MASTERING
THE SYSTEMATIC REVIEW
DAY-1

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1) BASICS ABOUT RESEARCH

2) PRISMA

3) PICO/ PECO FRAMEWORK

4) INTRODUCTION TO PROSPERO

5) SEARCH STRATEGY

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WHY NEED RESEARCH?

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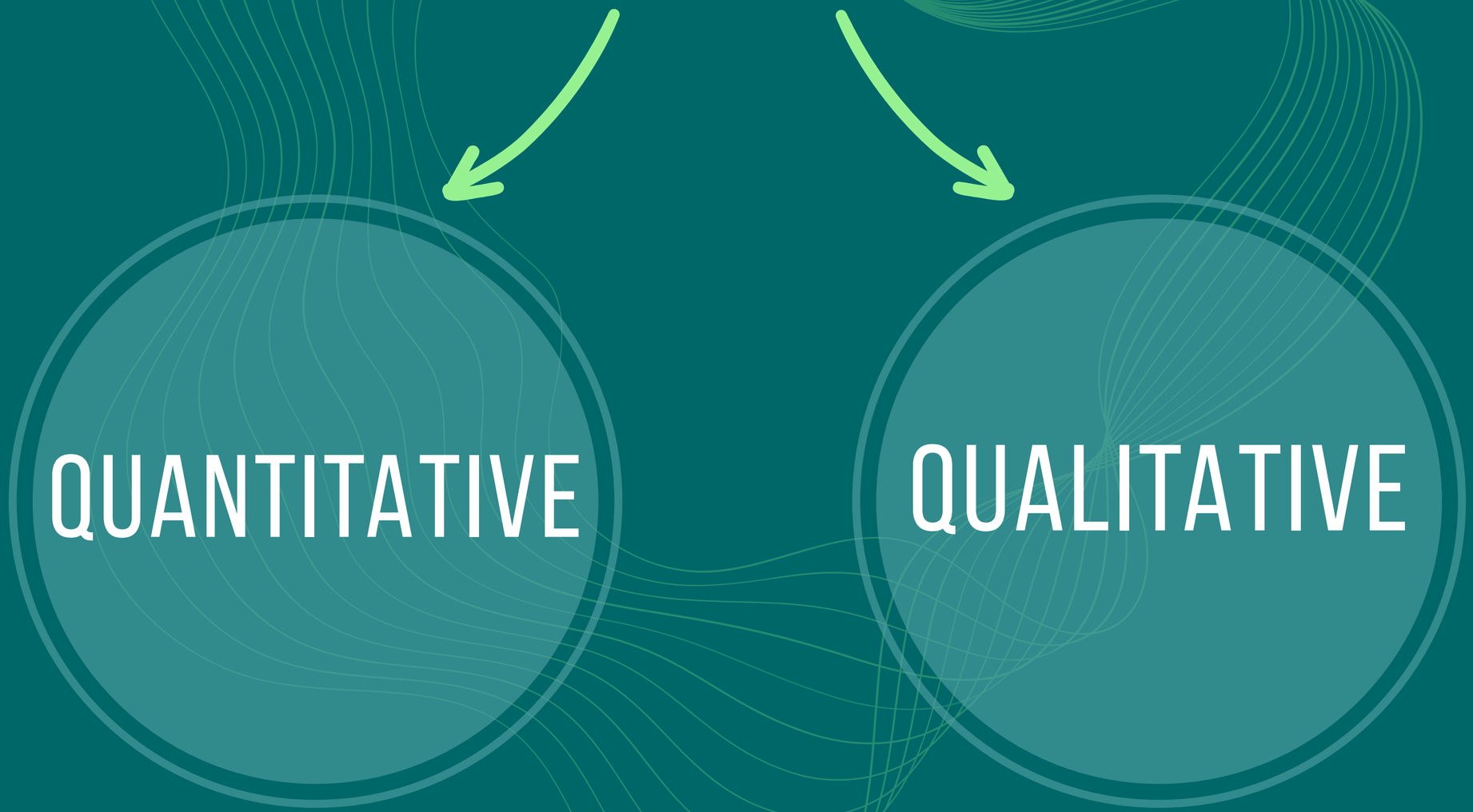
WHAT IS RESEARCH?

MAJOR CATEGORIES OF RESEARCH STUDIES



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QUALITATIVE

OPINIONS

EXPERIENCES

STUDIES INCLUDED
EXAMPLES:
- INTERVIEWS
- FOCUS GROPUS

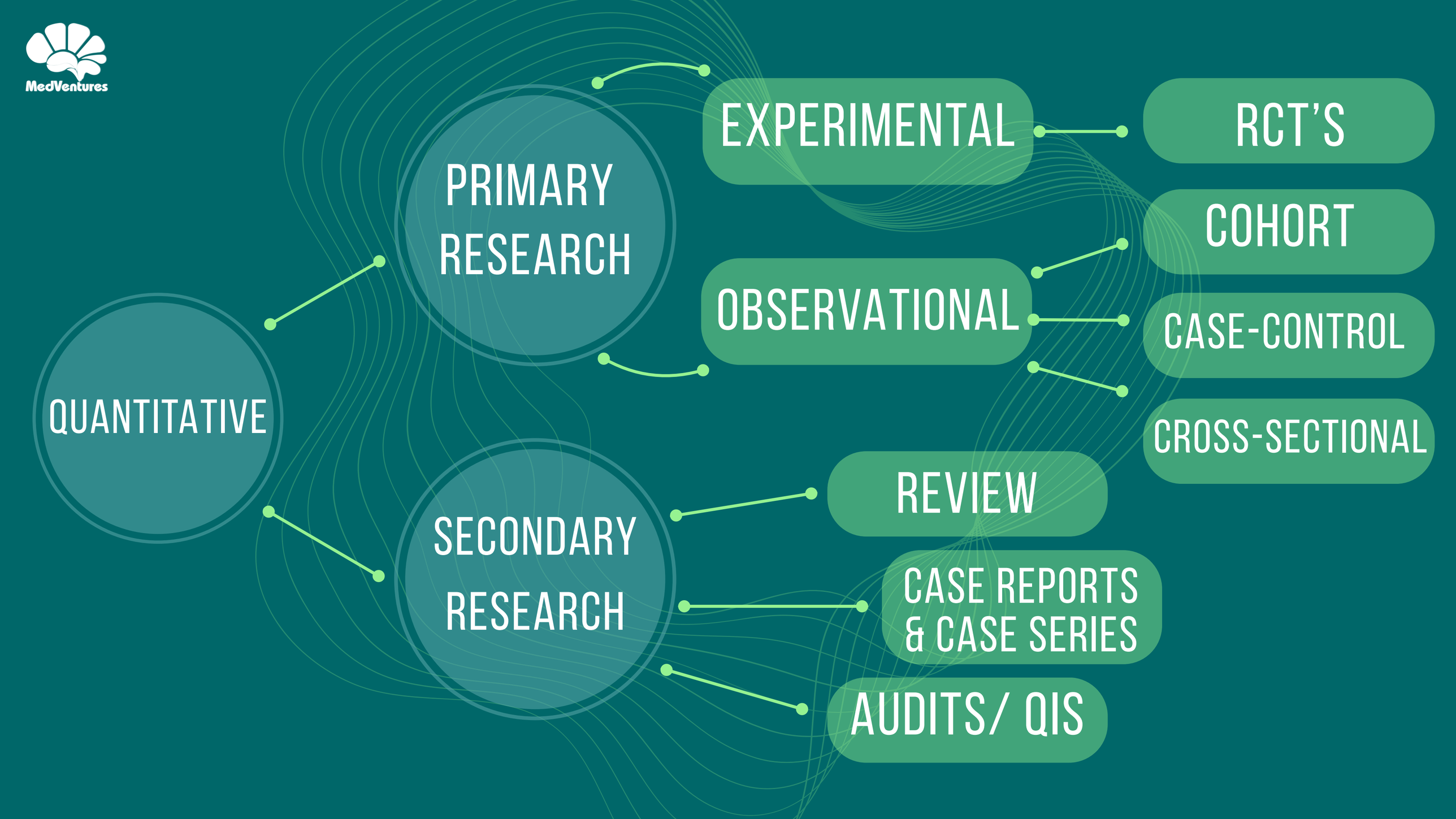
QUANTITATIVE

NUMBERS

MEASURED VARIABLES

STATISTICAL ANALYSIS

STUDIES INCLUDED
EXAMPLES:
- SURVEYS
- EXPERIMENTS
- CLINICAL TRIALS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QUANTITATIVE
PRIMARY RESEARCH
SECONDARY RESEARCH
EXPERIMENTAL
OBSERVATIONAL
REVIEW
CASE REPORTS & CASE SERIES
AUDITS/ QIS
RCT'S
COHORT
CASE-CONTROL
CROSS-SECTIONAL

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NOW AS A BEGINNER WHICH STUDY TYPE YOU SHOULD CHOOSE TO START YOUR RESEARCH JOURNEY???

QUANTITATIVE

QUALITATIVE

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NOW AS A BEGINNER WHICH STUDY TYPE YOU SHOULD CHOOSE TO START YOUR RESEARCH JOURNEY???

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QUANTITATIVE

WHY QUANTITATIVE STUDY IS BETTER TO START WITH AS A BEGINNER COMPARED TO QULITATIVE STUDY??

QUALITATIVE

1 **BUILDS A FOUNDATION IN EVIDENCE-BASED MEDICINE**

You learn how most real-world medical decisions are made.

2 **EASIER TO LEARN, STANDARDIZED METHODOLOGY**

Perfect for students who need structure while building confidence in research.

3 **BROADER ACCEPTANCE FOR PUBLISHING**

Easier to publish, present, and include in applications.

4 **DEVELOPS STATISTICAL AND ANALYTICAL SKILLS EARLY**

These are transferable skills you'll use throughout your career.

5 **EASIER TO START SMALL (E.G., SURVEYS, SECONDARY DATA)**

Quantitative studies are more manageable for individual or group student projects

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COMPARISON!!!!

QUANTITATIVE **FIRST**

1. OBJECTIVE & MEASURABLE
2. TEACHES STATISTICAL ANALYSIS
3. EASIER TO PUBLISH
4. BETTER FOR BEGINNERS

QUALITATIVE **LATER**

1. CONTEXTUAL & DESCRIPTIVE
2. TEACHES INTERPRETIVE SKILLS
3. HARDER TO GENERALIZE
4. NEEDS ADVANCED UNDERSTANDING

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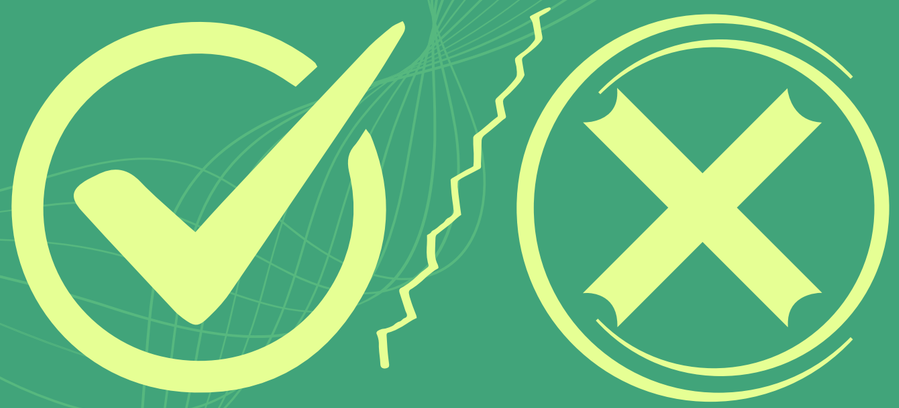
IN **QUANTITATIVE**-
WHICH STUDY IS BEST
TO START WITH???

"BEST TO LEARN BEFORE YOU LEAD"



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AT NEXASEARCH- STARTING OUR RESEARCH JOURNEY BY...

"REVIEW STUDIES"

WHY??

"NO NEED FOR PATIENT INTERACTION OR LAB ACCESS"

" HELPS IDENTIFY RESEARCH GAPS"

BUILDS STRONG RESEARCH FUNDAMENTALS

"ENHANCES LITERATURE NAVIGATION SKILLS"

"DEVELOPS CRITICAL THINKING"

"INCREASES FAMILIARITY WITH RESEARCH METHODOLOGY"

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"REVIEW STUDIES"

TYPES

LITERATURE REVIEW

"SUBJECTIVE SUMMARY" OF EXISTING KNOWLEDGE BASED ON SELECTED SOURCES

SYSTEMATIC REVIEW

"OBJECTIVE, REPRODUCIBLE SYNTHESIS" OF ALL RELEVANT EVIDENCE USING A PREDEFINED METHOD.

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WHY SYSTEMATIC REVIEWS?

- TEACHES A STRUCTURED, SCIENTIFIC APPROACH
- SETS A FOUNDATION FOR THESIS OR DISSERTATION WORK
- HELPS UNDERSTAND EVIDENCE-BASED MEDICINE (EBM)
- FILLS A MEANINGFUL GAP IN MEDICAL EVIDENCE
- DEVELOPS PROFICIENCY IN RESEARCH DATABASES & TOOLS
- FILLS A MEANINGFUL GAP IN MEDICAL EVIDENCE
- INCREASES RESEARCH CREDIBILITY
- OFFERS THE POTENTIAL FOR META-ANALYSIS

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INTRODUCTION TO SYSTEMATIC REVIEWS

1.1 DEFINITION

A SYSTEMATIC REVIEW IS A CLEAR AND ORGANIZED WAY OF COLLECTING AND ANALYZING INFORMATION FROM MANY DIFFERENT STUDIES ON A SPECIFIC TOPIC OR QUESTION. IT FOLLOWS A SET PLAN TO FIND, CHOOSE, AND CAREFULLY REVIEW EACH STUDY TO MAKE SURE THE RESULTS ARE TRUSTWORTHY. THE GOAL IS TO GIVE A COMPLETE AND UNBIASED SUMMARY OF WHAT RESEARCH SAYS ABOUT THAT TOPIC.

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ANALOGY

YOUTUBE
(RANDOM, ALGORITHM-DRIVEN)

NETFLIX PLAYLIST
(CURATED, STRUCTURED)

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1.2 PURPOSE

1. **SUMMARIZE EVIDENCE:** COMBINE FINDINGS FROM MULTIPLE STUDIES TO PROVIDE A CLEAR OVERVIEW OF WHAT IS KNOWN ABOUT A TOPIC.
2. **IDENTIFY GAPS:** HIGHLIGHT AREAS WHERE EVIDENCE IS LACKING OR INCONSISTENT, GUIDING FUTURE RESEARCH.
3. I**NFORM DECISION-MAKING:** SUPPORT EVIDENCE-BASED PRACTICE, POLICY, AND CLINICAL GUIDELINES BY PROVIDING ROBUST CONCLUSIONS.
4. **REDUCE BIAS:** USE RIGOROUS, TRANSPARENT METHODS TO MINIMIZE SUBJECTIVITY AND ENSURE RELIABILITY.
5. **RESOLVE CONTROVERSIES:** ADDRESS CONFLICTING RESULTS FROM INDIVIDUAL STUDIES BY SYNTHESIZING DATA SYSTEMATICALLY.
6. **IMPROVE EFFICIENCY:** SAVE TIME AND RESOURCES BY CONSOLIDATING EXISTING RESEARCH RATHER THAN CONDUCTING NEW PRIMARY STUDIES.

PURPOSE

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TIMELINE OF SR IMPACT ON GLOBAL HEALTH POLICIES

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1.3 KEY FEATURES OF SYSTEMATIC REVIEWS

- **PROTOCOL-DRIVEN**: FOLLOWS A PREDEFINED PLAN (E.G., PRISMA-P CHECKLIST) FOR TRANSPARENCY AND REPRODUCIBILITY.
- **COMPREHENSIVE SEARCH:** SEARCHES MULTIPLE DATABASES AND GREY LITERATURE TO ENSURE ALL RELEVANT STUDIES ARE INCLUDED.
- **CRITICAL APPRAISAL**: USES TOOLS LIKE ROB 2 TO ASSESS STUDY QUALITY AND MINIMIZE BIAS.
- **STRUCTURED SYNTHESIS:** COMBINES FINDINGS QUALITATIVELY OR QUANTITATIVELY (E.G., META-ANALYSIS).
- **TRANSPARENCY:** DOCUMENTS ALL STEPS FOR CLARITY AND REPLICABILITY.

KEY FEA

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1.4 TYPES OF EVIDENCE SYNTHESES

- **SYSTEMATIC REVIEW:**

FOCUS: NARROW, ANSWER-SPECIFIC QUESTIONS (E.G., "DOES ASPIRIN REDUCE STROKE RISK IN AF PATIENTS?").
METHODS: META-ANALYSIS, GRADE FOR EVIDENCE CERTAINTY.
EXAMPLE: COCHRANE REVIEWS.

- **SCOPING REVIEW:**

FOCUS: BROAD MAPPING OF EVIDENCE (E.G., "WHAT INTERVENTIONS EXIST FOR DIABETIC FOOT ULCERS?").
USE: IDENTIFIES RESEARCH GAPS, GUIDES FUTURE SRS.

- **NARRATIVE REVIEW:**

FOCUS: EXPERT OPINION, NO FORMAL METHODOLOGY.
LIMITATIONS: HIGH RISK OF SELECTION BIAS.

- **RAPID REVIEW:**

FOCUS: ACCELERATED SYNTHESIS FOR URGENT POLICY DECISIONS (E.G., PANDEMICS).
TRADE-OFF: LIMITED SEARCH DEPTH.

EVIDENCE

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Q&A TIME!!!

WHEN SHOULD I DO A SCOPING REVIEW INSTEAD OF A SYSTEMATIC REVIEW

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ANSWER!!!

USE A SCOPING REVIEW WHEN THE TOPIC IS BROAD AND YOU WANT TO MAP EXISTING EVIDENCE RATHER THAN ANSWER A SPECIFIC QUESTION.

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Q&A TIME!!!

HOW IS A SCOPING REVIEW DIFFERENT FROM A LITERATURE REVIEW

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ANSWER!!!

A SCOPING REVIEW FOLLOWS A STRUCTURED METHODOLOGY, WHILE A LITERATURE REVIEW IS OFTEN LESS FORMAL.

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PRISMA

PRISMA

PRISMA

PRISMA

PRISMA

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2.1 WHAT IS PRISMA?

- **PRISMA** (PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS AND META-ANALYSES) IS AN EVIDENCE-BASED FRAMEWORK FOR TRANSPARENTLY REPORTING SYSTEMATIC REVIEWS AND META-ANALYSES.
- **PURPOSE**: ENSURES CLARITY, REPRODUCIBILITY, AND COMPLETENESS IN REPORTING.
- **COMPONENTS**:
- PRISMA CHECKLIST: **27-ITEM CHECKLIST FOR REPORTING**.
- PRISMA FLOW DIAGRAM: VISUALIZES STUDY SELECTION PROCESS.
- **USE**: WIDELY ADOPTED IN HEALTHCARE, SOCIAL SCIENCES, AND OTHER FIELDS.

PRISMA

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2.2 PRISMA FLOW CHART

- **PURPOSE**: TRACKS THE STUDY SELECTION PROCESS FROM IDENTIFICATION TO INCLUSION.
- **STAGES**:

1. **IDENTIFICATION**: RECORDS FOUND THROUGH DATABASES AND OTHER SOURCES.
2. **SCREENING**: TITLES/ABSTRACTS SCREENED FOR RELEVANCE.
3. **ELIGIBILITY**: FULL-TEXT ARTICLES ASSESSED FOR INCLUSION.
4. **INCLUDED**: STUDIES SELECTED FOR REVIEW.

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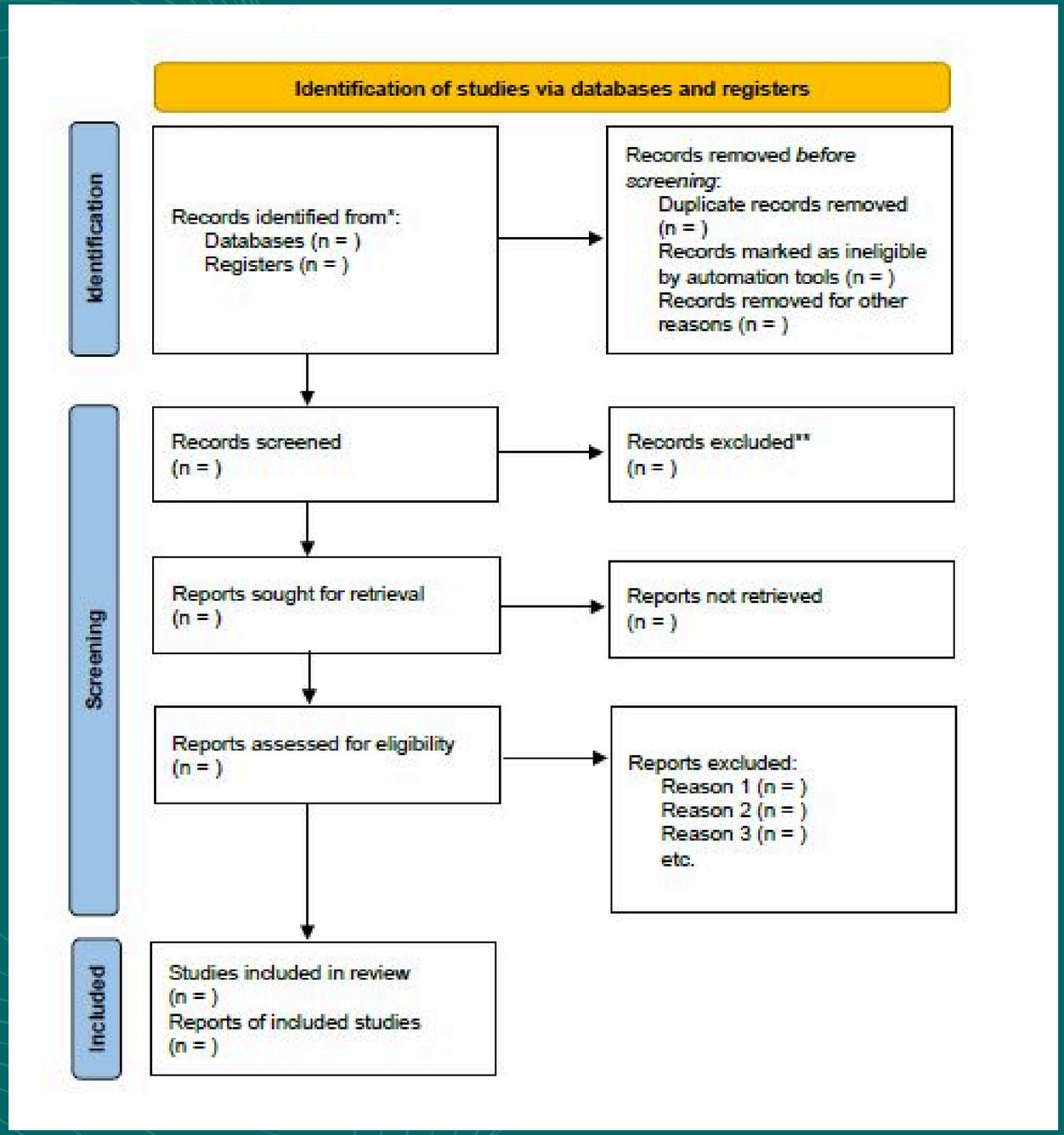
PRISMA FLOW CHART

SHOWS WHAT YOU HAVE EXCLUDED AND INCLUDED IN YOUR STUDY BASED ON CRITERIAS YOU SETTED.



PRISMA

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2.3 PRISMA CHECKLIST

- **PURPOSE**: ENSURES ALL CRITICAL ASPECTS OF A SYSTEMATIC REVIEW ARE REPORTED.
- **KEY SECTIONS**:

1. **TITLE**: CLEAR IDENTIFICATION AS A SYSTEMATIC REVIEW.
2. **ABSTRACT**: STRUCTURED SUMMARY.
3. **METHODS**: PROTOCOL, SEARCH STRATEGY, DATA EXTRACTION, AND ANALYSIS.
4. **RESULTS**: STUDY SELECTION, CHARACTERISTICS, AND SYNTHESIS.
5. **DISCUSSION**: INTERPRETATION AND LIMITATIONS.

- **WEBSITE**: PRISMA-STATEMENT.ORG

Expanded Checklist

PRISMA

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Q&A TIME!!!

WHY DOES PRISMA MATTER IN PUBLISHING SYSTEMATIC REVIEWS

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ANSWER!!!

MOST JOURNALS REQUIRE IT FOR SUBMISSION.

WHY??

BECAUSE IT ENSURES COMPLETENESS, TRANSPARENCY, AND MINIMIZES BIAS IN PUBLISHED REVIEWS.

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Q&A TIME!!!

WHY IS PRISMA DIFFERENT FROM OTHER GUIDELINES LIKE CONSORT OR STROBE ?

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ANSWER!!!

PRISMA IS SPECIFIC TO SYSTEMATIC REVIEWS AND META-ANALYSES.

WHY??

OTHER GUIDELINES FOCUS ON DIFFERENT STUDY TYPES (E.G., TRIALS OR OBSERVATIONAL STUDIES), WHILE PRISMA FITS REVIEWS BEST.

Q&A TIME!!!

ANSWER!!!
Your review may lack transparency

WHAT IF I DIDN'T FOLLOWED THE PRISMA?

ANSWER!!!
You may miss key steps in review methodology

ANSWER!!!
Lack of credibility among peers and mentors

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PICO FRAMEWORK

PICO FRAMEWORK
PICO FRAMEWORK
PICO FRAMEWORK
PICO FRAMEWORK

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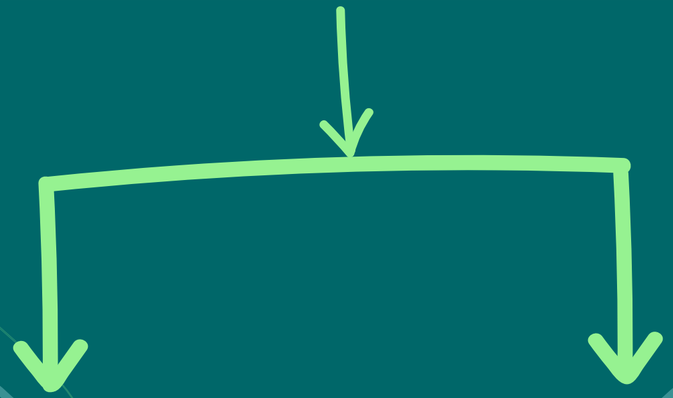
2 SET OF FRAMEWORK TO WORK WITH...



PICO FRAMEWORK

PECO FRAMEWORK

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PICO VS PECO

PICO		PECO	
P	POPULATION	P	POPULATION
I	INTERVENTION	E	EXPOSURE
C	COMPARISON	C	COMPARISON
O	OUTCOME	O	OUTCOME

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3.1 PICO FRAMEWORK

- **DEFINITION**: PICO IS A STRUCTURED FRAMEWORK USED TO DEFINE A CLEAR AND FOCUSED CLINICAL OR RESEARCH QUESTION.
- **COMPONENTS:**
- POPULATION: THE SPECIFIC GROUP OF INTEREST (E.G., ADULTS WITH HYPERTENSION).
- **INTERVENTION**: THE TREATMENT OR EXPOSURE BEING STUDIED (E.G., LOW-SODIUM DIET).
- **COMPARISON**: THE ALTERNATIVE OR CONTROL (E.G., STANDARD DIET).
- **OUTCOME**: THE MEASURABLE RESULT (E.G., BLOOD PRESSURE REDUCTION).
- **USE CASE**: HELPS REFINE RESEARCH QUESTIONS FOR SYSTEMATIC REVIEWS, CLINICAL TRIALS, AND EVIDENCE-BASED PRACTICE.

pico pico

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3.2 PECO FRAMEWORK

- **DEFINITION**: AN ADAPTATION OF PICO FOR OBSERVATIONAL STUDIES, FOCUSING ON EXPOSURE INSTEAD OF INTERVENTION.
- **COMPONENTS**:
- **POPULATION**: THE GROUP BEING STUDIED (E.G., URBAN RESIDENTS).
- **EXPOSURE**: THE ENVIRONMENTAL OR RISK FACTOR (E.G., AIR POLLUTION).
- **COMPARISON**: THE UNEXPOSED OR CONTROL GROUP (E.G., LOW-POLLUTION AREAS).
- **OUTCOME**: THE HEALTH EFFECT (E.G., ASTHMA EXACERBATIONS).
- **EXAMPLE**: PECO FOR "IMPACT OF PM2.5 ON LUNG HEALTH."

PECO PE

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4 COMMON PITFALLS IN FRAMING RESEARCH QUESTIONS :

1. BROAD POPULATION
2. VAGUE OUTCOMES
3. UNCLEAR INTERVENTIONS/EXPOSURES
4. MISSING COMPARISON

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PITFALL 1 - BROAD POPULATION

- **ISSUE**: A POORLY DEFINED POPULATION LEADS TO HETEROGENEOUS RESULTS AND UNCLEAR APPLICABILITY.
- **EXAMPLES**:
  - "CANCER PATIENTS" → TOO GENERAL.
  - "ELDERLY INDIVIDUALS" → AGE RANGE NOT SPECIFIED.
  - "CHILDREN WITH INFECTIONS" → TYPE OF INFECTION UNCLEAR.
- **SOLUTIONS**:
  - SPECIFY SUBGROUPS, E.G., "STAGE III COLORECTAL CANCER PATIENTS."
  - DEFINE DEMOGRAPHICS, E.G., "ADULTS AGED 65–75 WITH TYPE 2 DIABETES."
  - NARROW BY CONDITION, E.G., "CHILDREN WITH BACTERIAL PNEUMONIA."

PITFALL

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PITFALL 2 - VAGUE OUTCOMES

- **ISSUE**: BROAD OR NON-SPECIFIC OUTCOMES MAKE IT DIFFICULT TO MEASURE RESULTS EFFECTIVELY.
- **EXAMPLES**:
  - "IMPROVES HEALTH" → TOO BROAD.
  - "REDUCES SYMPTOMS" → UNCLEAR WHICH SYMPTOMS.
  - "ENHANCES QUALITY OF LIFE" → NOT MEASURABLE.
- **SOLUTIONS**:
  - USE SPECIFIC, VALIDATED TOOLS LIKE "SF-36 SCORE IMPROVEMENT."
  - DEFINE MEASURABLE OUTCOMES LIKE "REDUCTION IN SYSTOLIC BLOOD PRESSURE BY 10 MMHG."
  - SPECIFY TIMEFRAMES, E.G., "IMPROVEMENT IN PAIN SCORES AT 6 WEEKS."

PITFALL

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PITFALL 3 - UNCLEAR INTERVENTIONS/EXPOSURES

- **ISSUE**: AMBIGUOUS INTERVENTIONS OR EXPOSURES MAKE IT HARD TO REPLICATE OR COMPARE STUDIES.
- **EXAMPLES**:
  - "EXERCISE" → TYPE, DURATION, AND FREQUENCY NOT DEFINED.
  - "DIETARY CHANGES" → SPECIFIC DIET NOT MENTIONED.
  - "MEDICATION" → DRUG NAME AND DOSAGE UNCLEAR.
- **SOLUTIONS**:
  - DEFINE INTERVENTIONS PRECISELY, E.G., "30 MINUTES OF MODERATE AEROBIC EXERCISE, 5 TIMES A WEEK."
  - SPECIFY DETAILS, E.G., "MEDITERRANEAN DIET FOR 12 WEEKS."
  - INCLUDE DOSAGES, E.G., "500 MG OF METFORMIN TWICE DAILY."

PITFALL

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PITFALL 4 - MISSING COMPARISON

- **ISSUE**: WITHOUT A COMPARISON GROUP, IT'S IMPOSSIBLE TO ASSESS THE EFFECTIVENESS OF AN INTERVENTION.
- **EXAMPLES**:
  - "EFFECT OF YOGA ON STRESS" → NO COMPARISON GROUP.
  - "IMPACT OF AIR POLLUTION ON LUNG HEALTH" → NO LOW-POLLUTION CONTROL.
  - "BENEFITS OF A NEW DRUG" → NO PLACEBO OR STANDARD TREATMENT GROUP.
- **SOLUTIONS**:
  - ALWAYS INCLUDE A COMPARISON, E.G., "STANDARD CARE" OR "PLACEBO."
  - DEFINE CONTROL GROUPS CLEARLY, E.G., "LOW-POLLUTION URBAN AREAS."
  - USE ACTIVE COMPARATORS, E.G., "CURRENT STANDARD THERAPY."

PITFALL

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PROSPERO
PROSPERO
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PROSPERO
PROSPERO

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4. WHAT IS PROSPERO?

- **DEFINITION**: PROSPERO IS AN INTERNATIONAL DATABASE FOR REGISTERING SYSTEMATIC REVIEW PROTOCOLS.
- **PURPOSE**: PROMOTES TRANSPARENCY, REDUCES DUPLICATION, AND IMPROVES THE QUALITY OF SYSTEMATIC REVIEWS.
- **SCOPE**: ACCEPTS PROTOCOLS FOR REVIEWS OF INTERVENTIONS, DIAGNOSTICS, PROGNOSTICS, AND MORE.
- **MANAGED BY**: CENTRE FOR REVIEWS AND DISSEMINATION (CRD), UNIVERSITY OF YORK, UK.
- **WEBSITE**- (WWW.CRD.YORK.AC.UK/PROSPERO).

PROSPERO

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WHY IT MATTERS TO LEARN ABOUT PROSPERO BEFORE YOU START A SYSTEMATIC REVIEW?

WE'RE NOT REGISTERING ANYTHING TODAY!!!

Because before even forming your final research question, you need to ask:
Has someone already done a similar review ?

This is where PROSPERO helps:

- To **avoid duplication**
- To **get inspiration**- Looking at how other researchers framed similar topics helps you refine your own question.
- To **avoid duplication**
- To **strengthen your research question**

PROSPERO

WHAT YOU WILL LEARN ABOUT PROSPERO IN WORKSHOP!!!

HOW TO SEARCH PROSPERO?

HOW TO BUILD A REFINED, POWERFUL RESEARCH QUESTION?

HOW TO USE RESULTS TO SHAPE YOUR STRATEGY?

PROSPERO

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SEARCH STRATEGY

SEARCH STRATEGY
SEARCH STRATEGY
SEARCH STRATEGY
SEARCH STRATEGY

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5.1 SEARCH STRATEGY – THE HEART OF A SYSTEMATIC REVIEW

“IF YOUR SEARCH IS WEAK, YOUR REVIEW WILL BE INCOMPLETE”

1) WHAT IS A SEARCH STRATEGY?

A search strategy is a step-by-step plan to find all relevant studies on your research question — in a systematic, unbiased, and reproducible way.

2) WHY IS IT SO IMPORTANT?

- 📚 Ensures you find all existing evidence — not just what pops up on Google.
- 🚫 Helps avoid selection bias.
- 🔁 Makes your review reproducible — others should be able to follow your method.
- 💡 Gives credibility to your work — good journals look at your strategy.

SEARCH

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5.2 KEY COMPONENTS OF SEARCH STRATEGY

ELEMENT	DESCRIPTION
1 Research Question	Must be well-defined (usually in PICO/PECO format)
2 Databases	Where you'll search (e.g., PubMed, Scopus, Cochrane, Embase)
3 Keywords & MeSH Terms	Combine free text (keywords) + standardized terms (like "Myocardial Infarction" in MeSH)
4 Boolean Operators	Use AND, OR, NOT to connect keywords logically
5 Limits/Filters	Set date range, age group, study type, language, etc.
6 Documentation	Keep a full record of search terms, databases, date of search

SEARCH

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5.3 WHERE TO SEARCH? – COMMON DATABASES

	DATABASE		BEST FOR
1	PubMed	→	Biomedical literature
2	Cochrane Library	→	Systematic reviews and trials
3	Keywords & MeSH Terms	→	Broad research coverage
4	Scopus	→	Cross-disciplinary sources
5	Web of Science	→	Drug & pharmacology-heavy studies
6	Embase	→	Grey literature (but less systematic)

SEARCH

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Thank you for having you guys!!!

SEE YOU AT WORKSHOP!!!

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5.3 REGISTRATION STEPS

- STEP 1: DRAFT A CLEAR PICO/PECO QUESTION.
- STEP 2: DEFINE INCLUSION/EXCLUSION CRITERIA.
- STEP 3: SUBMIT TO PROSPERO (INCLUDE SCREENSHOTS OF THE SUBMISSION INTERFACE).
- STEP 4: REVISE BASED ON PEER COMMENTS AND FINALIZE THE PROTOCOL.

REGISTER

Q: CAN I START MY REVIEW BEFORE PROSPERO REGISTRATION?
A: IT'S NOT RECOMMENDED—JOURNALS MAY REJECT YOUR PAPER.

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PROTOCOL DEVELOPMENT

PROTOCOL DEVELOPMENT

PROTOCOL DEVELOPMENT

PROTOCOL DEVELOPMENT

PROTOCOL DEVELOPMENT

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6.1 (PRISMA-P)

WHAT IS PRISMA-P?

- DEFINITION: PRISMA-P (PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEW AND META-ANALYSIS PROTOCOLS) IS A CHECKLIST FOR DEVELOPING SYSTEMATIC REVIEW PROTOCOLS.
- PURPOSE: ENSURES PROTOCOLS ARE COMPREHENSIVE, TRANSPARENT, AND REPRODUCIBLE.
- USE CASE: REQUIRED FOR PROSPERO REGISTRATION AND JOURNAL SUBMISSIONS.
- VISUAL: PRISMA-P CHECKLIST ICON OR LOGO.

PRISMA

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6.2 PROTOCOL COMPONENTS

- RATIONALE:
  - EXPLAIN WHY THE RESEARCH QUESTION MATTERS.
  - EXAMPLE: "RISING GLOBAL DIABETES RATES NECESSITATE A REVIEW OF SGLT2 INHIBITORS FOR HEART FAILURE."
- ELIGIBILITY CRITERIA:
  - INCLUSION: RCTS, ADULTS, ENGLISH LANGUAGE.
  - EXCLUSION: ANIMAL STUDIES, EDITORIALS, NON-PEER-REVIEWED ARTICLES.
- SEARCH STRATEGY:
  - DATABASES: PUBMED, EMBASE, COCHRANE.
  - KEYWORDS: "SGLT2 INHIBITORS," "HEART FAILURE," "HOSPITALIZATION."
  - FILTERS: PUBLICATION DATE, LANGUAGE, STUDY DESIGN.
- RISK OF BIAS TOOLS:
  - SPECIFY TOOLS LIKE ROB 2 FOR RANDOMIZED TRIALS.
- DATA SYNTHESIS PLAN:
  - DESCRIBE METHODS FOR QUALITATIVE OR QUANTITATIVE SYNTHESIS (E.G., META-ANALYSIS).

PROTOCOL

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6.3 CHECKLIST

PRISMA-P CHECKLIST HIGHLIGHTS

- ITEM 7: "DESCRIBE ALL ELIGIBILITY CRITERIA IN DETAIL."
- ITEM 12: "SPECIFY RISK OF BIAS TOOLS (E.G., ROB 2)."
- ITEM 15: "OUTLINE DATA EXTRACTION METHODS."
- ITEM 17: "DETAIL STATISTICAL METHODS FOR META-ANALYSIS (IF APPLICABLE)."
- VISUAL: TABLE WITH KEY PRISMA-P ITEMS AND EXAMPLES.

CHECKLIST

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6.4 EXAMPLES

CASE STUDY: PUBLISHED PROTOCOL

- EXAMPLE: "ANTICOAGULATION IN COVID-19: A COCHRANE PROTOCOL."
  - RATIONALE: HIGH THROMBOSIS RISK IN COVID-19 PATIENTS.
  - ELIGIBILITY: RCTS ON ANTICOAGULATION IN HOSPITALIZED ADULTS.
  - SEARCH: MEDLINE, CENTRAL, CLINICAL TRIAL REGISTRIES.
  - OUTCOMES: MORTALITY, BLEEDING EVENTS, ICU ADMISSION.
- COMMON REVISIONS REQUESTED BY PROSPERO:
  - CLARIFYING OUTCOMES (E.G., "SPECIFY PRIMARY VS. SECONDARY OUTCOMES").
  - EXPANDING SEARCH TERMS (E.G., "INCLUDE SYNONYMS FOR ANTICOAGULANTS").
  - JUSTIFYING EXCLUSION CRITERIA (E.G., "WHY EXCLUDE NON-ENGLISH STUDIES?").

EXAMPL

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6.5 COMMON PITFALLS IN PROTOCOL DEVELOPMENT

- VAGUE OBJECTIVES:
  - EXAMPLE: "TO REVIEW TREATMENTS FOR DIABETES."
  - SOLUTION: SPECIFY FOCUS, E.G., "TO ASSESS THE EFFICACY OF SGLT2 INHIBITORS IN REDUCING HEART FAILURE HOSPITALIZATIONS."
- INCOMPLETE SEARCH STRATEGY:
  - EXAMPLE: SEARCHING ONLY ONE DATABASE.
  - SOLUTION: INCLUDE MULTIPLE DATABASES (PUBMED, EMBASE, COCHRANE).
- UNCLEAR ELIGIBILITY CRITERIA:
  - EXAMPLE: "INCLUDE RELEVANT STUDIES."
  - SOLUTION: DEFINE CRITERIA PRECISELY, E.G., "RCTS PUBLISHED IN ENGLISH BETWEEN 2010-2023."
- VISUAL: CHECKLIST FOR AVOIDING PITFALLS.

PROTOCOL

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6.6 TIPS FOR SUCCESSFUL PROTOCOL DEVELOPMENT

- FOLLOW PRISMA-P GUIDELINES: USE THE CHECKLIST TO ENSURE COMPLETENESS.
- SEEK PEER FEEDBACK: SHARE DRAFTS WITH COLLEAGUES OR MENTORS.
- USE TEMPLATES: ADAPT PUBLISHED PROTOCOLS FOR YOUR TOPIC.
- PLAN FOR REVISIONS: BE PREPARED TO REFINE BASED ON PROSPERO OR JOURNAL FEEDBACK.

PROTOCO

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7. CHALLENGES & MITIGATION

- COMMON CHALLENGES:
  - TIME CONSTRAINTS: AVERAGE SR TAKES 12–18 MONTHS.
  - RESOURCE LIMITS: ACCESS TO PAID DATABASES (E.G., EMBASE).
  - DATA OVERLOAD: SCREENING 10,000+ PAPERS.
- SOLUTIONS:
  - COLLABORATION: COVIDENCE FOR TEAM SCREENING.
  - AUTOMATION: RAYYAN AI FOR DEDUPLICATION.
  - OPEN ACCESS: USE GOOGLE SCHOLAR, PREPRINT SERVERS.

CHALLE

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8. RESOURCES & FURTHER READING

CONTENT:

- GUIDELINES:
  - EQUATOR NETWORK: HUB FOR REPORTING STANDARDS.
  - COCHRANE HANDBOOK: STEP-BY-STEP SR METHODOLOGY.
- TOOLS:
  - RAYYAN: AI-ASSISTED SCREENING.
  - COVIDENCE: COLLABORATIVE PLATFORM.
  - ZOTERO: REFERENCE MANAGEMENT.
- TRAINING:
  - COURSERA: "SYSTEMATIC REVIEW BASICS" (UNIVERSITY OF COPENHAGEN).
  - BOOKS: "FINDING WHAT WORKS IN HEALTH CARE" (IOM).

RESOURCES

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