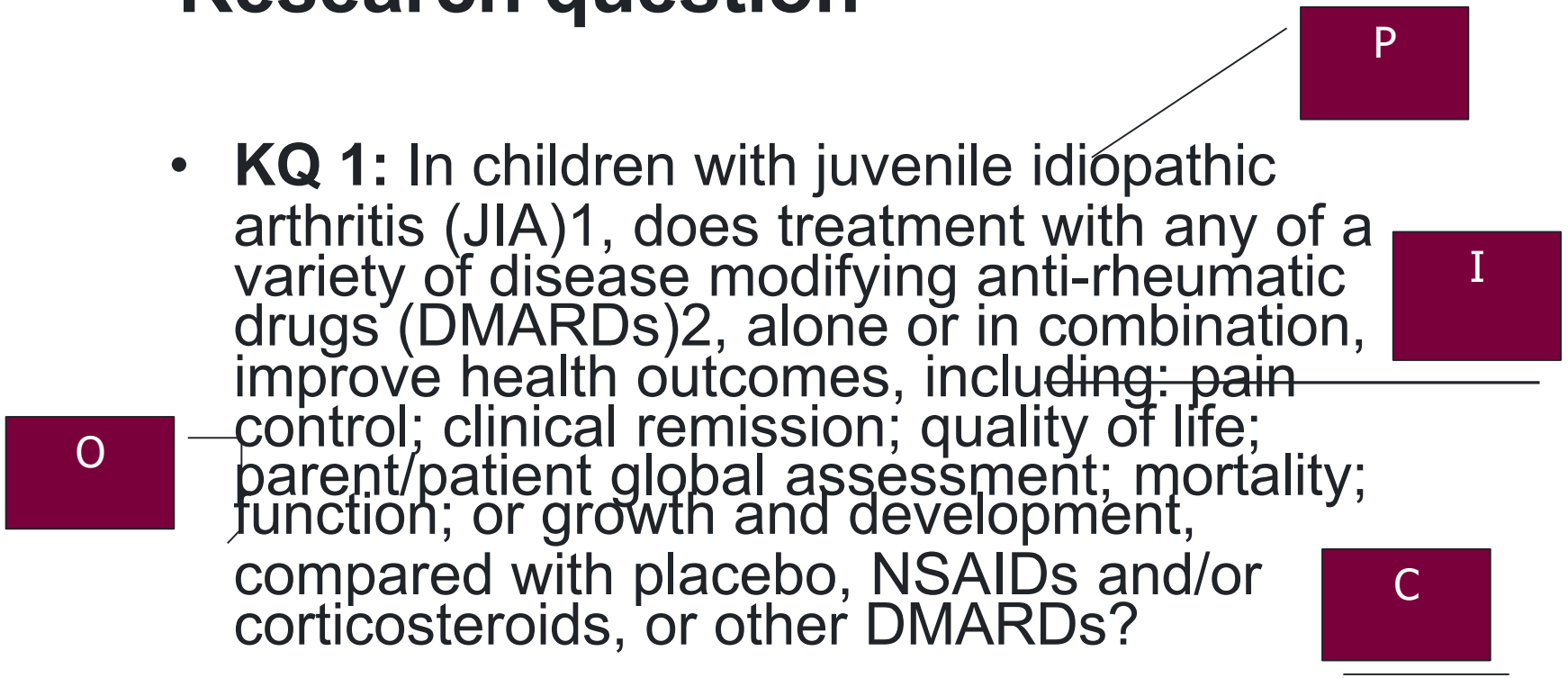
Outcome(s)

Time(s)

Settings

- Consider previous literature
- Consider Analytic Framework (AF) development
- Consider potential sources of bias (threats to the internal validity)

Research question



- **KQ 1:** In children with juvenile idiopathic arthritis (JIA)1, does treatment with any of a variety of disease modifying anti-rheumatic drugs (DMARDs)2, alone or in combination, improve health outcomes, including: pain control; clinical remission; quality of life; parent/patient global assessment; mortality; function; or growth and development, compared with placebo, NSAIDs and/or corticosteroids, or other DMARDs?

Search for Literature

Identifying Studies and Selecting Studies

- Constructing your Search Strategy:
  - Search Strategy Worksheet
  - Databases to Consider
  - Formulate Search Strategy
  - Where to find the Databases
  - Modify search strategy based on results

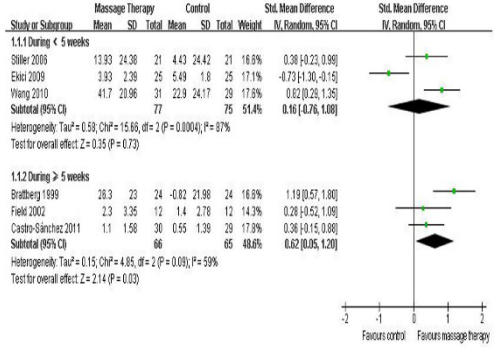
Examples of Data bases

- MEDLINE/PUBMED
- CINAHL
- EMBASE
- Cochrane Databases
- Global Health
- LILACS
- AMED (allied and complementary Medicine)
- PsycINFO
- Sociological Abstracts
- ERIC
- Others?

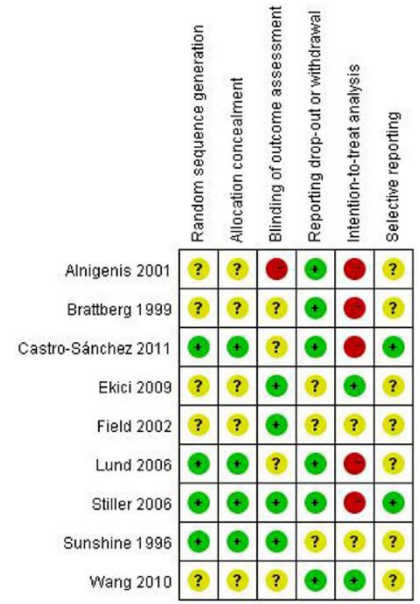
Software Tools used for SRs

General Tools

- DistillerSR
- Covidence
- RevMan – Cochrane
- Rayyan QCRI
- EPPI-Reviewer
- Early Review Organizing Software (EROS)
- EndNote
- Mendeley
- OpenMeta[Analyst]



Quality assessment of all studies

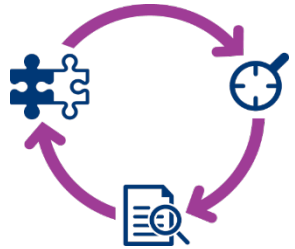


Risk of Bias assessment

- RCTs (**Cochrane RoBs tool**)
- Non-RCTs (**ROBINS-I**)
- Newcastle-Ottawa Quality Assessment Scale (**NOS**)

Assessing the Quality of Evidence

- **GRADE Approach** (Grading of Recommendations Assessment, Development & Evaluation): Grading the Strength of Evidence
- **Health Evidence™ Quality Assessment Tool**
- The Quality Assessment of Diagnostic Accuracy Studies-2 **(QUADAS-2) tool**



Data Presentation

- Grade Pro : The Summary of Findings (SoF) table and incorporating the GRADE Approach to help make recommendations of the level of evidence.

Child-Parent psychotherapy compared to Community Control for Child Maltreatment

Patient or population: Child Maltreatment

Setting: Child Maltreatment

Intervention: Child-Parent psychotherapy

Comparison: Community Control

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with Community Control	Risk with Child-Parent psychotherapy				
Change in Parent-Child Interaction assessed with: MGRS	The mean change in Parent-Child Interaction was 0.9	The mean change in Parent-Child Interaction in the intervention group was 0.79 higher (0.35 higher to 1.23 higher)	-	53 (1 RCT) [a]	⨁◯◯◯ VERY LOW [b]	Modified Bickham and Fiese's global relationship expectation scale (MGRS), rated as very low(1), relationship dissatisfying, unpredictable, dangerous to very high(5), relationship as fulfilling & rewarding. Higher values are better. Calculated important difference shows a large effect (SMD = 0.95) (P=0.0004)
Internalizing symptoms assessed with: CBCL-INT follow up: mean 12 months	The mean internalizing symptoms was 53.1 [c]	The mean internalizing symptoms in the intervention group was 1.64 higher (3.52 lower to 6.8 higher)	-	76 (1 RCT) [d]	⨁◯◯◯ VERY LOW [e,f]	Child Behavior Checklist (CBCL-Int), T scores (range 0-100) < 60 are considered normal range, 60-63 as borderline, and scores greater than 63 are in the clinical range. Lower values are better. Calculated important difference shows no effect (SMD = 0.13) (P=0.53)
Externalizing symptoms assessed with: CBCL-EXT follow up: mean 12 months	The mean externalizing symptoms was 53.47 [c]	The mean externalizing symptoms in the intervention group was 1.05 higher (3.58 lower to 5.68 higher)	-	76 (1 RCT) [d]	⨁◯◯◯ VERY LOW [e,f]	Child Behavior Checklist (CBCL-Ext), T scores (range 0-100) < 60 are considered normal range, 60-63 as borderline, and scores greater than 63 are in the clinical range. Lower values are better. Calculated important difference shows no effect (SMD = 0.10) (P=0.66)

Where to register your Systematic Review Protocol?

- PROSPERO-Systematic Review Protocol Registry
- https://www.crd.york.ac.uk/PROSPERO/

PRISMA 2009 Checklist (Adapted for KIN 4400)

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a literature review.	
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings;	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known about your topic.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
METHODS			
Eligibility criteria	5	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	6	Describe all information sources (e.g., databases with dates of coverage) in the search and date last searched.	
Search	7	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated	

- **Narrative reviews** mainly descriptive, do not involve a **systematic** search of the **literature**
- **Scoping Review**, a methodology allows assessment of emerging evidence and a first step in research development.

- **Rapid review**, a form of knowledge synthesis in which components of the systematic **review** process are simplified or omitted to produce information in a timely manner
- **Systematic Review is systematic** and **reproducible**

WWW.PHDCOMICS.COM

References

- **Scoping review**

Scoping Review_checklist

Methods for Scoping Reviews

- **Rapid review**

Rapid Review Guidebook, Dobbins 2017

Gannan, 2010 Methods and Implications of Rapid Reviews

Rapid reviews - fact sheet

- **Systematic review**

https://handbook-5-1.cochrane.org/

https://ph.cochrane.org/sites/ph.cochrane.org/

References

- **Systematic review**
- Moller AM, Myles PS. What makes a good systematic review and meta-analysis? *BJA.* 2016. 117(4):428-430.

https://guides.temple.edu/c.php?g=78618&p=4156607

Handbook of Systematic Reviews for Interventions, A guide for Cochrane reviewers, explains the Cochrane systematic review process in great detail.

- PRISMA CHECKLIST: https://guelphhumber.libguides.com/c.php?g=213266&p=1406923
- RevMan: https://community.cochrane.org/help/tools-and-software/revman-5/revman-5-download
- GRADEpro: https://gradepro.org/

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