

# 2020 Dietary Guidelines Advisory Committee: Pregnancy and Lactation Subcommittee

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[DietaryGuidelines.gov](https://DietaryGuidelines.gov)

# 3 Topic Areas: (1) Dietary Patterns during pregnancy and lactation

## New reviews

- **Gestational weight gain\***
- **Postpartum weight loss\***
- Human milk composition and quantity
- Developmental milestones
- Micronutrient status

## Reviews from P/B-24

- Gestational diabetes
- Hypertensive disorders during pregnancy
- Gestational age at birth
- Birth weight

\*Protocols to be discussed today; available at [DietaryGuidelines.gov](https://DietaryGuidelines.gov)

# 3 Topic Areas: (2) Dietary Supplements and Fortified Foods; (3) Maternal diet and food allergies and atopic allergic diseases

## Nutrients from Dietary Supplements and Fortified Foods

## Health Outcomes

- **Folic acid (5 outcomes)\***
- **Iron (4 outcomes)\***
- Vitamin B12
- Omega-3 fatty acids
- Vitamin D
- Iodine

- Micronutrient status
- Risk of gestational diabetes
- Risk of hypertensive disorders during pregnancy
- Human milk composition
- Developmental milestones

\*Protocols to be discussed today; available at [DietaryGuidelines.gov](http://DietaryGuidelines.gov)

## Maternal diet

- Food allergies/atopic allergic diseases

# (1) Dietary patterns during pregnancy and lactation

What is the relationship between **dietary patterns** consumed during...

1. pregnancy and **gestational weight gain?**
2. lactation and **postpartum weight loss?**

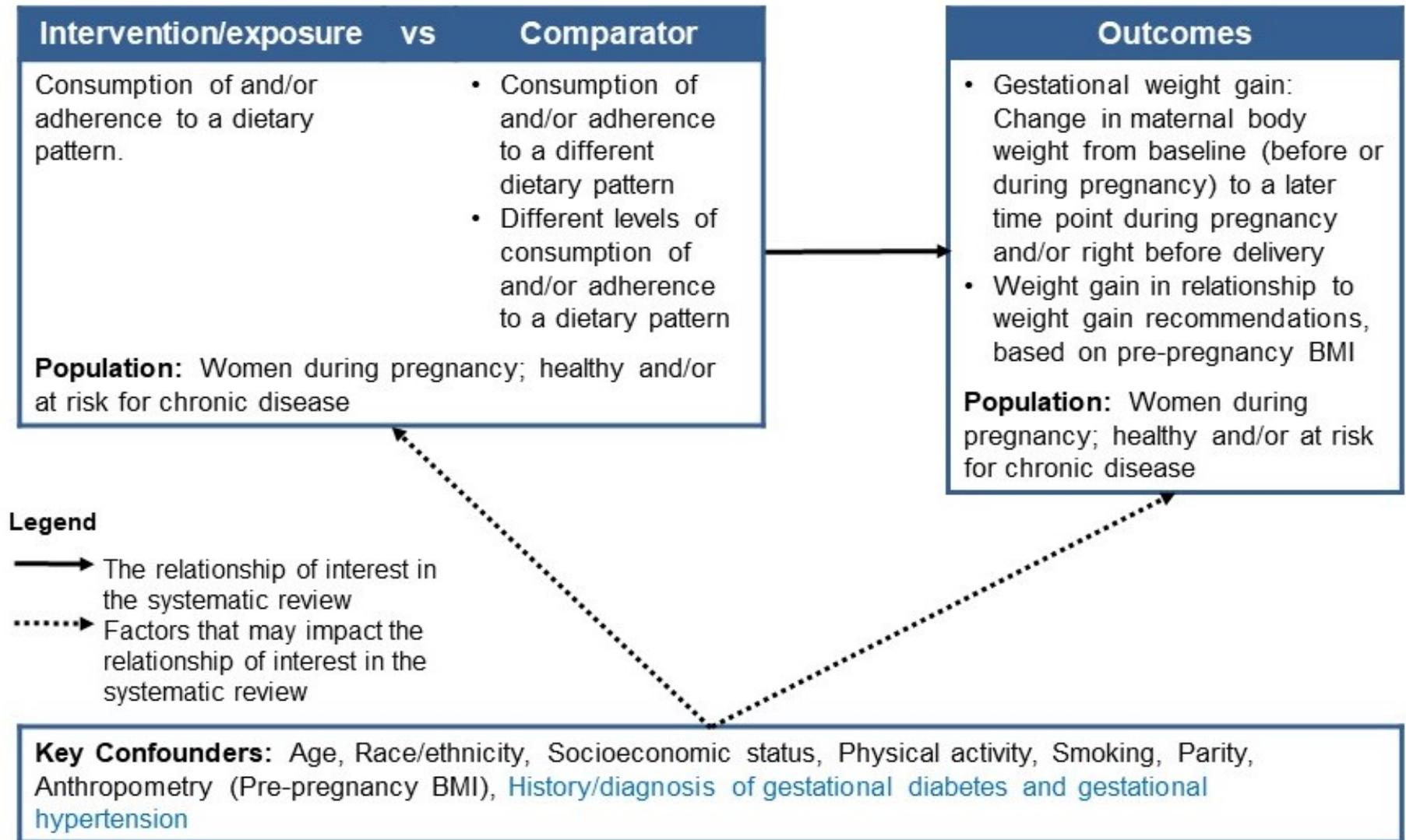
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Approach to Answer Questions: NESR Systematic Review

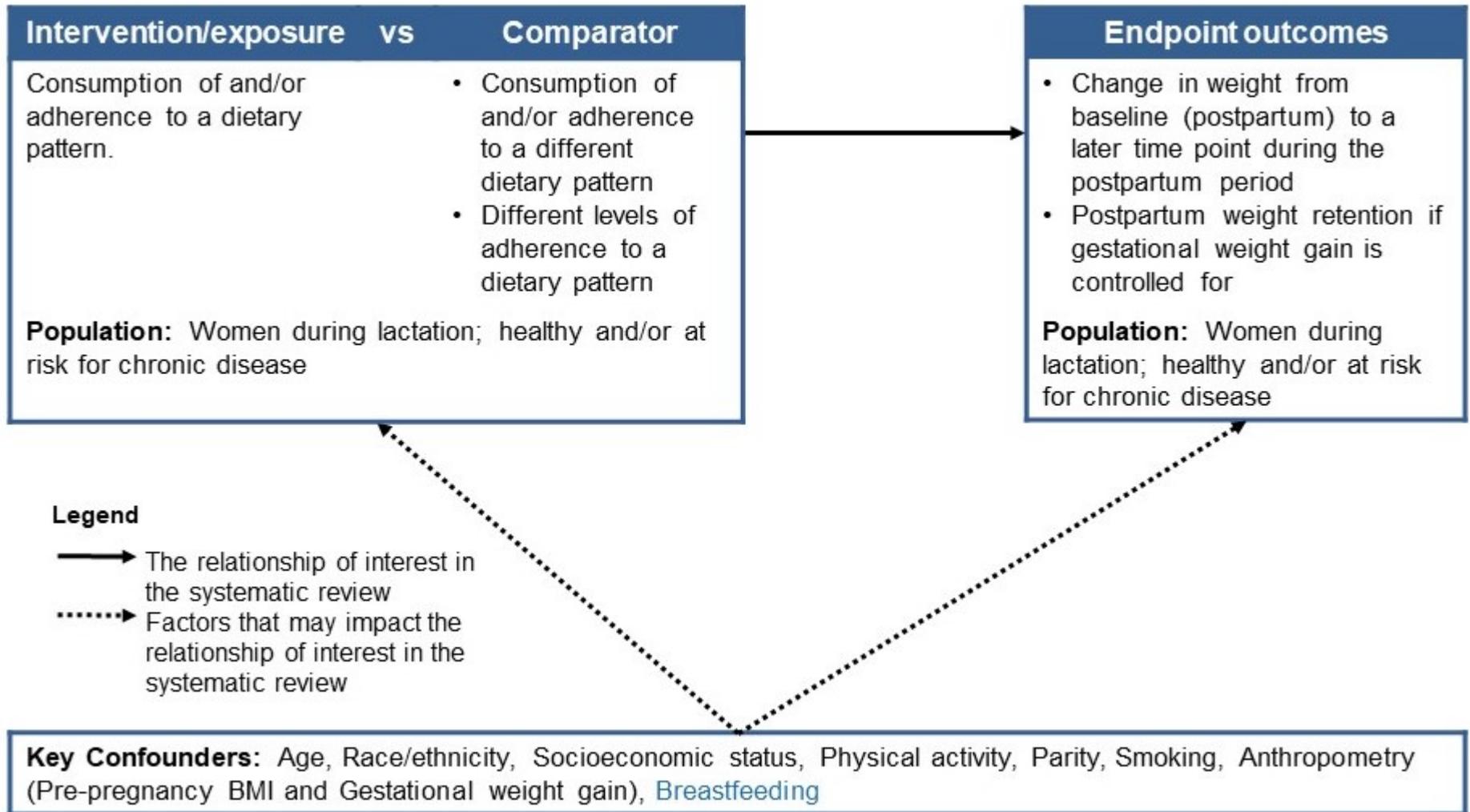
# Key Definitions

- **Dietary Pattern** – The quantities, proportions, variety, or combination of different foods, drinks, and nutrients (when available) in diets, and the frequency with which they are habitually consumed

# Analytic Framework: What is the relationship between dietary patterns consumed during pregnancy and gestational weight gain?



# Analytic Framework: What is the relationship between **dietary patterns** consumed **during lactation** and **postpartum weight loss**?



# Inclusion and Exclusion Criteria: Dietary patterns during pregnancy and lactation

- Standard NESR criteria:
  - Study Design
  - Publication Status
  - Language of Publication
  - Country
  
- Other criteria consistent with Dietary Patterns SC:
  - Date of publication (January 2000)
  - Intervention/exposure
  - Comparator

# Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
<b>Study participants</b>	<ul style="list-style-type: none"><li>• Women during pregnancy</li><li>• Women during lactation (postpartum weight loss only)</li></ul>	<ul style="list-style-type: none"><li>• Animal and <i>in vitro</i> models</li><li>• Pregnancies conceived ONLY using Assisted Reproductive Technologies</li><li>• Studies that exclusively enroll multiple gestation pregnancies</li><li>• Studies that ONLY report combined data for singleton and multiple gestation pregnancies</li><li>• Studies that enroll lactating and non-lactating mothers and ONLY present combined data for lactating and non-lactating mothers (only for postpartum weight loss)</li></ul>
<b>Temporality</b>	<ul style="list-style-type: none"><li>• Studies that assess exposure prior to outcome</li></ul>	<ul style="list-style-type: none"><li>• Studies that assess outcome prior to exposure</li></ul>

# Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
<b>Health status of study participants</b>	<ul style="list-style-type: none"><li>• Studies that enroll mothers who are healthy and/or at risk for chronic disease</li><li>• Studies that enroll some mothers diagnosed with a disease</li><li>• Studies that enroll <b>some or all</b> mothers classified as <b>underweight or obese</b> prior to pregnancy</li><li>• Studies that enroll <b>some</b> mothers who were severely undernourished prior to pregnancy</li></ul>	<ul style="list-style-type: none"><li>• Studies that <b>exclusively</b> enroll mothers who gave birth to preterm (&lt;37 weeks)</li><li>• Studies that <b>exclusively</b> enroll mothers diagnosed with a disease, including severe undernutrition or hospitalized with an illness or injury</li></ul>

# Questions

What is the relationship between **nutrients from supplements and/or fortified foods** consumed before and during pregnancy and lactation and specific health outcomes?

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Approach to Answer Question: NESR Systematic Review

# Key Definitions

- **Dietary Supplement:** a product (other than tobacco) that: is intended to supplement the diet; contains one or more dietary ingredients (including vitamins; minerals; herbs or other botanicals; amino acids; and other substances) or their constituents; is intended to be taken by mouth as a pill, capsule, tablet, or liquid; and is labeled on the front panel as being a dietary supplement. (ODS; Dietary Supplement Health and Education Act, 1994)

# Key Definitions

- **Fortification:** As defined by the FDA, the deliberate addition of one or more essential nutrients to a food, whether or not it is normally contained in the food. Fortification may be used to prevent or correct a demonstrated deficiency in the population or specific population groups; restore naturally occurring nutrients lost during processing, storage, or handling; or to add a nutrient to a food at the level found in a comparable traditional food. When cereal grains are labeled as enriched, it is mandatory that they be fortified with folic acid.

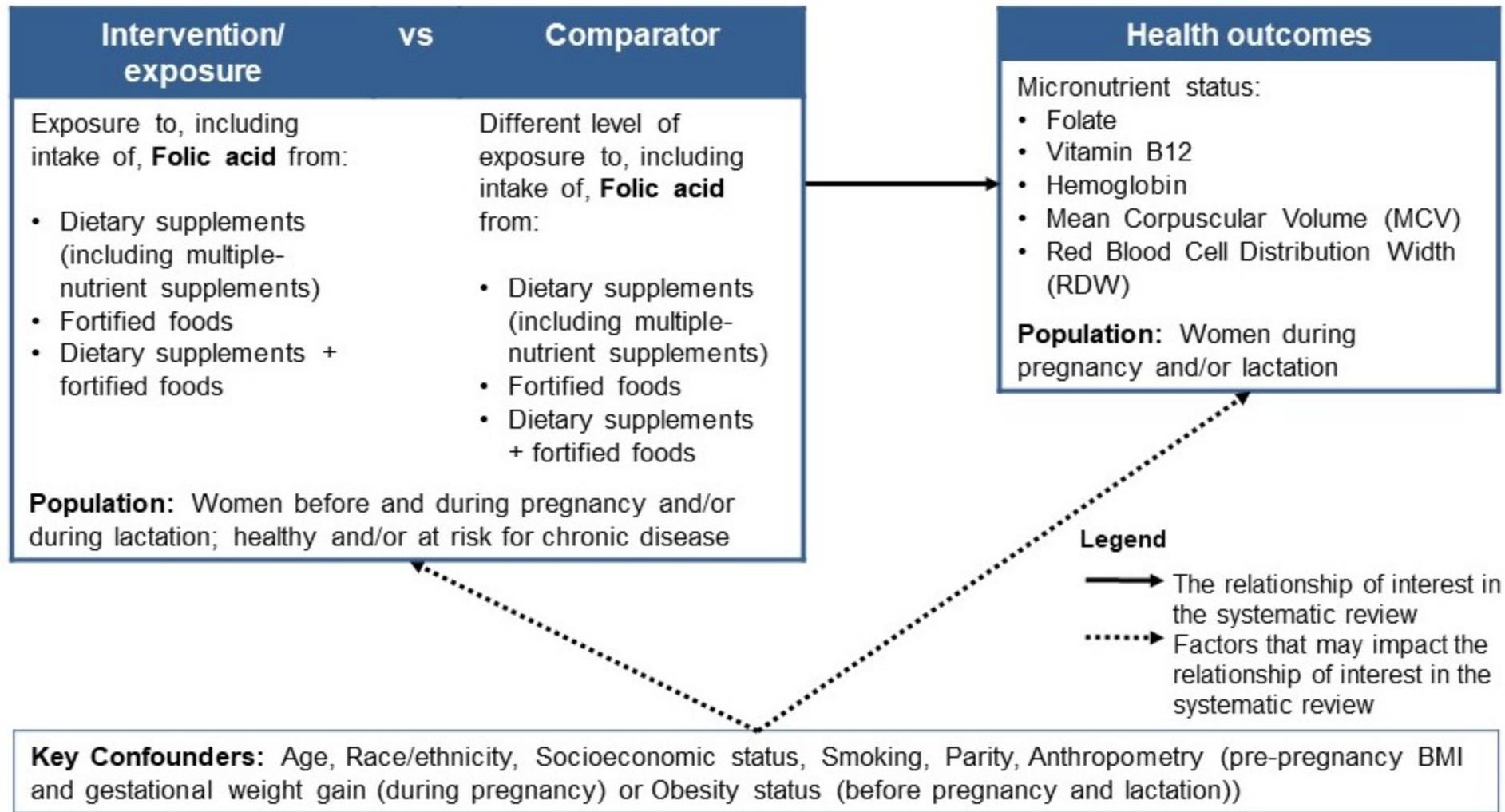
# Question

What is the relationship between **folic acid** from supplements and/or fortified foods consumed before and during pregnancy and lactation and specific health outcomes (5 outcomes)?

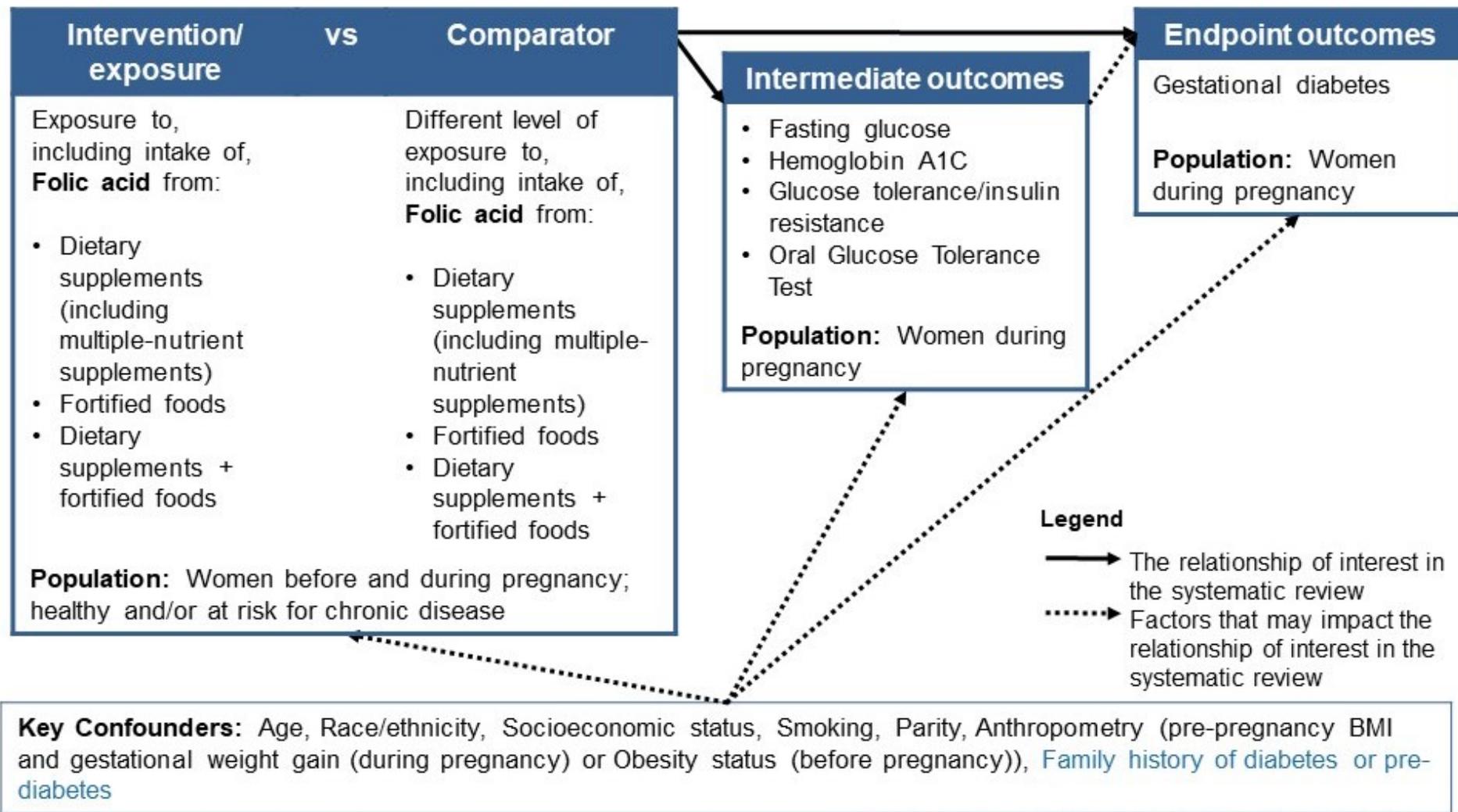
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Approach to Answer Question: NESR Systematic Review

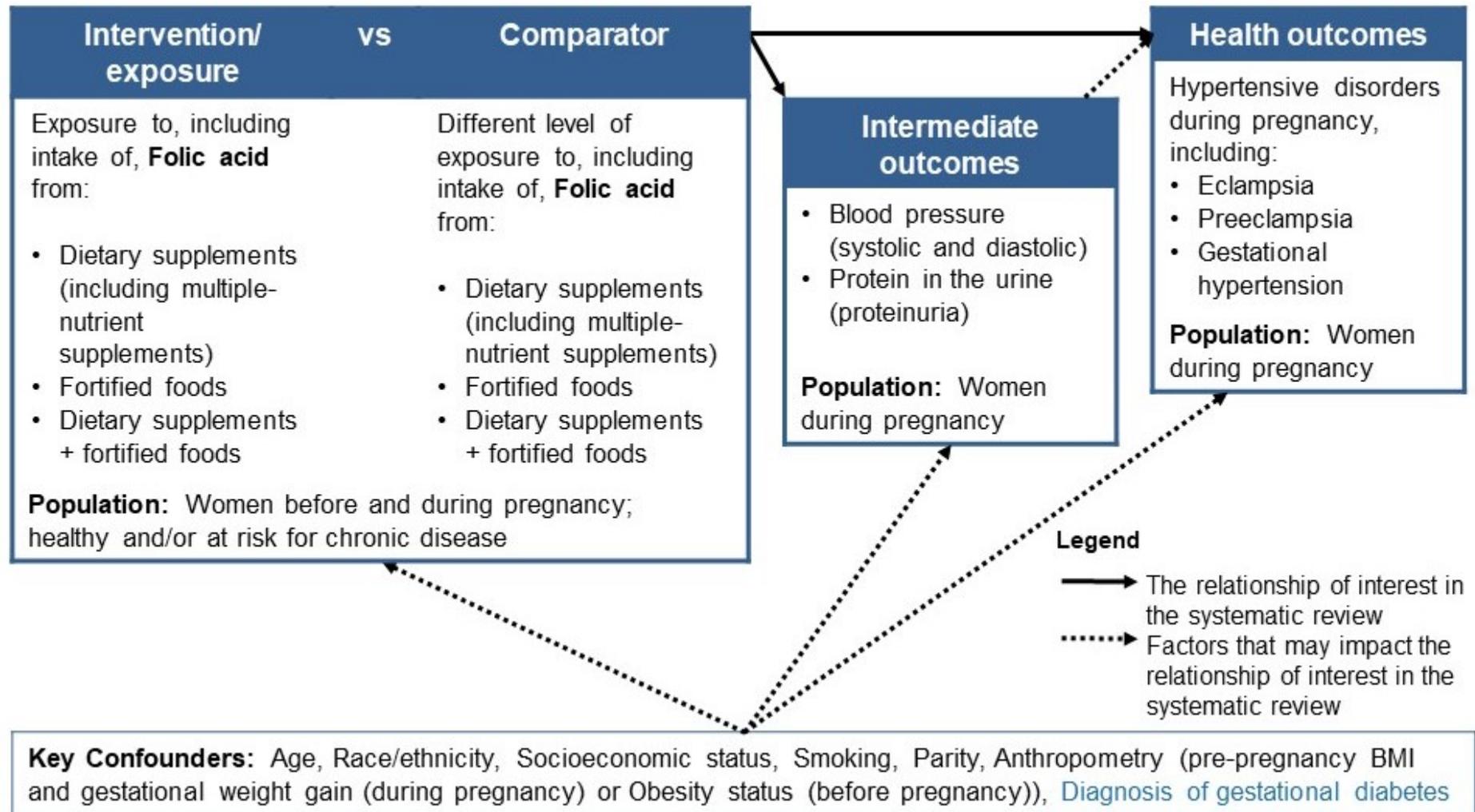
# Analytic Framework: What is the relationship between **folic acid** from supplements and/or fortified foods consumed **before and during pregnancy and lactation** and **micronutrient status**?



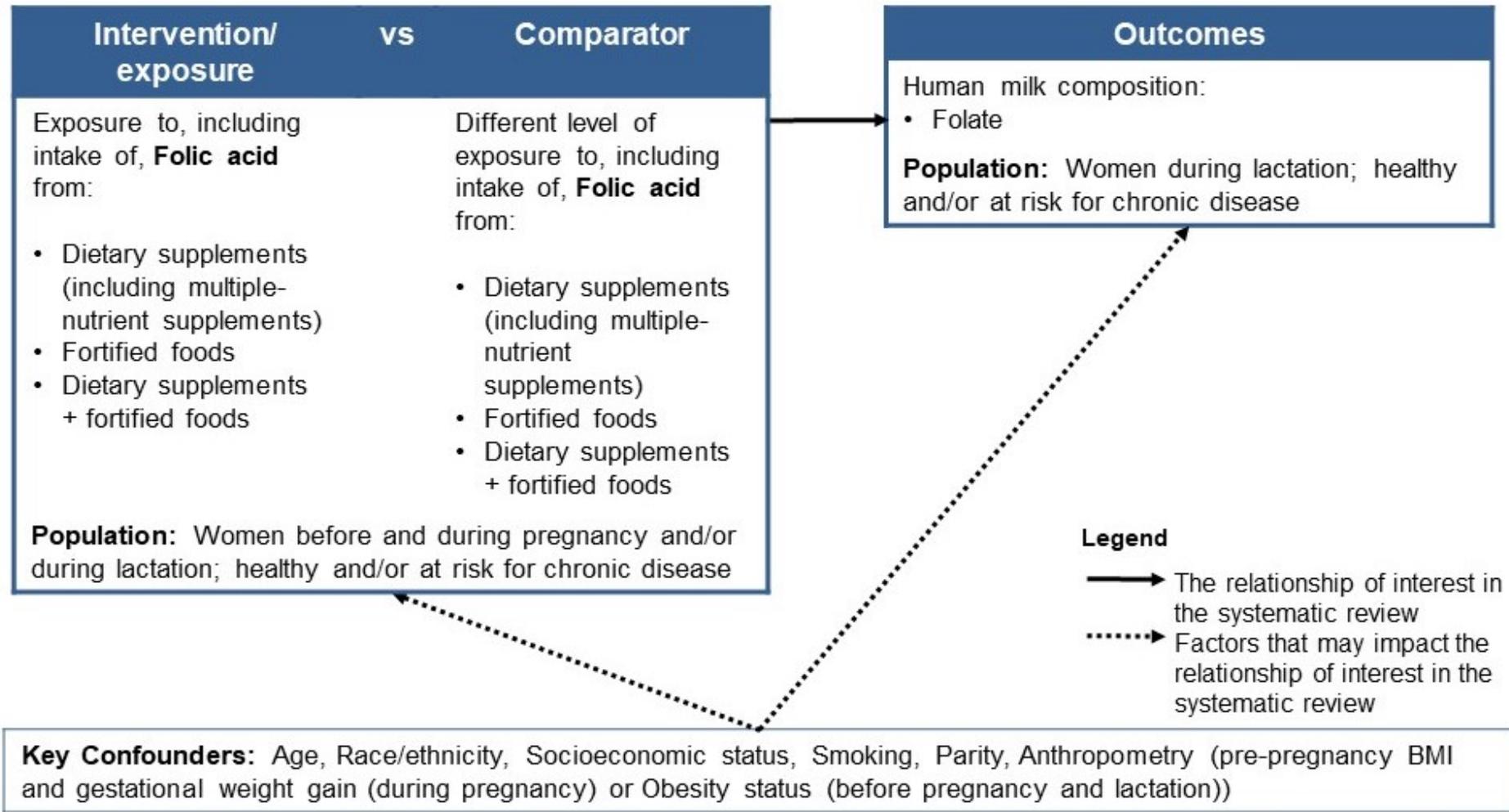
# Analytic Framework: What is the relationship between **folic acid** from supplements and/or fortified foods consumed **before and during pregnancy** and **gestational diabetes**?



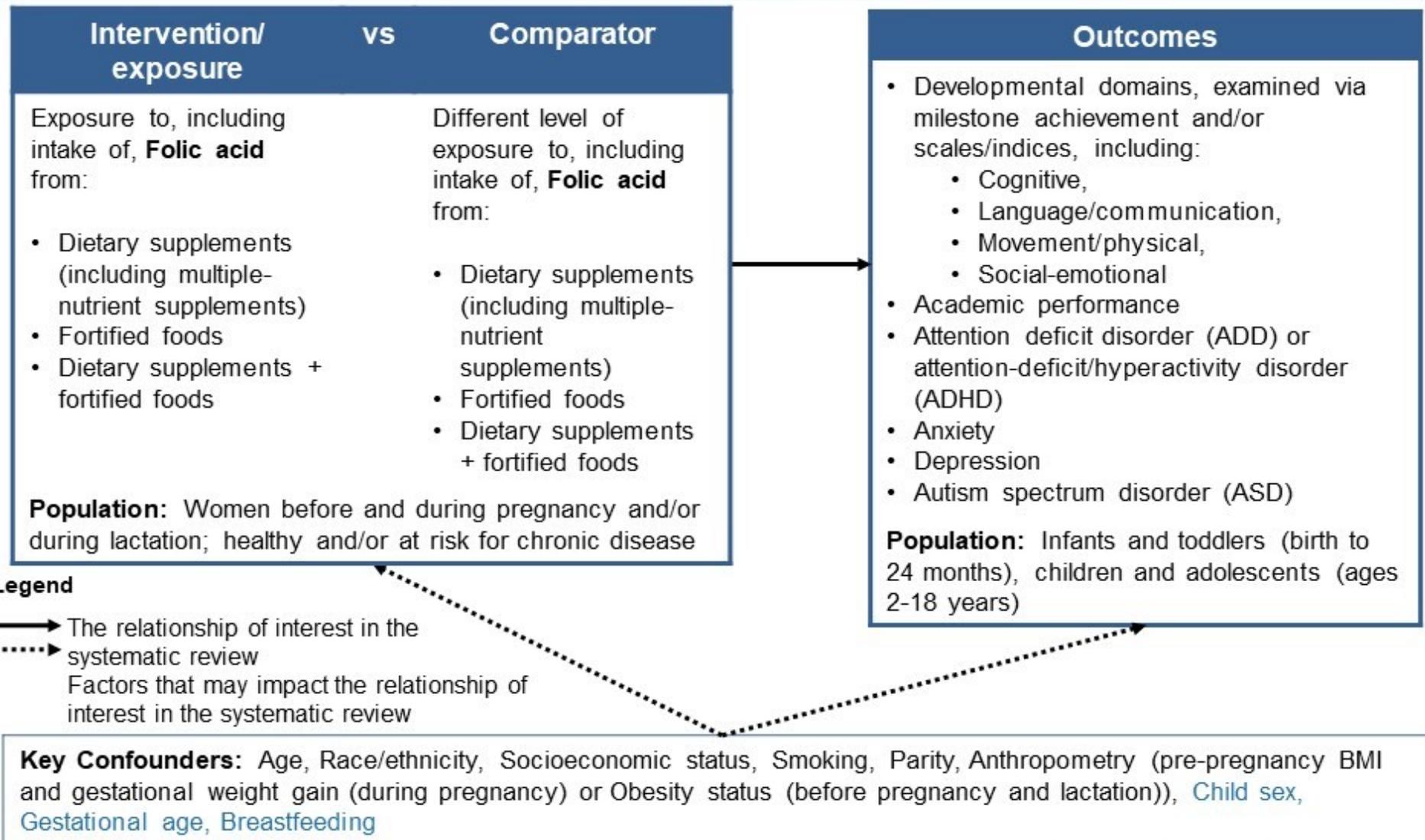
# Analytic Framework: What is the relationship between **folic acid** from supplements and/or fortified foods consumed **before and during pregnancy** and **hypertensive disorders during pregnancy**?



# Analytic Framework: What is the relationship between **folic acid** from supplements and/or fortified foods consumed **before and during pregnancy and lactation** and **human milk composition**?



# Analytic Framework: What is the relationship between **folic acid** from supplements and/or fortified foods consumed **before and during pregnancy and lactation** and **developmental milestones, including neurocognitive development**?



# Inclusion and Exclusion Criteria: **Folic acid** from Dietary supplements and Fortified food

- Standard criteria used for:
  - Publication Status
  - Language of Publication
  - Country

# Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
<b>Study Design</b>	<ul style="list-style-type: none"><li>• Randomized controlled trials</li><li>• Non-randomized controlled trials including quasi-experimental and controlled before-and-after studies</li><li>• Prospective cohort studies</li><li>• Retrospective cohort studies</li><li>• Nested case-control studies</li><li>• <b>Uncontrolled before-and-after studies</b></li><li>• <b>Cross-sectional studies (for human milk composition only)</b></li></ul>	<ul style="list-style-type: none"><li>• Uncontrolled trials</li><li>• Case-control studies</li><li>• Cross-sectional studies (for outcomes: micronutrient status, gestational diabetes, hypertensive disorders, developmental milestones, including neurocognitive health)</li><li>• Narrative reviews</li><li>• Systematic reviews</li><li>• Meta-analyses</li></ul>
<b>Date of publication</b>	<ul style="list-style-type: none"><li>• January 1980 – June 2019</li></ul>	<ul style="list-style-type: none"><li>• Articles published prior to January 1980</li></ul>

# Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
<b>Study participants</b>	<ul style="list-style-type: none"><li>• Human participants</li></ul>	<ul style="list-style-type: none"><li>• Non-human participants (e.g., animal or in-vitro models)</li><li>• Studies that <i>exclusively</i> enroll women who became pregnant using Assisted Reproductive Technologies</li><li>• Studies that <i>exclusively</i> enroll women with multiple gestation pregnancies</li></ul>
<b>Health status of study participants</b>	<ul style="list-style-type: none"><li>• Studies that enroll participants who are healthy and/or at risk for chronic disease, <b>including those with obesity</b></li><li>• Studies that enroll <b>some</b> participants diagnosed with a disease or with the health outcome of interest: Gestational diabetes; Hypertensive disorders of pregnancy; Neurocognitive disorders; Studies that enroll some participants who are deficient in folate</li><li>• Studies that enroll <b>some</b> mothers with infants who are born preterm</li><li>• Studies that enroll mothers diagnosed with the outcome of interest that is to be examined in the infant/child</li></ul>	<ul style="list-style-type: none"><li>• Studies that <b>exclusively</b> enroll participants diagnosed with a disease, or hospitalized with an illness or injury.</li><li>• Studies that <b>exclusively</b> enroll participants with the outcome of interest</li><li>• Studies that <b>exclusively</b> enroll infants born preterm, infants with low birth weight, and/or infants born small for gestational age</li></ul>

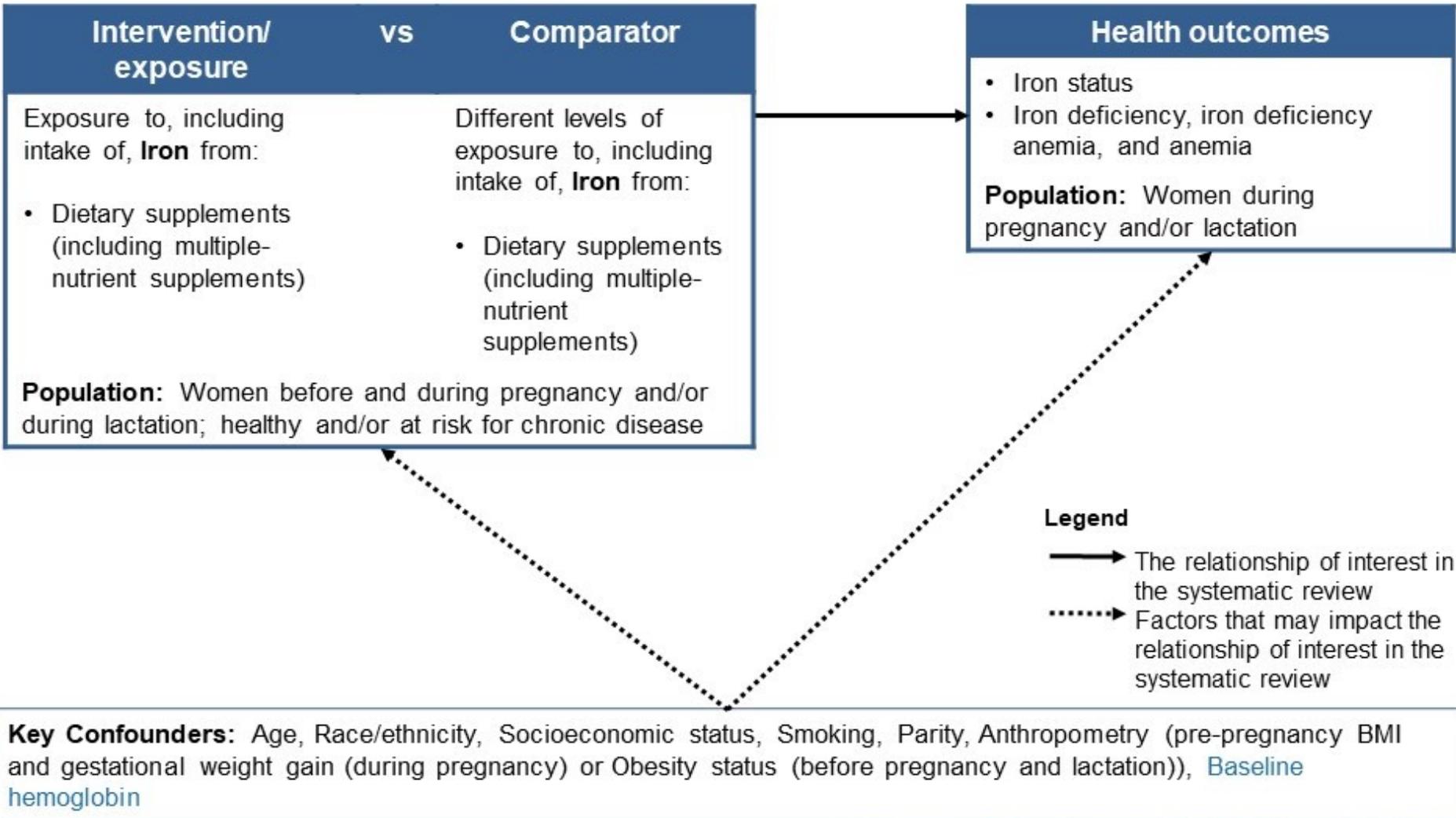
# Question

What is the relationship between **iron** from supplements and/or fortified foods consumed before and during pregnancy and lactation and specific health outcomes (4 outcomes)?

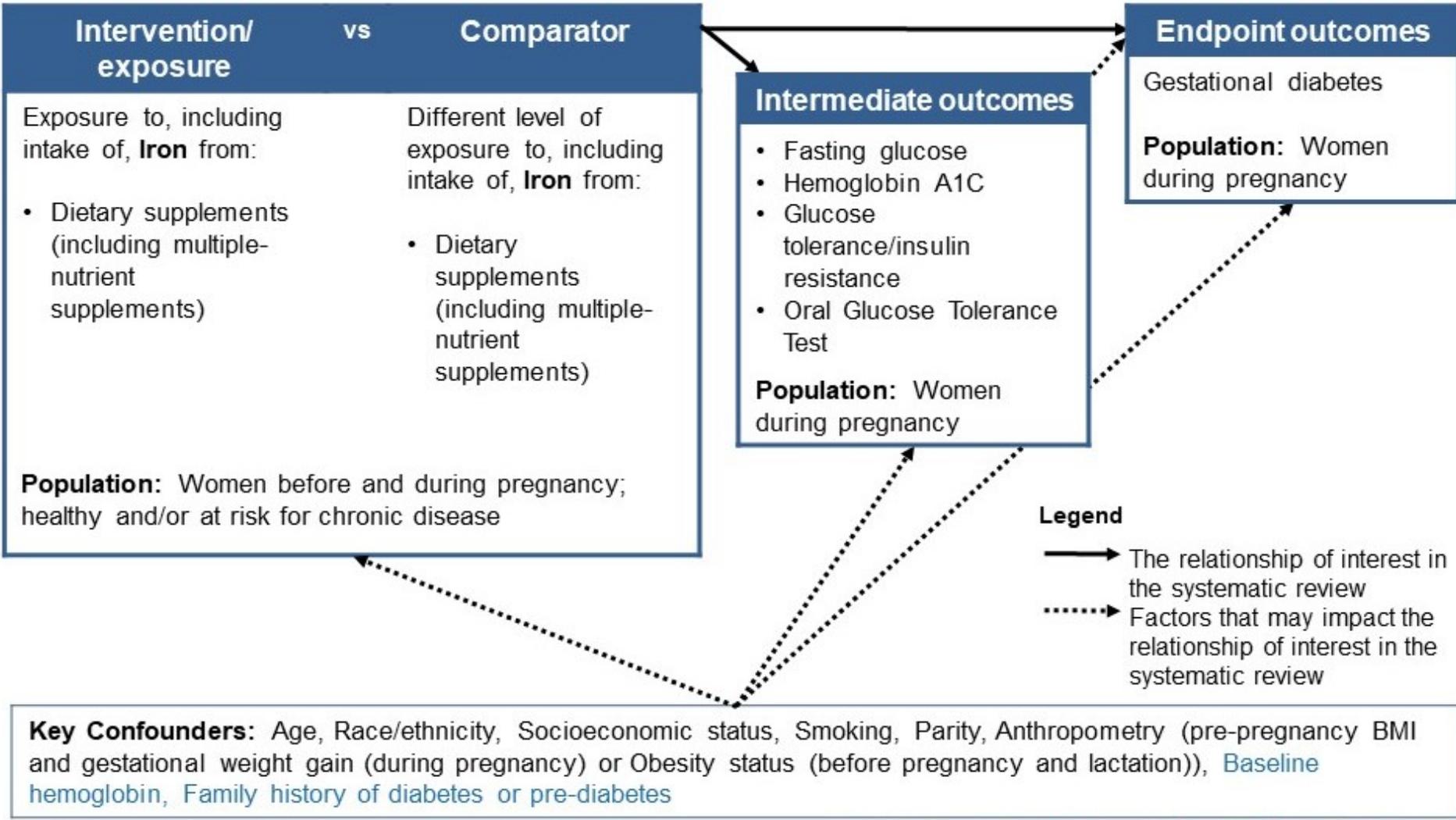
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Approach to Answer Question: NESR Systematic Review

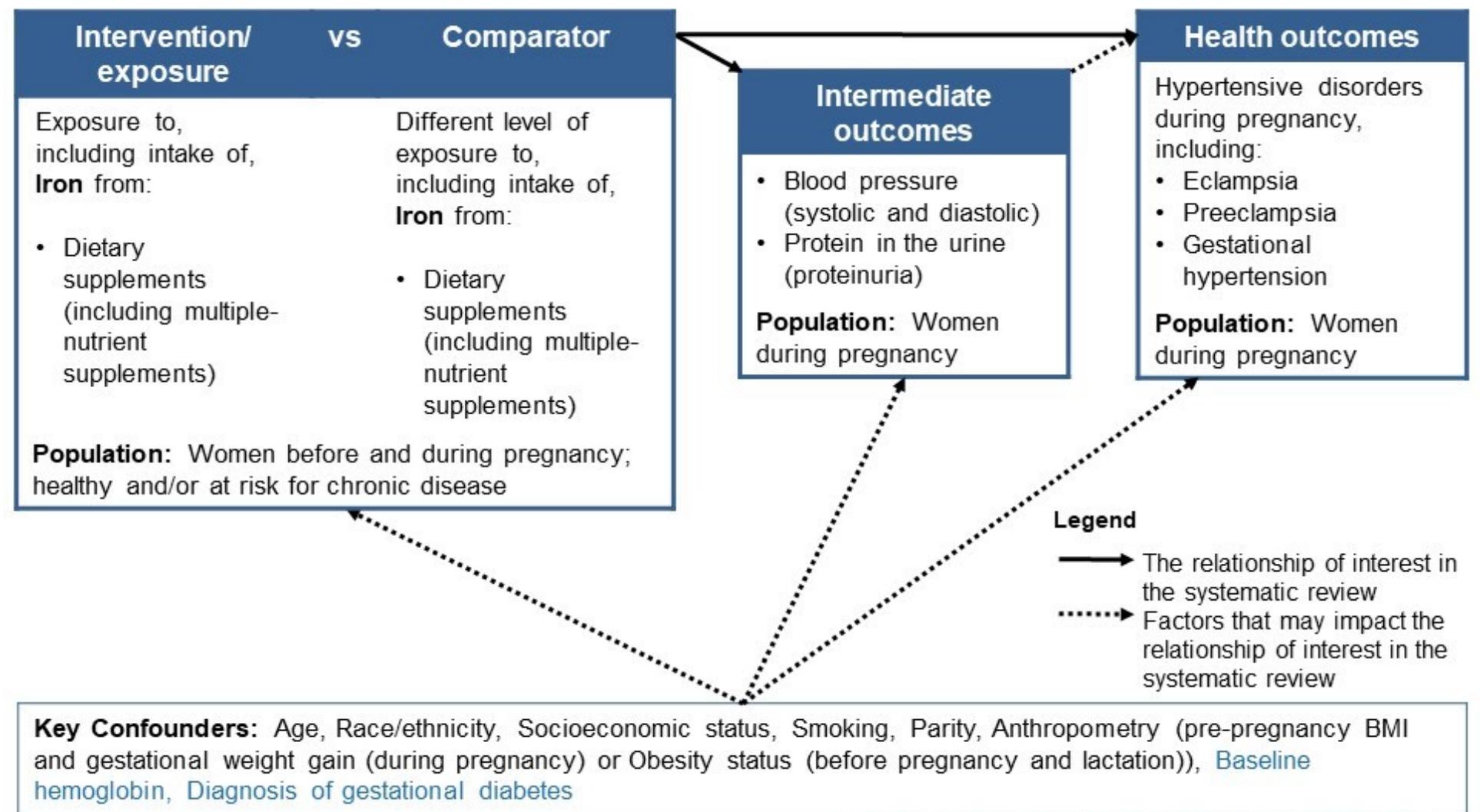
# Analytic Framework: What is the relationship between iron from supplements consumed before and during pregnancy and lactation and micronutrient status?



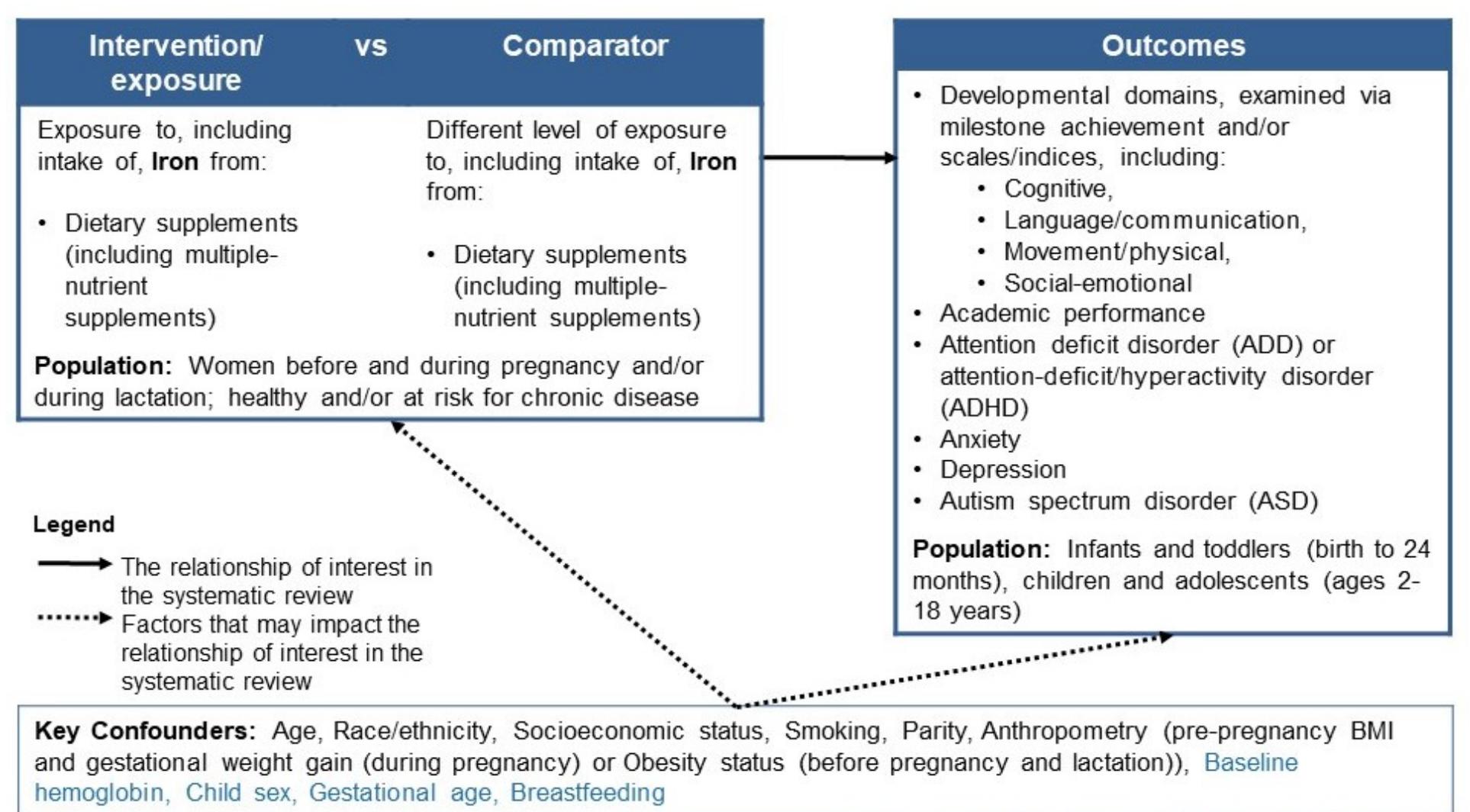
# Analytic Framework: What is the relationship between iron from supplements consumed before and during pregnancy and gestational diabetes?



# Analytic Framework: What is the relationship between iron from supplements consumed before and during pregnancy and hypertensive disorders during pregnancy?



# Analytic Framework: What is the relationship between iron from supplements consumed before and during pregnancy and lactation and developmental milestones, including neurocognitive development?



# Inclusion and Exclusion Criteria: **Iron** from Dietary Supplements

- Standard criteria used for:
  - Study design
  - Publication Status
  - Language of Publication
  - Country
  
- Criteria identical to **folic acid** and health outcomes questions used for:
  - Date of publication (January 1980)
  - Study participants
  - Health status of study participants

# Next Steps

- Next set of **Dietary Patterns** questions:
  - Human milk composition and quantity
  - Developmental milestones
  - Micronutrient status
- Next set of **Dietary Supplements and Fortified Foods** questions:
  - Vitamin B12
  - Omega-3 fatty acids
  - Vitamin D
  - Iodine

# 2020 Dietary Guidelines Advisory Committee: Pregnancy and Lactation Subcommittee



## **Members:**

Sharon Donovan  
Kathryn Dewey  
Rachel Novotny

Jamie Stang  
Elsie Taveras  
Ron Kleinman

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Jean Altman  
Kripa Raghavan  
Maureen Spill  
Julia Kim

Julie Nevins  
Julie Obbagy  
Nancy Terry  
Janet deJesus (DFO Rep)

# Intervention/Exposure time period for the systematic review questions

Systematic Review questions	Before pregnancy	1 <sup>st</sup> trimester	2 <sup>nd</sup> trimester	3 <sup>rd</sup> trimester	Postpartum
<b>Dietary Patterns</b>					
Gestational weight gain					
Postpartum weight loss					
<b>Dietary Supplements and Fortified Foods</b>					
Micronutrient status					
Gestational diabetes mellitus					
Hypertensive disorders of pregnancy					
Human milk composition					
Developmental milestones					