United States Department of Agriculture

Dietary Patterns before and during Pregnancy and Risk of Hypertensive Disorders of Pregnancy: A Systematic Review

The Pregnancy and Birth to 24 Months Project

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Nutrition Evidence Systematic Review
Center for Nutrition Policy and Promotion
Food and Nutrition Service
U.S. Department of Agriculture
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Alexandria, Virginia

This systematic review was conducted for the Pregnancy and Birth to 24 Months Project (P/B-24 Project) by the Nutrition Evidence Systematic Review (NESR) team at the Center for Nutrition Policy and Promotion, Food and Nutrition Service, USDA. All systematic reviews from the P/B-24 Project are available on the NESR website: https://nesr.usda.gov.

Conclusion statements drawn as part of this systematic review describe the state of science related to the specific question examined. Conclusion statements do not draw implications, and should not be interpreted as dietary guidance.

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This systematic review has also been published in the *American Journal of Clinical Nutrition*:
Raghavan R, Dreibelbis C, Kingshipp BL, Wong YP, Abrams B, Gernand AD, et al. Dietary patterns before and during pregnancy and maternal outcomes: a systematic review. *Am J Clin Nutr*. 2019;109(7):705S–28S. doi: 10.1093/ajcn/nqy216

Related citations are published in the *American Journal of Clinical Nutrition*:

- **P/B-24 Project overview:** Stoody EE, Spahn JM, Casavale KO. The Pregnancy and Birth to 24 Months Project: a series of systematic reviews on diet and health. *Am J Clin Nutr*. 2019;109(7):685S–97S. doi: 10.1093/ajcn/nqy372.
- **P/B-24 systematic review methodology:** Obbagy JE, Spahn JM, Wong YP, Psota TL, Spill MK, Dreibelbis C, et al. Systematic review methodology used in the Pregnancy and Birth to 24 Months Project. *Am J Clin Nutr*. 2019;109(7):698S–704S. doi: 10.1093/ajcn/nqy226
- **Related systematic reviews from the P/B-24 Project:** Raghavan R, Dreibelbis C, Kingshipp BL,

Wong YP, Abrams B, Gernand AD, et al. Dietary patterns before and during pregnancy and birth outcomes: a systematic review. *Am J Clin Nutr*. 2019;109(7):729S–56S. doi: 10.1093/ajcn/nqy353.

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All TEC and NESR team members, Project leads, and FEG-TEC liaisons participated in establishing the research questions, analytic framework, and study inclusion and exclusion criteria. RR, CD, and YPW developed and conducted the literature search. RR, CD, and BLK screened search results, identified studies for inclusion, extracted data, and assessed risk of bias for included studies. BA, AB, LMB, AG, KR, AMSR, JSS, EES, JMS, and KOC reviewed and provided substantive feedback on all systematic review materials, including the synthesis of the body of evidence, conclusion statement, and grade of the strength of the evidence. RR prepared this report and EES, JMS, and KOC provided oversight. All authors critically reviewed and approved the final report. The authors declare no conflicts of interest.

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[i] Under contract with the Food and Nutrition Service, United States Department of Agriculture.

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INTRODUCTION

This document describes a systematic review conducted to answer the following question: What is the relationship between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy? This systematic review was conducted as part of the Pregnancy and Birth to 24 Months (P/B-24) Project by USDA's Nutrition Evidence Systematic Review (NESR).

The purpose of the P/B-24 Project was to conduct a series of systematic reviews on diet and health for women who are pregnant and for infants and toddlers from birth to 24 months of age. This project was a joint initiative led by USDA and HHS, and USDA's NESR carried out all of the systematic reviews. A Federal Expert Group (FEG), a broadly representative group of Federal researchers and program leaders, also provided input throughout the P/B-24 Project. More information about the P/B-24 Project has been published[ii] and is available on the NESR website: https://nesr.usda.gov/project-specific-overview-pb-24-0.

NESR, formerly known as the Nutrition Evidence Library (NEL), specializes in conducting food- and nutrition-related systematic reviews using a rigorous, protocol-driven methodology. To conduct each P/B-24 systematic review, NESR's staff worked with a Technical Expert Collaborative (TEC), which is a group of 7–8 leading subject matter experts.

NESR's systematic review methodology involves developing and prioritizing systematic review questions, searching for and selecting studies, extracting and assessing the risk of bias of data from each included study, synthesizing the evidence, developing a conclusion statement, grading the evidence underlying the conclusion statement, and recommending future research. A detailed description of the methodology used in conducting systematic reviews for the P/B-24 Project has been published[iii] and is available on the NESR website: https://nesr.usda.gov/pb-24-project-methodology-0. In addition, starting on page 39, this document includes details about the methodology as it was applied to the systematic review described herein. An analytic framework that illustrates the overall scope of the question, including the population, the interventions and/or exposures, comparators, and outcomes of interest, is found on page 39. In addition, the literature search plan that was used to identify studies included in this systematic review is found on page 40.

[ii] Stoody EE, Spahn JM, Casavale KO. The Pregnancy and Birth to 24 Months Project: a series of systematic reviews on diet and health. *Am J Clin Nutr*. 2019;109(7):685S–97S. doi: 10.1093/ajcn/nqy372.

[iii] Obbagy JE, Spahn JM, Wong YP, Psota TL, Spill MK, Dreibelbis C, et al. Systematic review methodology used in the Pregnancy and Birth to 24 Months Project. *Am J Clin Nutr*. 2019;109(7):698S–704S. doi: 10.1093/ajcn/nqy226.

List of abbreviations

Abbreviation	Full name
FEG	Federal Expert Group
HHS	Department of Health and Human Services
NEL	Nutrition Evidence Library
NESR	Nutrition Evidence Systematic Review
P/B-24	Pregnancy and Birth to 24 Months Project
TEC	Technical Expert Collaborative
USDA	United States Department of Agriculture

WHAT IS THE RELATIONSHIP BETWEEN DIETARY PATTERNS BEFORE AND DURING PREGNANCY AND RISK OF HYPERTENSIVE DISORDERS OF PREGNANCY?

PLAIN LANGUAGE SUMMARY

What is the question?

- The question is: What is the relationship between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy?

What is the answer to the question?

- Limited evidence in healthy Caucasian women with access to health care suggests that dietary patterns before and during pregnancy higher in vegetables, fruits, whole grains, nuts, legumes, fish, and vegetable oils and lower in meat and refined grains are associated with a reduced risk of hypertensive disorders of pregnancy, including preeclampsia and gestational hypertension. Not all components of the assessed dietary patterns were associated with all hypertensive disorders.
- Evidence is insufficient to estimate the association between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy in minority women and those of lower socioeconomic status.

Why was this question asked?

- This important public health question was identified and prioritized as part of the U.S. Department of Agriculture and Department of Health and Human Services Pregnancy and Birth to 24 Months Project.

How was this question answered?

- A team of Nutrition Evidence Systematic Review staff conducted a systematic review in collaboration with a group of experts called a Technical Expert Collaborative.

What is the population of interest?

- Women who are pregnant or able to become pregnant, ages 15-44 years.

What evidence was found?

- These studies assessed the relationship between dietary patterns before and during pregnancy and hypertensive disorders of pregnancy (including preeclampsia and gestational hypertension).
- 5 of the 8 included studies showed that the diet eaten before and during pregnancy was related to risk of hypertensive disorders of pregnancy (HDP).
    - Beneficial diets had higher amounts of vegetables, fruits, whole grains, nuts, legumes, fish and vegetable oils
    - Harmful diets had higher amounts of meats, potatoes and processed foods
- One other study showed an association between diet during pregnancy and blood pressure but not preeclampsia or gestational hypertension.

- The body of evidence is limited in several ways. For example, there was little racial/ethnic and socioeconomic diversity in these studies, and it is difficult to compare studies due to inconsistency in how dietary patterns were measured.
- Additional research is needed to assess the relationship between dietary patterns before and during pregnancy and hypertensive disorders of pregnancy.

How up-to-date is this review?

- This review includes literature from 01/1980 to 01/2017.

TECHNICAL ABSTRACT

Background

- Systematic reviews were conducted as part of the U.S. Department of Agriculture and Department of Health and Human Services Pregnancy and Birth to 24 Months Project.
- The goal of this systematic review was to examine the following question: What is the relationship between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy?

Conclusion Statement and Grades

- Limited evidence in healthy Caucasian women with access to health care suggests that dietary patterns before and during pregnancy higher in vegetables, fruits, whole grains, nuts, legumes, fish, and vegetable oils and lower in meat and refined grains are associated with a reduced risk of hypertensive disorders of pregnancy, including preeclampsia and gestational hypertension. Not all components of the assessed dietary patterns were associated with all hypertensive disorders.

  Grade: Limited

- Evidence is insufficient to estimate the association between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy in minority women and those of lower socioeconomic status.

  Grade: Grade not assignable

Methods

- The systematic review was conducted using *a priori* design.
- Literature searches were conducted using PubMed, Embase, Cochrane, and other databases to identify studies that evaluated the relationship between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy, and hand-searches were conducted.
- Studies were dual screened, and those that met the following criteria were included in the review: randomized controlled trials (RCTs), prospective or retrospective cohort studies or nested case-control studies; studies enrolling human subjects who were pregnant women or women capable of becoming pregnant, healthy or at elevated chronic disease risk (only some, not all, could have a chronic or pregnancy-related condition), and between the ages of 15 and 44; subjects from countries with high or very high human development (2015 Human Development Index); and studies published in English between January 1980 and January 2017 in peer-reviewed journals.
- The intervention or exposure was dietary patterns before and/or during pregnancy measured via indices and scores, cluster or factor analysis, reduced rank regression, or other methods. The outcome were risk of hypertensive disorders of pregnancy and related intermediate outcomes (blood pressure and proteinuria).
- Data from each included article were extracted, risk of bias was assessed, and both were checked for accuracy.
- The evidence was qualitatively synthesized, a conclusion statement was

developed, and the strength of the evidence (grade) was assessed using pre-established criteria including evaluation of the internal validity/risk of bias, adequacy, consistency, impact, and generalizability of available evidence.

Summary of Evidence

- This systematic review includes 8 studies (sample size ranging from 290 to 72,072) within 4 cohorts and 1 RCT, published between 2005 and 2016.
- The studies used multiple approaches to assess dietary patterns, which makes it difficult to compare findings across studies. Three studies used indices/scores to assess dietary patterns, four studies used factor or principal component analysis and one RCT assigned participants to either an experimental or control diet.
- Despite this variability, 5 of the 8 included studies reported statistically significant associations between dietary patterns and hypertensive disorders of pregnancy (HDP) risk among healthy Caucasian women with access to health care. An additional study showed an association between dietary patterns and blood pressure but not preeclampsia or gestational hypertension.
    - Dietary patterns characterized by higher intakes of vegetables, fruits, whole grains, nuts, legumes, fish and vegetable oils were associated with a 30-42% decreased risk of HDP and a 14-29% decreased risk of preeclampsia.
    - Two of the dietary patterns assessed were reported to be detrimental: traditional and processed food patterns, characterized by higher intakes of meats, potatoes and processed foods. One was associated with a 21% increased risk of preeclampsia and the other was associated with an increased risk of high blood pressure during pregnancy.
- Generalizability of the included studies is limited to healthy Caucasian women who have access to health care. Minority women and those of lower socioeconomic status are underrepresented in this body of evidence.
- The body of evidence has several limitations:
    - The evidence base includes eight studies from only four unique cohorts and one RCT
    - All but one of the studies were conducted outside the United States in predominantly Caucasian women
    - Dietary patterns vary considerably across studies, making it difficult to compare findings
    - No adjustment was made for many key confounding factors, and
    - The data are primarily observational, limiting the ability to draw any casual inferences. The RCT was done among 240 women and was not powered to examine HDP (addressed by the authors as “hypertensive complications”). Additionally, the timing of the intervention in the RCT may have been too late in pregnancy to have seen an effect.
- Additional research is needed that should:
    - Include diverse populations from the U.S. and elsewhere with varying racial/ethnic and socioeconomic backgrounds
    - Develop and validate novel epidemiological tools that can accurately capture the complexity of dietary habits
    - Improve comparability across studies by increasing the uniformity of 1)

diet assessment tools used across different regions and populations, 2) methods used to define dietary patterns, and 3) timing of dietary assessment

- Adjust for key confounding factors in observational studies, including parity, educational attainment, smoking status, race/ethnicity, maternal age, family poverty income ratio, pre-pregnancy BMI, mean total energy intake, and gestational diabetes mellitus (and/or justify how and why confounders were chosen)
- Include well-designed and sufficiently powered RCTs
- Include and assess effect measure modification in multiethnic subgroups within the U.S., and
- Use robust statistical methods such as multiple imputation to handle missing data.

FULL REVIEW

Systematic review question

What is the relationship between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy?

Conclusion statement

Limited evidence in healthy Caucasian women with access to health care suggests that dietary patterns before and during pregnancy higher in vegetables, fruits, whole grains, nuts, legumes, fish, and vegetable oils and lower in meat and refined grains are associated with a reduced risk of hypertensive disorders of pregnancy, including preeclampsia and gestational hypertension. Not all components of the assessed dietary patterns were associated with all hypertensive disorders.

Grade

Limited: This grade is assigned to the statement relevant to healthy Caucasian women with access to health care

Conclusion statement

Evidence is insufficient to estimate the association between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy in minority women and those of lower socioeconomic status.

Grade

Grade not assignable: This grade is assigned to the statement relevant to minority women and those of lower socioeconomic status

Summary

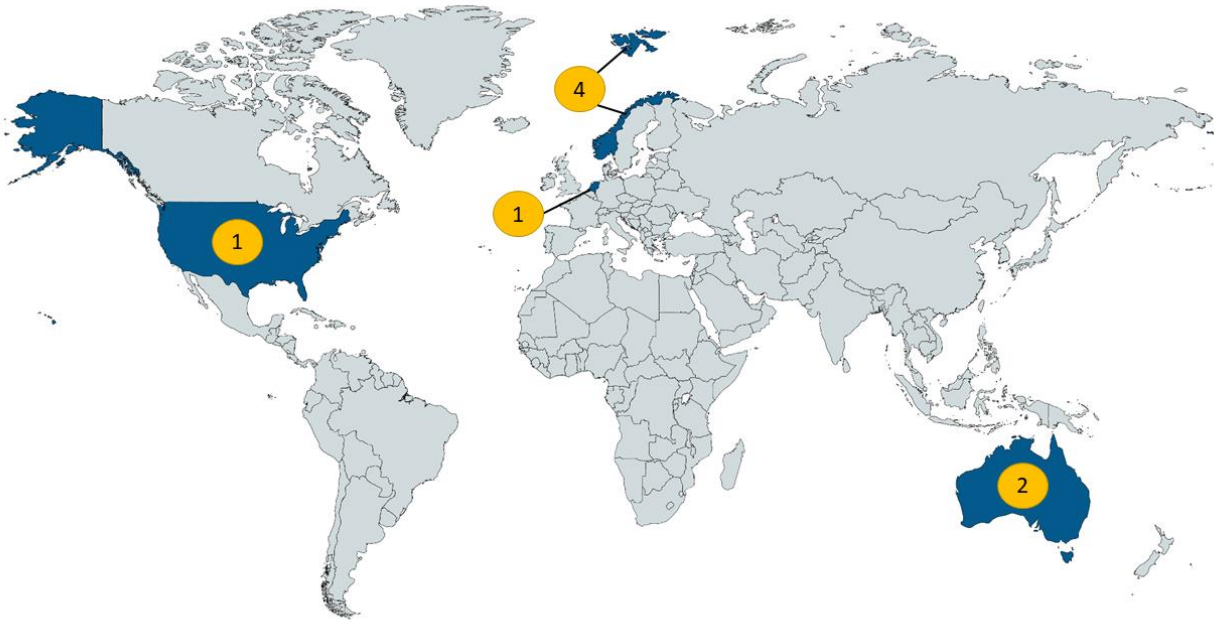
- This systematic review includes 8 studies (sample size ranging from 290 to 72,072) within 4 cohorts and 1 randomized controlled trial (RCT), published between 2005 and 2016.
- The studies used multiple approaches to assess dietary patterns, which makes it difficult to compare findings across studies. Three studies used indices/scores to assess dietary patterns, four studies used factor or principal component analysis and one RCT assigned participants to either an experimental or control diet.
- Despite this variability, 5 of the 8 included studies found statistically significant associations between dietary patterns and hypertensive disorders of pregnancy (HDP) risk among healthy Caucasian women with access to health care. An additional study showed an association between dietary patterns and blood pressure but not preeclampsia or gestational hypertension.
    - Dietary patterns characterized by higher intakes of vegetables, fruits, whole grains, nuts, legumes, fish and vegetable oils were associated with a 30-42% decreased risk of HDP and a 14-29% decreased risk of preeclampsia.
    - Two of the dietary patterns assessed were reported to be detrimental: traditional and processed food patterns, characterized by higher intakes of meats, potatoes and processed foods. One was associated with a

21% increased risk of preeclampsia and the other was associated with an increased risk of high blood pressure during pregnancy.

- Generalizability of the included studies is limited to healthy Caucasian women who have access to health care. Minority women and those of lower SES are underrepresented in this body of evidence.

Description of the evidence

- The search included articles from very high and high Human Development Index (HDI) countries and the search timeframe spanned between January 1980 and January 2017.
- This evidence review includes 7 cohort studies and 1 RCT that examined the relationship between dietary patterns before and during pregnancy and risk of HDP and/or blood pressure (1-8). These 8 studies were part of 4 cohorts (Project Viva, Australian Longitudinal Study on Women's Health, Generation R Study and Norwegian Mother and Child Cohort Study) and 1 RCT.
- Only one of the 8 studies was conducted in the U.S. (1). Other countries in which studies were conducted include Australia, Norway and the Netherlands (2-8). See map below.



Subject characteristics:

- **Sample size** of the studies ranged from 290 subjects (8) to 72,072 subjects (2), with a median of 3,385.
- **Age**: Most of the study participants were between 20 and 40 years, with a small percentage of women in one of the studies outside this range (<20 years (4%) and ≥40 years (1%) (4)).
- **Pregnancy characteristics**: Most of the studies (n=6) included only singleton pregnancies (two did not report on pregnancy status (3, 7)).

- **Health Characteristics**: Overall, the studies were conducted in healthy women. Studies were variable in terms of including women with a history of chronic hypertension and HDP:
    - Two studies excluded women with a history of chronic hypertension, while two additional studies excluded women with a history of chronic hypertension or HDP (3, 6-8).
    - Three studies included a small percentage of women with chronic hypertension: ~1% (2, 4, 5).
    - One study did not report on subject's chronic hypertension status prior to enrollment (1).
- **Smoking** during pregnancy varied across studies.
    - The RCT included only non-smoking women. Previous smokers were included when they had quit smoking 5 years or more before enrolling in the study (8).
    - Daily or occasional smoking among study participants: 8% (2), 9% (4), ~7% (5) and ~15% (6).
    - Schoenaker et al. reported ~20% of their participants were smokers prior to pregnancy (7)
    - Two studies did not report smoking status (1, 3).
- **Race/ethnicity**: About half of the studies (n=5) were done primarily in Caucasian populations (including the U.S. study with 72% "White" participants (1)). The rest of the studies did not report race/ethnicity (2, 3, 7).
- **Parity**: Two studies recruited only nulliparous women (4, 5). In the other studies, the majority of the study sample was nulliparous (except (1) that included 49% nulliparous women).
- **Pre-pregnancy BMI**: Percentage of subjects with pre-pregnancy BMI ≥30 in individual studies ranged from ~7% (3) to 14% (1). Some studies reported only the mean pre-pregnancy BMI (Range: 22.3 to 24.6 kg/m^2). The RCT did not report pre-pregnancy BMI; however, the study included only those women whose BMI was in the range of 19 to 32 kg/m^2 at enrollment during the second trimester of pregnancy (8).
- **Maternal education:** Limited information was provided on maternal education status. Mothers with at least an undergraduate degree ranged from ~58% (7) to 69% (1). Other studies reported that 21% (4) to 27% (5) of mothers had at least 16 years of education.
- **Socioeconomic status** was not reported in a majority of studies.

Interventions/Exposures:

Dietary patterns were assessed using index/score analysis and factor and principal components analysis (PCA). A description of the studies included by method used to measure dietary patterns is included below.

- **Index/score analysis (Table 1: Indices and scores used to assess the relationship between dietary patterns before and during pregnancy and risk of HDP)**: Three studies included in this review used the following indices/scores:
    - Alternate Healthy Eating Index for Pregnancy (1)
    - New Nordic Diet score (2)
    - Mediterranean diet score (3)

Table 1: Indices and scores used to assess the relationship between dietary patterns before and during pregnancy and risk of HDP

Index/Score (Reference)	Alternate HEI-P (min-max score)[1]	New Nordic Diet Score[2,3]	Mediterranean Diet Score[4]
Article	(1)	(2)	(3)
Component	Total Score: 0-90	Total score: 0-10	Total score: 0-10
Vegetables	Vegetables (0-10) *(Includes tofu and soybeans)*	Root Vegetables ≥Median = 1; <Median = 0	Vegetables ≥Median = 1; <Median = 0
		Cabbages ≥Median = 1; <Median =	
		Potatoes ≥Median = 1; <Median = 0	
Fruit and/or nuts	Fruits (0 -10)	Nordic fruits ≥Median = 1; <Median = 0	Includes fruit and nuts ≥Median = 1; <Median = 0
		Native berries (*Includes "foods from wild countryside"*)	
Cereals/Grains and whole grains		Whole grain bread ≥Median = 1; <Median = 0	Cereals ≥Median = 1; <Median = 0
		Oatmeal porridge ≥Median = 1; <Median = 0	
Legumes			Legumes ≥Median = 1; <Median = 0

[1] McCullough, M. L., Feskanich, D., Stampfer, M. J., Giovannucci, E. L., Rimm, E. B., Hu, F. B., . . . Willett, W. C. (2002). Diet quality and major chronic disease risk in men and women: moving toward improved dietary guidance. Am J Clin Nutr, 76(6), 1261-1271.

[2] Hillesund, E. R., Bere, E., Haugen, M., & Overby, N. C. (2014). Development of a New Nordic Diet score and its association with gestational weight gain and fetal growth - a study performed in the Norwegian Mother and Child Cohort Study (MoBa). Public Health Nutr, 17(9), 1909-1918. doi:10.1017/S1368980014000421

[3] New Nordic Diet Score includes meal frequency which is not included as a component in this table

[4] Trichopoulou, A., Costacou, T., Bamia, C., & Trichopoulos, D. (2003). Adherence to a Mediterranean diet and survival in a Greek population. N Engl J Med, 348(26), 2599-2608. doi:10.1056/NEJMoa025039

Index/Score (Reference)	Alternate HEI-P (min-max score)[1]	New Nordic Diet Score[2,3]	Mediterranean Diet Score[4]
Meat	Ratio of white to red meat (0 -10)		Meat ≥Median = 0; <Median = 1 (reverse scored)
			Poultry ≥Median = 0; <Median = 1 (reverse scored)
Fish and other protein foods	*Excluded nuts and soy*	Foods from wild countryside (wild fish, seafood, game)[5] *Also includes native berries, captured as part of fruits* ≥Median = 1; <Median = 0	Fish ≥Median = 1; <Median = 0
Dairy		Milk ≥Median = 1; <Median = 0	High fat dairy ≥Median = 0; <Median = 1 (reverse scored)
Fat	Trans fat (0 - 10) (reverse scored)		Monounsaturated: Saturated fat ratio ≥Median = 1; <Median = 0
	P:S[6] (0 -10)		
Fiber	Fiber (0-10)		
Nutrients	Folate (0 - 10)		
	Calcium (0-10)		
	Iron (0-10)		
Water		Water consumption relative to sweetened beverages ≥Median = 1; <Median = 0	
Alcohol	*Excluded alcohol*		Alcohol 5-25 g/d =1

[5] Salmon and trout excluded
[6] Ratio of polyunsaturated to saturated fat

- **Factor analysis and principal component analysis (Table 2: Summary of dietary patterns identified using factor or principal component analysis):** Four studies included in this review assessed dietary patterns using factor or PCA (4-7)
- **Experimental diet:** The study by Khoury et al. randomly assigned participants to one of two diets:
    - Intervention diet:
        - Dietitians encouraged the intake of fatty fish, vegetable oils, especially olive oil and rapeseed oil, nuts, nut butters, margarine based on olive- or rapeseed oil, and avocado to replace meat, butter, cream, and fatty dairy products; the consumption of fresh fruits and vegetables was advised (at least 6 a day); intake of dairy products in the form of skimmed or low-fat products (skimmed milk, fat-reduced cheese, and yogurt) in place of full fat products was encouraged; subjects were advised to choose meat for a main meal twice a week and use legumes, vegetable main dishes, fatty fish, or poultry with the fat trimmed off on the other days; coffee was limited to 2 cups of filtered coffee a day
        - Included significantly more fish and fish products; fatty fish and fish products; rapeseed-based margarine; oils; olive oil; rapeseed oil; nuts, olives, and seeds; vegetables; and fruits, when compared to the control diet[7]
    - Control diet:
        - Subjects were asked to consume their usual diet based on Norwegian foodstuffs, and not to introduce more oils or low-fat meat and dairy products than usual
        - Included significantly more fatty milk, meat and meat products, fatty minced meat, butter, and hard margarines, when compared to the intervention diet[5]

Time point of exposure (Table 3: Time point of exposure assessment):

As outlined below, the time period of data collection was variable:

- Khoury et al. assigned participants to an intervention or control diet at baseline between 17-20 weeks gestation
- Four studies collected dietary data from women during their second trimester (between ~20 and 22 weeks) (2, 4, 5, 8)
- Timmermans et al. collected food frequency questionnaire (FFQ) data during early pregnancy (median 13.5 weeks) and measured the outcomes at multiple time points (early-, mid- and late-pregnancy). The body of evidence included outcomes from mid and late pregnancy from this study.
- Rifas-Shiman et al. gathered dietary data at two times (11.7$\pm$3.1 weeks and 26-28 weeks). However, data from the first trimester, alone, are included in this

[7] Khoury, J., Henriksen, T., Seljeflot, I., Mørkrid, L., Frøslie, K. F., & Tonstad, S. (2007). Effects of an antiatherogenic diet during pregnancy on markers of maternal and fetal endothelial activation and inflammation: the CARRDIP study. BJOG, 114(3), 279-288. doi:10.1111/j.1471-0528.2006.01187.x

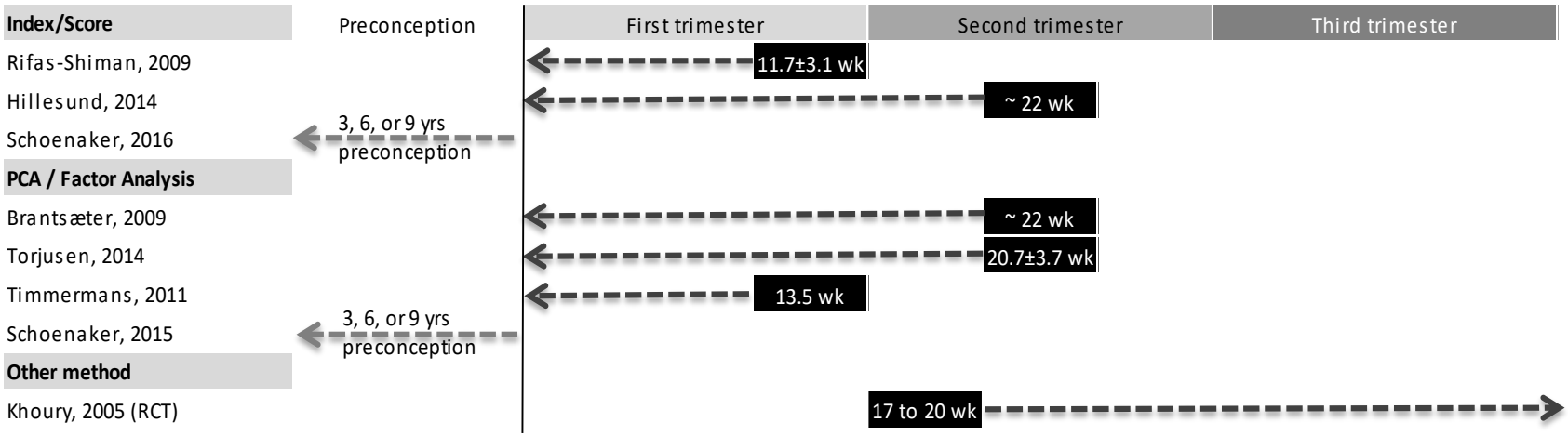
body of evidence. Dietary data from 26 to 28 weeks are excluded due to temporality issues.

- The dietary recall data generally reflected women's diet starting from periconception to until when the dietary data were collected. Two studies used data from the Australian Longitudinal Study on Women's Health (ALSWH) that included preconception dietary data collected 3, 6 or 9 years prior to the outcome ascertainment in their analyses (3, 7).

Table 2: Summary of dietary patterns identified using factor or principal component analysis

Articles	Dietary Patterns
Brantsæter, 2009	**Vegetable pattern**: High positive loadings on vegetables, cooking oil, olive oil, fruits and berries, rice, and chicken
	Processed food pattern: High positive loadings on processed meat products, white bread, French fries, salty snacks, and sugar-sweetened drinks and high negative loadings on oily fish, high-fiber breakfast cereals, and lean fish
	Potato and fish pattern: High positive loadings on cooked potatoes, processed fish, lean fish, fish spread and shellfish, and margarine
	Cakes and sweets pattern: High loadings on cakes, waffles and pancakes, buns, ice cream, sweet biscuits, sweets, and chocolate
Torjusen, 2014	**Health and sustainability pattern**: High positive loadings for vegetables, fruit and berries, cooking oil, olive oil, and whole grain products; negative loadings for meat, including processed meat, white bread, salty snacks, pommes frites and cakes and sweets
Timmermans, 2011	**Mediterranean pattern**: High intake of vegetables, vegetable oils, pasta, rice, fish, and legumes, moderate intake of alcohol, and low intake of sweets
	Traditional pattern: High intake of meat and potatoes, and low intake of fruit, nonalcoholic drinks, fish, and bread
Schoenaker, 2015	**Meat, high-fat, and sugar pattern**: Characterized by high consumption of meat, processed meat, cakes, sweet biscuits, chocolate, meat pies, and pizza
	Mediterranean-style pattern: Characterized by high consumption of vegetables, legumes, nuts, tofu, rice, pasta, rye bread, red wine, and fish
	Fruit and low-fat dairy pattern: Characterized by high consumption of fruit, yogurt, low-fat cheese, and skim milk
	Cooked vegetable pattern: Characterized by high consumption of carrots, peas, cooked potatoes, cauliflower, and pumpkin

Table 3: Time point of exposure assessment



Outcomes:

Studies assessed HDP (including preeclampsia, early preeclampsia and gestational hypertension) and blood pressure as outcomes. Table 4: Summary of outcome definitions summarizes the outcomes and diagnostic criteria grouped by methodology used to create dietary patterns.

Table 4: Summary of outcome definitions

Study	Outcome	Diagnostic Criteria	Source of Criteria	Method of Assessment	References	Additional Outcomes
Index/Score						
Rifas-Shiman, 2009	Preeclampsia	Increased blood pressure and proteinuria (dip-stick value of 1+ on two or more occasions or ≥ 2+ once) >4 hours but ≤7 days apart OR chronic hypertension and developed proteinuria after 20 weeks' gestation	National High Blood Pressure Education Program	Clinical blood pressure and urine protein measurements	Gifford, 2000[11]	Birth weight for gestational age Impaired glucose tolerance & gestational diabetes Gestational weight gain

[11] Gifford, R. W. (2000). Report of the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. Am J Obstet Gynecol, 183(1), S1-S22.

Study	Outcome	Diagnostic Criteria	Source of Criteria	Method of Assessment	References	Additional Outcomes
Hillesund, 2014	Preeclampsia; Early preeclampsia	Increase in blood pressure to ≥140 mm Hg systolic or 90 mm Hg diastolic, after the 20th gestational week, combined with proteinuria (protein excretion of at least 0.3 g/24 h or ≥1+ on a dip-stick assay), both measured at least twice Early preeclampsia diagnosed before 34 weeks gestation	Norwegian Federation of Obstetricians and Gynecologists	Obtained from Medical Birth Registry of Norway, which is based on forms completed by midwives after birth by checking one or more of the following: 'Preeclampsia, mild', 'Preeclampsia, severe', 'Preeclampsia, before 34 weeks', 'Eclampsia', 'Gestational hypertension (without proteinuria)', and 'Pre-existing hypertension' In present study, preeclampsia cases included reported preeclampsia, eclampsia, a combination of hemolysis, elevated liver enzymes, low platelet count (HELLP syndrome), and preeclampsia superimposed on chronic hypertension	Klungsøyr, 2012[12]	Gestational age

[12] Klungsoyr, K., Morken, N. H., Irgens, L., Vollset, S. E., & Skjaerven, R. (2012). Secular trends in the epidemiology of pre-eclampsia throughout 40 years in Norway: prevalence, risk factors and perinatal survival. Paediatr Perinat Epidemiol, 26(3), 190-198. doi:10.1111/j.1365-3016.2012.01260.x

Study	Outcome	Diagnostic Criteria	Source of Criteria	Method of Assessment	References	Additional Outcomes
Schoenaker, 2016	Hypertensive disorders of pregnancy	Gestational hypertension defined as new-onset hypertension after 20 wk of gestation with ≥140 mm HG systolic or ≥90 mm Hg diastolic blood pressure; Preeclampsia defined as gestational hypertension with involvement of ≥1 other organ systems and/or the fetus	NR	Self-reported physician diagnosis in response to question, "Were you diagnosed or treated for hypertension (high blood pressure) during pregnancy?"	Lowe, 2009[13]; Gresham, 2015[14]	Gestational diabetes
PCA/Factor Analysis						

[13] Lowe, S. A., Brown, M. A., Dekker, G. A., Gatt, S., McLintock, C. K., McMahon, L. P., . . . Walters, B. (2009). Guidelines for the management of hypertensive disorders of pregnancy 2008. Aust N Z J Obstet Gynaecol, 49(3), 242-246. doi:10.1111/j.1479-828X.2009.01003.x

[14] Gresham, E., Forder, P., Chojenta, C. L., Byles, J. E., Loxton, D. J., & Hure, A. J. (2015). Agreement between self-reported perinatal outcomes and administrative data in New South Wales, Australia. BMC Pregnancy and Childbirth, 15(1), 161. doi:10.1186/s12884-015-0597-x

Study	Outcome	Diagnostic Criteria	Source of Criteria	Method of Assessment	References	Additional Outcomes
Brantsæter, 2009	Preeclampsia	Blood pressure >140/90 after 20 weeks of gestation, combined with proteinuria >+1 dipstick on at least 2 occasions	Society for Gynecology	Obtained from Medical Birth Registry of Norway; registry is based on forms completed by midwives with 5 check-off boxes relevant to pre-eclampsia: haemolysis, elevated liver enzymes and low platelet count (HELLP syndrome); eclampsia; early pre-eclampsia (diagnosed before 34 weeks); mild pre-eclampsia and severe pre-eclampsia Diagnosis of preeclampsia given if any of the aforementioned diagnoses were present	Norwegian Medical Association, 2006[15]	N/A

[15] Norwegian Medical Association - The Norwegian Society of Obstetrics and Gynecology. (2006). Clinical guidelines in obstetrics. Retrieved from www.legeforeningen.no/id/78144.0

Study	Outcome	Diagnostic Criteria	Source of Criteria	Method of Assessment	References	Additional Outcomes
Torjusen, 2014	Preeclampsia	Blood pressure >140/90 after 20 weeks of gestation, combined with proteinuria >+1 dipstick on at least 2 occasions	Society for Gynecology	Obtained from Medical Birth Registry of Norway; registry is based on forms completed by midwives with 5 check-off boxes relevant to pre-eclampsia: haemolysis, elevated liver enzymes and low platelet count (HELLP syndrome); eclampsia; early pre-eclampsia (diagnosed before 34 weeks); mild pre-eclampsia and severe pre-eclampsia Diagnosis of preeclampsia given if any of the aforementioned diagnoses were present	Irgens, 2000[16]; Thomsen, 2013[17]	Gestational weight gain

[16] Irgens, L. M. (2000). The Medical Birth Registry of Norway. Epidemiological research and surveillance throughout 30 years. Acta Obstet Gynecol Scand, 79(6), 435-439.
[17] Thomsen, L. C., Klungsoyr, K., Roten, L. T., Tappert, C., Araya, E., Baerheim, G., . . . Bjorge, L. (2013). Validity of the diagnosis of pre-eclampsia in the Medical Birth Registry of Norway. Acta Obstet Gynecol Scand, 92(8), 943-950. doi:10.1111/aogs.12159

Study	Outcome	Diagnostic Criteria	Source of Criteria	Method of Assessment	References	Additional Outcomes
Timmermans, 2011	Maternal blood pressure; Gestational hypertension; Preeclampsia	Gestational hypertension defined as new-onset hypertension (SBP ≥140 mm HG and/or DBP ≥90 mm Hg >20 wk gestation in previously normotensive woman on at least 2 occassions) Preeclampsia defined as gestational hypertension with proteinuria (≥2 dipstick readings of ≥2+, ≥1 sample reading of 1+, or 24-hour urine collection containing at least 300 mg of protein)	International Society for the Study of Hypertensio n in Pregnancy	SBP and DBP: validated Omron 907 automated digital oscillometric sphygmomanometer Doctor-diagnosed gestational hypertension and preeclampsia retrieved from medical records	Brown, 2001[18]; Coolman, 2010[19]	N/A

[18] Brown, M. A., Lindheimer, M. D., de Swiet, M., Van Assche, A., & Moutquin, J. M. (2001). The classification and diagnosis of the hypertensive disorders of pregnancy: statement from the International Society for the Study of Hypertension in Pregnancy (ISSHP). Hypertens Pregnancy, 20(1), Ix-xiv. doi:10.1081/prg-100104165

[19] Coolman, M., de Groot, C. J., Jaddoe, V. W., Hofman, A., Raat, H., & Steegers, E. A. (2010). Medical record validation of maternally reported history of preeclampsia. J Clin Epidemiol, 63(8), 932-937. doi:10.1016/j.jclinepi.2009.10.010

Study	Outcome	Diagnostic Criteria	Source of Criteria	Method of Assessment	References	Additional Outcomes
Schoenaker, 2015	Hypertensive disorders of pregnancy	Gestational hypertension defined as new-onset hypertension after 20 wk of gestation with ≥140 mm HG systolic or ≥90 mm Hg diastolic blood pressure; Preeclampsia defined as gestational hypertension with involvement of ≥1 other organ systems and/or the fetus	NR	Self-reported physician diagnosis in response to question, “Were you diagnosed or treated for hypertension (high blood pressure) during pregnancy?”	Lowe, 2009[20]; Gresham, 2015[21]	N/A
Other Method						

[20] Lowe, S. A., Brown, M. A., Dekker, G. A., Gatt, S., McLintock, C. K., McMahon, L. P., . . . Walters, B. (2009). Guidelines for the management of hypertensive disorders of pregnancy 2008. Aust N Z J Obstet Gynaecol, 49(3), 242-246. doi:10.1111/j.1479-828X.2009.01003.x
[21] Gresham, E., Forder, P., Chojenta, C., Byles, J., Loxton, D., & Hure, A. (2015). [Personal communication].

Study	Outcome	Diagnostic Criteria	Source of Criteria	Method of Assessment	References	Additional Outcomes
Khoury, 2005	Hypertensive disorders of pregnancy[22]	Pregnancy-induced hypertension: [blood pressure >140/90 mmHg after gestational week 20 measured at 2 occassions at least 6 hours apart] with 1+ proteinuria on a dipstick assay [preeclampsia] or without proteinuria	NR	Data obtained from hospital records	N/A	Preterm delivery IUGR Fetal distress Birth weight Gestational age

[22] Addressed by the authors as “hypertensive complications”

Evidence synthesis

With 8 included studies from 1 trial and 4 cohorts, there is a small body of evidence available to examine the relationship between dietary patterns and risk of HDP. There is substantial heterogeneity in methodology employed to define and assess dietary patterns, which makes it difficult to compare findings across studies. Despite the variability, 5 of the 8 included studies reported significant relationships between dietary patterns and HDP risk (Table 5: Results grouped by methodology used for dietary pattern assessment). An additional study showed an association between dietary patterns and blood pressure, but not preeclampsia or gestational hypertension.

Dietary patterns assessed via index/score

Three studies used indices/scores to assess dietary patterns. Two of these studies noted a significant relationship between dietary patterns and HDP (2, 3).

Schoenaker et al. assessed HDP in relation to a Mediterranean diet (3). Beneficial foods included vegetables, legumes, fruit and nuts, cereals, fish, and monounsaturated:saturated fat ratio, and detrimental foods included meat, poultry, and high-fat dairy. Compared to high adherence, lower adherence to the Mediterranean diet was associated with an increased odds of HDP.

Hillesund et al. assessed adherence to the New Nordic Diet, which measures the frequency of eating the following foods: Nordic fruits (apples, pears, plums, strawberries), root vegetables (carrots, rutabaga and various types of onions), cabbages (kale, cauliflower, broccoli and Brussels sprouts), potatoes, whole grain breads, oat meal porridge, foods from the wild countryside (wild fish, seafood, game and wild berries), milk and water (2). High adherence was associated with a reduced odds of both preeclampsia and early preeclampsia.

The third study did not find a significant association between maternal diet and HDP (1). This study was conducted in the U.S. Project Viva cohort, and measured adherence to the Alternate Healthy Eating Index for Pregnancy (AHEI-P), which considered vegetables, fruit, ratio of white to red meat, fiber, trans fat, ratio of polyunsaturated to saturated fatty acids, and folate, calcium, and iron from foods. The outcome of interest was preeclampsia. The odds of preeclampsia for each 5-point increase in AHEI-P score were not statistically significant.

The differences across studies in the index/score measured limits the ability to compare findings. However, the overall direction of association between types of food and amount of HDP risk was consistent across studies, including the one that reported non-statistically significant findings.

Dietary patterns assessed via factor or principal component analysis

Studies using data-driven methods to identify dietary patterns (i.e., principal component analysis or exploratory factor analysis) noted associations between high vegetable and Mediterranean-type dietary patterns and lower risk of HDP. The findings from Brantsæter et al. showed that greater adherence to a Vegetable dietary pattern (characterized by positive loadings for vegetables, cooking oil, olive oil, fruits and berries, rice, and chicken) reduced the odds of developing preeclampsia, while greater adherence to the Processed Food dietary pattern (characterized by positive loadings for meat products, white bread, French fries, salty snacks, and sugar-sweetened beverages; and negative loadings on oily fish, high-fiber cereals, and lean fish)

increased the odds of preeclampsia (4). Similarly, Torjusen et al. found that a dietary pattern with high loadings for vegetables, fruit and berries, cooking oil, olive oil, and whole grain products and negative loadings for meat, including processed meat, white bread, salty snacks, pommes frites and cakes and sweets were associated with lower risk of preeclampsia (5).

Studies examining associations between a Mediterranean-type diet and HDP risk showed mixed findings. Schoenaker et al. observed greater adherence to a dietary pattern characterized by high consumption of vegetables, legumes, nuts, tofu, rice, pasta, rye bread, red wine, and fish was associated with lower HDP risk (7). Conversely, Timmermans et al. reported that while a diet characterized by high consumption of high intake of vegetables, vegetable oils, pasta, rice, fish, and legumes, moderate intake of alcohol, and low intake of sweets was associated with lower maternal blood pressure during pregnancy, there was no significant association between consumption of this dietary pattern and HDP (6). Timmermans et al. also noted that high adherence to a traditional dietary pattern characterized by high intake of meat and potatoes, and low intake of fruit, nonalcoholic drinks, fish, and bread was associated with higher maternal blood pressure during pregnancy.

Dietary patterns assessed in the RCT

In the RCT, participants randomized to the intervention consumed a diet characterized by higher amounts of fruits and vegetables, fatty fish, vegetable oils, nuts and low-fat dairy. Participants were also asked to restrict meat and replace it with avocado, as well as to limit coffee consumption to 2 cups/day. Subjects who were assigned to the control group were asked to consume their usual diet based on Norwegian foodstuffs and to not introduce more oils or low-fat meat and dairy products than usual.

The only RCT in this body of evidence reported no significant difference in the incidence of HDP (addressed by the authors as “hypertensive complications”) among those randomized to intervention vs. control diets. (8). It should be noted that the RCT was conducted among 240 women and was not powered to examine the outcome of interest. It is also likely that the timing of the intervention in the RCT may have been too late in pregnancy to have seen an effect.

Summary

Overall, these findings show some consistency in the patterns of dietary consumption during early pregnancy that are associated with reduced risk of HDP. However, because of heterogeneity in methods, the dietary patterns vary considerably across studies, limiting direct comparison. Furthermore, three of these studies assessed diet in mid-pregnancy and represent consumption during either early pregnancy (4, 5) or the three months prior to conception and early pregnancy (6). Additionally, the fourth study measured dietary intake over the previous years, and the amount of time between this measurement and the actual pregnancy may have varied substantially across participants (7). Study participants in the RCT, on the other hand, followed the diet starting mid-pregnancy (17-20 weeks gestation) until delivery (8), which for outcomes such as gestational hypertension may not have been sufficient time for an effect to take place. Therefore, the impact on the outcome being positive across studies is informative, but there are substantial methodological and measurement issues that limit the ability to compare findings across this body of literature.

Table 5. Results grouped by methodology used for dietary pattern assessment

Key for color-coding:
Dietary pattern categorized as beneficial when… Greater adherence reduces risk of HDP Lower adherence increases risk of HDP
Dietary pattern categorized as detrimental when… Greater adherence increases risk of HDP Lower adherence decreases risk of HDP

Table 5: Results grouped by methodology used for dietary pattern assessment

Author, Year Country, N	**Exposure**	**Outcome**	**Significant finding**	**NS finding**
Index/Score				
Rifas-Shiman, 2009 **USA** **N = 1,777 (1st trimester)**	**AHEI-P** vegetables; fruit; ratio of white to red meat; fiber; *trans* fat; ratio of polyunsaturated to saturated fatty acids; and folate, calcium, and iron from foods	Preeclampsia (OR - for each 5-point increase in AHEI-P score)		First trimester: 0.96 (95% CI: 0.84, 1.10)

Author, Year Country, N	Exposure	Outcome	Significant finding	NS finding
Hillesund, 2014 **Norway** **N = 72,072**	**New Nordic Diet** Nordic fruits (apples, pears, plums, strawberries), root vegetables (carrots, rutabaga and various types of onions), cabbages (kale, cauliflower, broccoli and Brussels sprouts), potatoes, whole grain breads, oat meal porridge, foods from the wild countryside (wild fish, seafood, game and wild berries), milk and water	Preeclampsia (OR) Low=REF	High: 0.86 (95% CI: 0.78, 0.95)	Medium: 0.91 (95% CI: 0.83, 1.00)
		Early preeclampsia (OR) Low=REF	High: 0.71 (95% CI: 0.52, 0.96)	Medium: 0.84 (95% CI: 0.63, 1.12)
Schoenaker, 2016 **Australia** **N = 3,167**	**Mediterranean diet score** Beneficial foods (vegetables, legumes, fruit and nuts, cereals, fish, and mono-:saturated fat ratio); detrimental foods (meat, poultry, high-fat dairy)	Hypertensive Disorders of Pregnancy (OR) High=REF	Lower: 1.41 (95% CI: 1.18, 1.56)	
PCA/Factor Analysis				

Author, Year Country, N	Exposure	Outcome	Significant finding	NS finding
Brantsaeter, 2009 **Norway** **N = 23,423**	**Vegetable pattern** High positive loadings on vegetables, cooking oil, olive oil, fruits and berries, rice, and chicken	Preeclampsia (OR) Tertile 1=REF	Tertile 2: 0.84 (95% CI: 0.73, 0.97) Tertile 3: 0.72 (95% CI: 0.62, 0.85)	
	Processed food pattern High positive loadings on processed meat products, white bread, French fries, salty snacks, and sugar-sweetened drinks and high negative loadings on oily fish, high-fiber breakfast cereals, and lean fish	Preeclampsia (OR) Tertile 1=REF	Tertile 3: 1.21 (95% CI: 1.03, 1.41)	Tertile 2: 1.06 (95% CI: 0.91, 1.23)
	Potato and fish pattern High positive loadings on cooked potatoes, processed fish, lean fish, fish spread and shellfish, and margarine	Preeclampsia (OR) Tertile 1=REF		Tertile 2: 0.99 (95% CI: 0.86, 1.15) Tertile 3: 1.00 (95% CI: 0.84, 1.18)
	Cakes and sweets pattern High loadings on cakes, waffles and pancakes, buns, ice cream, sweet biscuits, sweets, and chocolate	Preeclampsia (OR) Tertile 1=REF		Tertile 2: 1.00 (95% CI: 0.86, 1.15) Tertile 3: 0.90 (95% CI: 0.76, 1.06)

Author, Year Country, N	Exposure	Outcome	Significant finding	NS finding
Torjusen, 2014 **Norway** **N = 28,192**	**Health and sustainability pattern** High positive loadings for vegetables, fruit and berries, cooking oil, olive oil, and whole grain products; negative loadings for meat, including processed meat, white bread, salty snacks, pommes frites and cakes and sweets	Preeclampsia (OR) Tertile 1=REF	Tertile 2: 0.81 (95% CI: 0.71, 0.92) Tertile 3: 0.74 (95% CI: 0.64, 0.85)	
Timmermans, 2011 **Netherlands** **N = 3,187**	**Mediterranean pattern** High intake of vegetables, vegetable oils, pasta, rice, fish, and legumes, moderate intake of alcohol, and low intake of sweets	SBP (Linear regression coefficient) High=REF	Mid-pregnancy: Low: 1.3 (95% CI: 0.3, 2.3)	Mid-pregnancy: Medium: 0.7 (95% CI: –0.3, 1.6) Late-pregnancy: Low: 0.2 (95% CI: -0.8, 1.2) Medium: 0.7 (95% CI: -0.3, 1.6)
		DBP (Linear regression coefficient) High=REF	Mid-pregnancy: Low: 1.6 (95% CI: 0.8, 2.4) Late-pregnancy: Low: 1.0 (95% CI: 0.2, 1.8)	Mid-pregnancy: Medium: 0.2 (95% CI: -0.6, 0.9) Late-pregnancy: Medium: 0.5 (95% CI: -0.3, 1.2)
		Gestational Hypertension (OR) High=REF		Low: 1.3 (95% CI: 0.9, 1.9) Medium: 1.1 (95% CI: 0.8, 1.7)

Author, Year Country, N	Exposure	Outcome	Significant finding	NS finding
		Preeclampsia (OR) High=REF		Low: 1.2 (95% CI: 0.6, 2.3) Medium: 1.2 (95% CI: 0.6, 2.3)
	Traditional pattern High intake of meat and potatoes, and low intake of fruit, nonalcoholic drinks, fish, and bread	SBP (Linear regression coefficient) Low=REF	Mid-pregnancy: Medium: 1.3 (95% CI: 0.4, 2.3) High: 2.3 (95% CI: 1.2, 3.3) Late-pregnancy: High: 2.6 (95% CI: 1.6, 3.6)	Late-pregnancy: Medium: 0.7 (95% CI: -0.3, 1.6)
		DBP (Linear regression coefficient) Low=REF	Mid-pregnancy: Medium: 0.9 (95% CI: 0.1, 1.7) High: 1.3 (95% CI: 0.5, 2.1) Late-pregnancy: High: 0.8 (95% CI: 0.1, 1.6)	Late-pregnancy: Medium: 0.3 (95% CI: -0.4, 1.1)
		Gestational Hypertension (OR) Low=REF		Medium: 1.0 (95% CI: 0.7, 1.6) High: 1.3 (95% CI: 0.9, 1.9)

Author, Year Country, N	Exposure	Outcome	Significant finding	NS finding
		Preeclampsia (OR) Low=REF		Medium: 0.7 (95% CI: 0.3, 1.4) High: 1.1 (95% CI: 0.6, 2.1)
Schoenaker, 2015 **Australia** **N = 3,582 women (6,149 pregnancies)**	**Meat, high-fat, and sugar pattern** Characterized by high consumption of meat, processed meat, cakes, sweet biscuits, chocolate, meat pies, and pizza	Hypertensive Disorders of Pregnancy (RR) Q1=REF		Q2: 0.89 (95% CI: 0.64, 1.22) Q3: 1.04 (95% CI: 0.73, 1.48) Q4: 0.94 (95% CI: 0.57, 1.55)
	Mediterranean-style pattern Characterized by high consumption of vegetables, legumes, nuts, tofu, rice, pasta, rye bread, red wine, and fish	Hypertensive Disorders of Pregnancy (RR) Q1=REF	Q3: 0.70 (95% CI: 0.50, 0.97) Q4: 0.58 (95% CI: 0.42, 0.81)	Q2: 0.85 (95% CI: 0.65, 1.11)
	Fruit and low-fat dairy pattern Characterized by high consumption of fruit, yogurt, low-fat cheese, and skim milk	Hypertensive Disorders of Pregnancy (RR) Q1=REF		Q2: 1.08 (95% CI: 0.80, 1.46) Q3: 0.98 (95% CI: 0.70, 1.37) Q4: 0.97 (95% CI: 0.71, 1.32)

Author, Year Country, N	Exposure	Outcome	Significant finding	NS finding
	Cooked vegetable pattern Characterized by high consumption of carrots, peas, cooked potatoes, cauliflower, and pumpkin	Hypertensive Disorders of Pregnancy (RR) Q1=REF		Q2: 0.97 (95% CI: 0.71, 1.32) Q3: 1.15 (95% CI: 0.86, 1.54) Q4: 1.04 (95% CI: 0.73, 1.48)
Other Methods				

Author, Year Country, N	Exposure	Outcome	Significant finding	NS finding
Khoury, 2005 **Norway** **N = 290**	**Intervention diet** Dietician encouraged the intake of fatty fish, vegetable oils, especially olive oil and rapeseed oil, nuts, nut butters, margarine based on olive- or rapeseed oil, and avocado to replace meat, butter, cream, and fatty dairy products; the consumption of fresh fruits and vegetables was advised (at least 6 a day); intake of dairy products in the form of skimmed or low-fat products (skimmed milk, fat-reduced cheese, and yogurt) in place of full fat products was encouraged; subjects were advised to choose meat for a main meal twice a week and use legumes, vegetable main dishes, fatty fish, or poultry with the fat trimmed off on the other days; coffee was limited to 2 cups of filtered coffee a day - included significantly more fish and fish products; fatty fish and fish products; rapeseed-based margarine; oils; olive oil; rapeseed oil; nuts, olives, and seeds; vegetables; and fruits when compared to the control diet[23]	Hypertensive Disorders of Pregnancy[24] (OR) Control=REF		Intervention: 1.0 (95% CI: 0.5, 2.5)

[23] Khoury, J., Henriksen, T., Seljeflot, I., Mørkrid, L., Frøslie, K. F., & Tonstad, S. (2007). Effects of an antiatherogenic diet during pregnancy on markers of maternal and fetal endothelial activation and inflammation: the CARRDIP study. BJOG, 114(3), 279-288. doi:10.1111/j.1471-0528.2006.01187.x

[24] Addressed by the authors as “hypertensive complications”

Author, Year Country, N	Exposure	Outcome	Significant finding	NS finding
	Control diet Subjects asked to consume their usual diet based on Norwegian foodstuffs, and not to introduce more oils or low-fat meat and dairy products than usual - included significantly more fatty milk, meat and meat products, fatty minced meat, butter, and hard margarines when compared to the intervention diet[23]			

Assessment of the body of evidence

This body of evidence was deemed to be limited in strength. The individual grading elements are discussed below.

Internal validity (determined with NEL Bias Assessment Tool):

- The data were primarily observational in nature, making it difficult to determine causal effect of the dietary patterns.
- Dietary patterns were consistently assessed before collection of outcome data in all included studies. However, measurement of the time of exposure varied widely across studies and may have occurred years before pregnancy in the two studies from the ALSWH cohort.
- The use of self-reported exposure and outcome measurement might have introduced potential measurement error and could have limited the validity of these data.
- FFQ were the primary measurement tool, and both the self-reported data collected with this tool and the variability between studies in the type of FFQ used (i.e., number of items assessed, whether or not it is validated in a pregnant sample) could have affected the validity of the exposure data.
- As a result of methodological differences among studies, the dietary patterns studied varied considerably, which makes it difficult to compare findings across studies.
- The key confounders of parity, educational attainment, smoking status, race/ethnicity, maternal age, family poverty income ratio, pre-pregnancy BMI, mean total energy intake, and gestational diabetes mellitus were not consistently controlled across studies.
- Multiple studies did not report data on key confounding factors at baseline and did not control for potential differences across dietary groups in the analyses.
- Although data from a few more experimental studies or RCTs could strengthen these findings, it is not often practical and in some settings possibly unethical to use those study designs to answer the research question in this vulnerable population. Further, the limited time period for implementing an intervention during pregnancy is an additional constraint to use an experimental study design or RCT. Given all this, observational study designs are appropriate for studying dietary patterns, so these findings (primarily from observational studies) are not considered insufficient on this basis alone.

Consistency:

- There was some consistency across the body of evidence. Regardless of the method used to define them, healthier diets (defined different ways) were protective against the risk of HDP. Components of healthy patterns included high intakes of vegetables, fruits, grains (especially whole grains), nuts, legumes, fish, and vegetable oils and low intakes of meat and refined grain.
- Five out of eight studies observed a significant association between diet and the risk of HDP or blood pressure, while the single RCT and an observational study conducted in the U.S., each reported no association. One additional study found an association between DP and BP, but not with gestational hypertension or preeclampsia.
- Two of the dietary patterns assessed were found to be detrimental: a traditional

pattern—with high intakes of meat and potatoes and low intakes of fruit, nonalcoholic drinks, fish, and bread—was associated with increased blood pressure, and a processed food pattern—with high intakes of processed meat products, white bread, French fries, salty snacks, and sugar-sweetened drinks and low intakes of oily fish, high-fiber breakfast cereals, and lean fish—was associated with increased risk of preeclampsia.

Impact:

- With two exceptions, the studies directly examined the relationship between different dietary patterns or different levels of adherence to a dietary pattern and HDP. The primary exposure of interest in Torjusen et al. 2014 was organic vegetable consumption. The purpose of CARRDIP trial was to test whether a cholesterol-lowering diet in pregnancy modified maternal, cord and neonatal cholesterol levels. Maternal and newborn complications were added as part of secondary analyses.
- The study based on the ALSWH cohort found that greater adherence to a Mediterranean-style diet during preconception period was inversely associated with the risk of developing HDP. The risk decreased by 30% and 42% for those women whose diets were in quartiles 3 and 4, respectively.
- Among the three studies that found a significant association between dietary patterns and preeclampsia, effect sizes were more modest. Adherence to healthier dietary patterns was associated with 14-29% reductions in the risk of preeclampsia, while adherence to a processed foods dietary pattern increased the risk by 21%.
- Nonetheless, together these findings suggest that there may be practical significance in encouraging women to consume a “healthy” diet (defined in several different ways in these studies) before and during pregnancy.

Adequacy:

- The number of studies and the number of unique research groups included in this evidence base was inadequate to answer the research question.
- This evidence base included eight studies corresponding to one RCT and four unique cohorts.
- As a result, there were also only five independent research groups contributing to this body of literature.
- The sample sizes varied considerably, ranging from 290 to 72,072.

Generalizability:

- All but one of the studies were conducted outside the U.S.
- The study conducted in the U.S. was limited in generalizability to predominantly Caucasian women with access to health care.
- Minority and lower SES populations are underrepresented in these data. It is unknown if the findings would be comparable in more diverse samples before or during pregnancy.
- There was a lower prevalence of obesity in these samples compared to the U.S. national average.
- The largest sample considered here (MoBa), which is used in three of the included studies, underrepresents young women, minorities, women with more

than two children, women with previous stillbirths, smokers, and single mothers.

Other limitations/considerations:

- Different criteria were used across studies to define HDP, including self-report.
- Some studies included both gestational hypertension and preeclampsia as outcomes of interest, while others included only preeclampsia. Further, preeclampsia was sometimes defined as a combination of preeclampsia, eclampsia, and HELLP syndrome.
- Publication bias may be partly responsible for the wide array of dietary patterns in the literature. Journal editors and peer-reviewers may be less willing to publish studies that replicate others' findings. It is important for the editors and peer-reviewers to understand the need for publishing studies that replicate dietary patterns, in addition to publishing studies that assess unique dietary patterns.

Research recommendations

To assess the relationship between dietary patterns before and during pregnancy and risk of HDP more adequately, additional research is needed that should:

- Include diverse populations from the U.S. and elsewhere with varying racial/ethnic and socioeconomic backgrounds.
- Develop and validate novel epidemiological tools that can accurately capture the complexity of dietary habits.
- Improve comparability across studies by increasing the uniformity of 1) diet assessment tools used across different regions and populations, 2) methods used to define dietary patterns, and 3) timing of dietary assessment.
- Adjust for key confounding factors in observational studies, including parity, educational attainment, smoking status, race/ethnicity, maternal age, family poverty income ratio, pre-pregnancy BMI, mean total energy intake, fetal sex, and gestational diabetes mellitus (and/or justify how and why confounders were chosen).
- Include well-designed and sufficiently powered RCTs.
- Include and assess effect measure modification by fetal sex or multiethnic subgroups within the U.S.
- Use robust statistical methods such as multiple imputation to handle missing data.

Included articles

1. Rifas-Shiman SL, Rich-Edwards JW, Kleinman KP, Oken E, Gillman MW. Dietary quality during pregnancy varies by maternal characteristics in Project Viva: a US cohort. J Am Diet Assoc 2009;109(6):1004-11.

2. Hillesund ER, Overby NC, Engel SM, Klungsoyr K, Harmon QE, Haugen M, Bere E. Associations of adherence to the New Nordic Diet with risk of preeclampsia and preterm delivery in the Norwegian Mother and Child Cohort Study (MoBa). Eur J Epidemiol 2014;29(10):753-65.

3. Schoenaker DA, Soedamah-Muthu SS, Mishra GD. Quantifying the mediating effect of body mass index on the relation between a Mediterranean diet and development of maternal pregnancy complications: the Australian Longitudinal Study on Women's Health. Am J Clin Nutr 2016;104(3):638-45.

4. Brantsaeter AL, Haugen M, Samuelsen SO, Torjusen H, Trogstad L, Alexander J, Magnus P, Meltzer HM. A dietary pattern characterized by high intake of vegetables, fruits, and vegetable oils is associated with reduced risk of preeclampsia in nulliparous pregnant Norwegian women. J Nutr 2009;139(6):1162-8.

5. Torjusen H, Brantsaeter AL, Haugen M, Alexander J, Bakketeig LS, Lieblein G, Stigum H, Naes T, Swartz J, Holmboe-Ottesen G, et al. Reduced risk of pre-eclampsia with organic vegetable consumption: results from the prospective Norwegian Mother and Child Cohort Study. BMJ Open 2014;4(9):e006143.

6. Timmermans S, Steegers-Theunissen RP, Vujkovic M, Bakker R, den Breeijen H, Raat H, Russcher H, Lindemans J, Hofman A, Jaddoe VW, et al. Major dietary patterns and blood pressure patterns during pregnancy: the Generation R Study. Am J Obstet Gynecol 2011;205(4):337 e1-12.

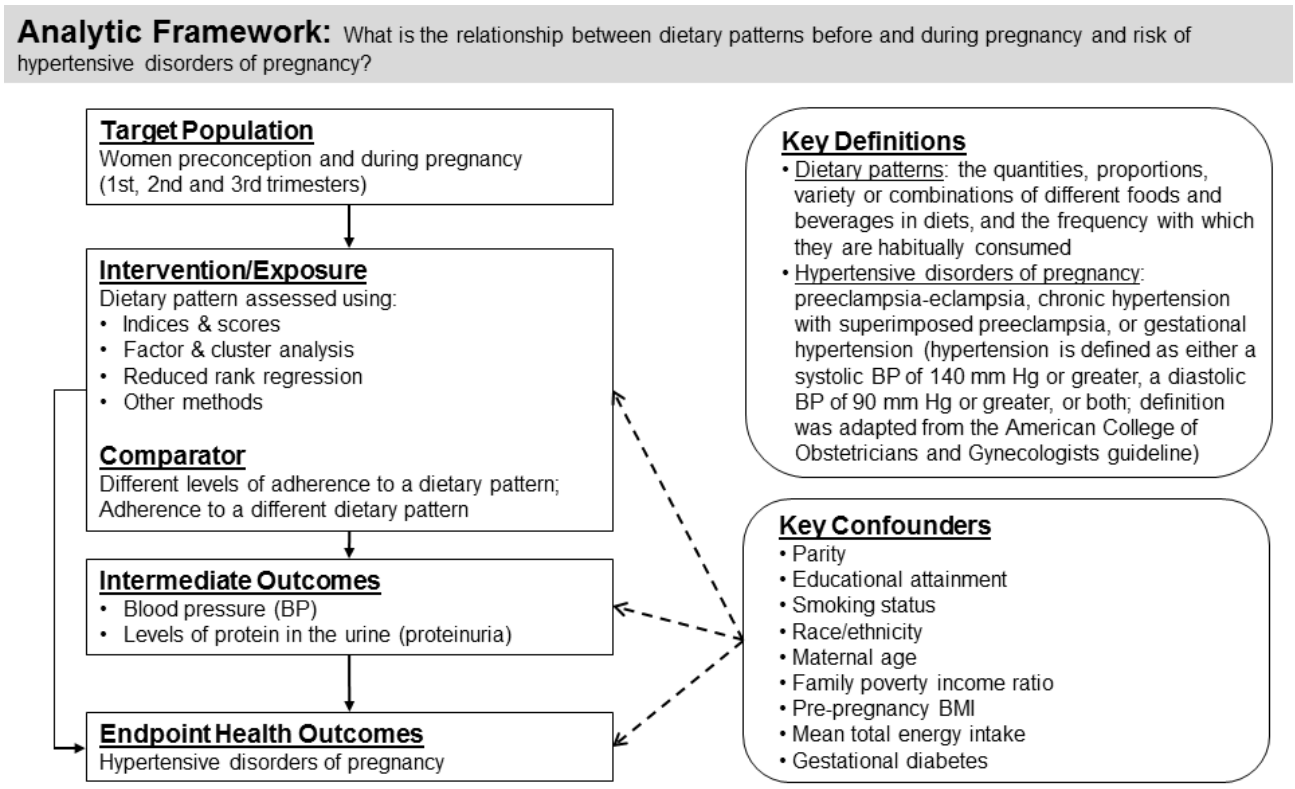
7. Schoenaker DA, Soedamah-Muthu SS, Callaway LK, Mishra GD. Prepregnancy dietary patterns and risk of developing hypertensive disorders of pregnancy: results from the Australian Longitudinal Study on Women's Health. Am J Clin Nutr 2015;102(1):94-101.

8. Khoury J, Henriksen T, Christophersen B, Tonstad S. Effect of a cholesterol-lowering diet on maternal, cord, and neonatal lipids, and pregnancy outcome: a randomized clinical trial. Am J Obstet Gynecol 2005;193(4):1292-301.

ANALYTIC FRAMEWORK

The analytic framework (Figure 1) illustrates the overall scope of the systematic review, including the population, the interventions and/or exposures, comparators, and outcomes of interest. It also includes definitions of key terms and identifies key confounders considered in the systematic review. This is the analytic framework for the systematic review conducted to examine the relationship between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy.

Figure 1: Analytic framework



SEARCH PLAN AND RESULTS

Inclusion and exclusion criteria

This table provides the inclusion and exclusion criteria for the systematic review question: what is the relationship between dietary patterns before and during pregnancy and gestational age- and sex-adjusted birth weight. The inclusion and exclusion criteria are a set of characteristics to determine which studies will be included or excluded in the systematic review.

Table 6. Inclusion and exclusion criteria

Category	Inclusion Criteria	Exclusion Criteria
Study Design	• Randomized controlled trials • Prospective cohort studies • Retrospective cohort studies • Nested case-control studies	• Non-randomized controlled trials • Cross-sectional studies • Case-control studies • Uncontrolled studies • Pre/post studies with a control • Pre/post studies without a control • Narrative reviews • Systematic reviews • Meta-analyses

Exposure/ Intervention	• Studies that provide a description of the dietary pattern(s) (i.e., foods and beverages) consumed by subjects and that methodologically use:
	  ○ Indices & scores
	  ○ Cluster or factor analysis
	  ○ Reduced rank regression
	  ○ Other methods
		• Studies that <u>do not</u> provide a description of the dietary pattern(s) (i.e., foods and beverages) consumed by subjects[25]

[25] For example, a study would be excluded from the systematic review if the dietary pattern were labeled "vegetarian" but lacked a description of what foods/beverages were consumed as part of that dietary pattern.

Category	Inclusion Criteria	Exclusion Criteria
Comparator	• Different levels of adherence to a dietary pattern • Adherence to a different dietary pattern	
Date Range	• Studies published in the following date range: 1980-present (search date)	
Language	• Studies published in English	• Studies published in languages other than English
Study Setting	• Studies conducted in Very High and High Human Development Countries* **Determined using the most recent Human Development Index*	• Studies conducted in Medium and Low Human Development Countries* **Determined using the most recent Human Development Index*
Study Duration	• Studies regardless of length	

Category	Inclusion Criteria	Exclusion Criteria
Temporality	*HDP* • Studies when the exposure was assessed prior to the outcome • Studies when exposure and outcome assessment occurred during overlapping time periods before the third trimester (<28 weeks gestation) *Proteinuria* • Studies when the exposure was assessed prior to the outcome • Studies when exposure and outcome assessment occurred during overlapping time periods before the third trimester (<28 weeks gestation) *Blood pressure* • Studies when the exposure was assessed prior to the outcome	*HDP* • Studies when the outcome was assessed prior to the exposure • Studies when exposure and outcome assessment occurred during overlapping time periods in the third trimester (≥28 weeks gestation) *Proteinuria* • Studies when the outcome was assessed prior to the exposure • Studies when exposure and outcome assessment occurred during overlapping time periods in the third trimester (≥28 weeks gestation) *Blood pressure* • Studies when the outcome was assessed prior to the exposure • Studies when exposure and outcome assessment occurred during overlapping time periods (irrespective of time period)
Publication Status	• Studies published in peer-reviewed journals	• Grey literature, including unpublished data, manuscripts, reports, abstracts, conference proceedings
Study Subjects	• Human subjects • Adolescent girls and women capable of becoming pregnant (15-44 years) • Pregnant girls and women (15-44 years) – single and multiple pregnancies • Neonates	• Animal and in vitro models • Hospitalized patients, when hospitalization is not related to pregnancy, birth and immediate postpartum • Pregnancies conceived ONLY using Assisted Reproductive Technologies
Size of Study Groups	• Studies regardless of group size	

Category	Inclusion Criteria	Exclusion Criteria

Health Status of Study Subjects	• Studies conducted in generally healthy women of reproductive age, including women in pre/peri-conception and pregnancy
	• Studies conducted in samples with elevated chronic disease risk or pregnancy related conditions, or that enroll *some* subjects with a disease or with health outcome of interest such as
	  ○ Anemia
	  ○ Gestational diabetes
	  ○ Hypertension
	  ○ Preeclampsia
	  ○ Hypermesis Gravidarum
	  ○ Previous adverse outcome (e.g., preterm)
	  ○ Obesity
		• Studies that *exclusively* enroll subjects with chronic conditions (e.g. hypertension, diabetes) that are not related to the index pregnancy
		• Studies that *exclusively* enroll subjects with a disease or with the health outcome of interest (intermediate or endpoint health outcomes)
		• Studies done in hospitalized or malnourished subjects, if hospitalization is not related to index pregnancy

Outcomes	• Hypertensive disorders of pregnancy: 1) preeclampsia-eclampsia, 2) preeclampsia superimposed on chronic hypertension, and 3) gestational hypertension
	• Intermediate Outcomes:
	  ○ Blood pressure
	  ○ Levels of protein in the urine (proteinuria)	

Search terms and electronic databases used

PubMed, US National Library of Medicine

- Date(s) searched: January 1980 to January 2017
- Search Terms:

  pregnancy[mh] OR “Prenatal Exposure Delayed Effects”[mesh] OR “Maternal Exposure”[mesh] OR “pregnant women”[mh] OR pregnan*[tiab] OR prenatal[tiab] OR maternal OR mother* OR postpartum OR newborn*[tiab] OR perinatal OR peri-natal OR pre-conception OR preconception OR peri-conception OR periconception OR "Infant, Newborn"[Mesh] OR neonat*[tiab] OR newly born* OR "Peripartum Period"[Mesh] OR peripartum[tiab] OR peri-partum[tiab] OR gestation* OR natal OR puerperium[tiab] OR "Maternal Nutritional Physiological Phenomena"[Mesh]

  AND

  hypertensi*[tiab] OR "Hypertension"[Mesh:NoExp] OR vomit* OR diabetes*[tiab] OR diabetic*[tiab] OR "Birth Weight"[Mesh] OR "Birth Weight"[tiab] OR "Glucose Intolerance"[Mesh] OR Glucose Intoleran*[tiab] OR glucose toleran* OR "Insulin Resistance"[Mesh] OR Insulin Resistan*[tiab] OR Dysglycemia[tiab] OR fasting blood glucose* OR "Hemoglobin A, Glycosylated"[Mesh] OR "Proteinuria"[Mesh:noexp] OR Albuminuria OR "Blood Pressure"[mh] OR “blood pressure”[tiab]

  OR
  "Diabetes, Gestational"[Mesh] OR (gestation*[tiab] AND (diabetes*[tiab] OR diabetic*[tiab])) OR "Pre-Eclampsia"[Mesh] OR "Pre-Eclampsia"[tiab] OR preeclampsia[tiab] OR "Hypertension, Pregnancy-Induced"[Mesh] OR Eclampsia OR "Gestational Age"[Mesh] OR "Morning Sickness"[Mesh] OR (Hyperemesis Gravidarum) OR "Gestational Age"[tiab] OR "Obstetric Labor, Premature"[Mesh] OR ((prematur*[tiab] OR preterm [tiab]) AND (baby[tiab] OR infant*[tiab] OR birth OR labor OR membrane* OR babies)) OR "Fetal Growth Retardation"[Mesh] OR IUGR[tiab] OR “Intrauterine growth restriction” OR "Fetal Development"[Mesh:noexp] OR "Fetal Weight"[Mesh] OR "Umbilical Arteries"[Mesh] OR "Uterine Artery"[Mesh]

  AND
  (“diet quality” OR dietary pattern* OR diet pattern* OR eating pattern* OR food pattern* OR eating habit* OR dietary habit* OR food habit* OR dietary profile* OR food profile* OR diet profile* OR eating profile* OR dietary guideline* OR dietary recommendation* OR eating style*) OR

  (DASH[ti] OR DASH[tw] OR ("dietary approaches"[ti] AND hypertension[ti]) OR "Diet, Mediterranean"[Mesh] OR Mediterranean[ti] OR vegan* OR vegetarian* OR "Diet, Vegetarian"[Mesh] OR “prudent diet” OR “western diet” OR nordiet OR omni[ti] OR omniheart[tiab] OR (Optimal Macronutrient Intake Trial to Prevent Heart Disease) OR adventist* OR ((Okinawa* OR "Ethnic Groups"[Mesh] OR “plant based” OR Mediterranean[tiab] OR Nordic[tiab] OR "heart healthy"[tiab] OR indo-mediterranean) AND (diet[mh] OR diet[tiab] OR diets[tiab] OR

food[mh]))) OR

("Guideline Adherence"[Mesh] AND (diet OR food OR eating OR eat OR dietary OR feeding OR nutrition OR nutrient*)) OR (adherence AND (nutrient* OR nutrition OR diet OR dietary OR food OR eat OR eating) AND (guideline* OR guidance OR recommendation*)) OR

(dietary score* OR adequacy index* OR kidmed OR Diet Quality Index* OR Food Score* OR Diet Score* OR MedDietScore OR Dietary Pattern Score* OR “healthy eating index”) OR

((index*[ti] OR score*[ti] OR indexes OR scoring[ti] OR indices[ti]) AND (dietary[ti] OR nutrient*[ti] OR eating[tiab] OR food[ti] OR food[mh] OR diet[ti] OR diet[mh]) AND (pattern* OR habit* OR profile*)) OR meals[mh] OR meals[tiab] OR meal[tiab] OR mealtime*[tiab]

OR

diet[mh:noexp] OR diet[ti] OR diets[ti] OR food*[tiab] OR "Food"[mh:noexp] OR "Eating"[mh] OR dietary intake*[tiab] OR food intake*[tiab] OR food habits[mh] OR diet habit*[tiab] OR eating habit*[tiab] OR food choice*[tiab] OR dietary choice*[tiab] OR dietary change*[tiab] NOT (editorial[ptyp] OR comment[ptyp] OR news[ptyp] OR letter[ptyp] OR review[ptyp] OR systematic[sb])

Embase, Elsevier:

- Date(s) searched: January 1980 to January 2017
- Search Terms:

  'pregnancy'/exp OR 'pregnant woman'/exp OR 'prenatal period'/exp OR 'mother'/exp OR 'prenatal exposure'/exp OR 'prenatal growth'/exp OR 'puerperium'/exp OR 'newborn'/exp OR prematurity/exp OR pregnan*:ti,ab OR maternal:ti,ab OR mother*:ti,ab OR prenatal:ti,ab OR pre-natal:ti,ab OR 'puerperium':ti,ab OR postpartum:ti,ab OR newborn:ti,ab OR neonat*:ti,ab OR “newly born”:ti,ab OR periconception:ti,ab OR peri-conception:ti,ab OR pre-conception:ti,ab OR preconception;ti,ab OR gestation* OR peripartum:ti,ab OR peri-partum:ti,ab OR natal:ti,ab OR gestation* OR 'perinatal development'/exp OR 'perinatal care'/de OR perinatal:ti,ab OR peri-natal:ti,ab OR 'puerperium'/de OR 'puerperium':ti,ab OR 'maternal nutrition'/exp

  AND

  hypertensi* OR hyperemesis:ti,ab OR vomit*:ti,ab OR diabet* OR 'birth weight'/exp OR birthweight:ti,ab OR ((neonatal OR newborn) NEAR/3 weight)

  OR

  'glucose intolerance'/exp OR (Glucose NEAR/2 Intoleran*) OR (glucose NEAR/2 toleran*) OR 'insulin resistance'/exp OR (Insulin NEAR/1 Resistan*):ti,ab OR Dysglycemia OR “fasting blood glucose” OR 'hemoglobin A1c'/exp OR 'hemoglobin A1c' OR 'proteinuria'/exp OR albuminuria OR "Blood Pressure"/de

  OR

  'pregnancy diabetes mellitus'/exp OR “diabetes mellitus gravidarum”:ti,ab OR

'eclampsia OR preeclampsia'/exp OR eclampsia:ti,ab OR preeclampsia:ti,ab OR pre-eclampsia:ti,ab OR 'maternal hypertension'/exp OR 'gestational age'/exp OR 'small for date infant'/exp OR 'gestational age' OR 'hyperemesis gravidarum'/exp OR 'morning sickness'/exp OR (gestation* NEAR/2 diabet*):ti,ab OR (Obstetric NEAR/3 (Labor OR labour)) OR (labor/exp AND obstetric*) OR 'prematurity'/exp OR ((prematur* OR preterm) NEAR/3 (baby OR infant* OR babies OR birth OR childbirth OR labor OR membrane*)) OR 'intrauterine growth retardation'/de OR IUGR:ti,ab OR "Intrauterine growth restriction" OR 'fetus growth'/exp OR 'fetus development'/exp OR 'fetus weight'/exp OR 'umbilical artery'/exp OR 'uterine artery'/exp OR ((fetal OR fetus OR foetal OR foetus OR embryo*) NEAR/3 (weight OR develop* OR growth)):ti,ab

AND

'eating habit'/exp OR 'Mediterranean diet'/exp OR nordiet:ti,ab OR 'nordic diet':ti,ab OR DASH:ti,ab OR 'dietary approaches to stop hypertension':ti,ab OR vegan*:ab,ti OR vegetarian*:ab,ti OR 'vegetarian diet'/exp OR 'vegetarian'/exp OR 'prudent diet':ti,ab OR 'western diet':ti,ab OR 'Western diet'/exp OR meal/de OR omniheart:ti,ab OR omni:ti OR 'plant based diet' OR ((eating OR food OR diet* OR calori*) NEAR/3 (pattern? OR habit? OR profile? OR recommendation? OR guideline? OR style* OR choice* OR intake OR quality)) OR (('ethnic, racial and religious groups'/exp OR Okinawa* OR adventist* OR 'mediterranean') AND (diet/exp OR eating/exp OR 'food intake'/de OR calori* OR diet* OR food OR eating))

OR

Diet/de OR 'dietary intake'/de OR 'food preference'/de OR 'food intake'/de OR 'diet restriction'/exp OR 'eating habit'/exp OR diet*:ti OR kidmed:ab,ti OR 'meddietscore':ab,ti OR 'healthy eating index':ab,ti OR ((index OR score OR scoring OR indices) NEAR/3 (diet* OR eating OR food)) OR "food consumption"

OR

food*:ti,ab OR "Food"/de OR Eating:ti,ab OR (dietary NEAR/1 change*):ti,ab OR Meal*:ti,ab

Cochrane, Central Register of Controlled Trials, John Wiley & Sons:

- Date(s) searched: January 1980 to January 2017
- Search Terms:

  [mh pregnancy] OR [mh "Maternal Exposure"] OR [mh "Prenatal Exposure Delayed Effects"] OR [mh "pregnant women"] OR pregnan*:ti,ab OR prenatal OR maternal OR mother* OR postpartum OR newborn*:ti,ab OR perinatal OR peri-natal OR pre-conception OR preconception OR peri-conception OR periconception OR [mh "Infant, Newborn"] OR neonat*:ti,ab OR (newly NEAR/1 born*) OR gestation* OR peripartum OR peri-partum OR natal:ti,ab OR puerperium OR gravidarum OR [mh "Peripartum Period"] OR peripartum:ti,ab

OR peri-partum:ti,ab OR natal OR puerperium:ti,ab OR [mh "Maternal Nutritional Physiological Phenomena”]

AND

(hypertensi*:ti,ab OR [mh ^Hypertension] OR vomit*:ti,ab OR diabet*:ti,ab OR [mh "Birth Weight"] OR "Birth Weight":ti,ab OR [mh "Glucose Intolerance"] OR (Glucose NEAR/1 Intoleran*) OR (glucose NEAR/1 toleran*) OR [mh "Insulin Resistance"] OR (Insulin NEAR/1 Resistan*:ti,ab) OR Dysglycemia:ti,ab OR “fasting blood glucose” OR [mh "Hemoglobin A, Glycosylated"] OR [mh ^"Proteinuria"] OR Albuminuria OR [mh "Blood Pressure"] OR “blood pressure”:ti,ab)

OR

[mh "Diabetes, Gestational"] OR (gestation* NEAR/1 diabet*) OR [mh "Pre-Eclampsia"] OR "Pre-Eclampsia":ti,ab OR preeclampsia:ti,ab OR [mh "Hypertension, Pregnancy-Induced"] OR Eclampsia OR [mh "Gestational Age"] OR [mh "Morning Sickness"] OR (Hyperemesis NEAR/3 Gravidarum) OR "Gestational Age":ti,ab OR [mh "Birth Weight"] OR "Birth Weight":ti,ab OR ((neonatal OR newborn) NEAR/3 weight) OR [mh "Obstetric Labor, Premature"] OR ((prematur*:ti,ab OR preterm:ti,ab) AND (baby:ti,ab OR infant*:ti,ab OR birth OR labor OR membrane* OR babies)) OR [mh "Fetal Growth Retardation"] OR IUGR:ti,ab OR “Intrauterine growth restriction” OR [mh ^"Fetal Development"] OR [mh "Fetal Weight"] OR [mh "Umbilical Arteries"] OR [mh "Uterine Artery"]

AND (diet:ti OR diets:ti OR dietary:ti OR meal*:ti,ab OR “prudent diet” OR nordiet:ti,ab OR omniheart OR "Optimal Macronutrient Intake Trial to Prevent Heart Disease" OR ((Index OR score OR indices OR scoring) NEAR/3 (dietary OR diet OR food OR eating)) OR “adequacy index” OR kidmed OR MedDietScore)

OR ‘dietary approaches to stop hypertension’:ti,ab OR omniheart:ti,ab OR omni:ti OR ‘plant based diet’ OR ((eating OR food OR diet* OR calori*) NEAR/3 (pattern? OR habit? OR profile? OR recommendation? OR guideline? OR style* OR choice* OR intake OR quality))

OR

food*:ti,ab OR Eating:ti,ab OR (dietary NEAR/1 change*):ti,ab OR DASH:ti,ab OR vegan*:ab,ti OR vegetarian*:ab,ti OR omni:ti OR ((ethni* OR racial OR religio* OR asia* OR western OR Okinawa* OR adventist* OR ‘mediterranean' OR Nordic* OR indo-mediterranean) NEAR/3 (calori* OR diet* OR food OR eating))

OR [mh "Diet, Mediterranean"] OR [mh "Diet, Vegetarian"] OR ([mh "Ethnic Groups"] AND ([mh diet] OR diet*:ti,ab OR [mh ^food] OR eat:ti,ab OR eating:ti,ab OR [mh "Eating"] OR [mh “food habits”])) OR

([mh "Guideline Adherence"] AND (diet OR food OR eating OR eat OR dietary)) OR ((adhere* OR adhering) AND (diet OR dietary OR food OR eat OR eating) AND (guideline* OR guidance OR recommendation*)) OR

[mh meals] OR [mh ^diet] OR diet*:ti,ab OR [mh ^"Food"] OR [mh "Eating"] OR [mh “food habits”]

CINAHL (Plus) with Full Text, EBSCO (Cumulative Index to Nursing and Allied Health Literature):

- Date(s) searched: January 1980 to January 2017
- Search Terms:

  (MH "Food and Beverages") OR (MH "Food") OR (MH "Diet") OR (MH "Eating") OR (MH "Eating Behavior") OR (MH "Meals+") OR (MH "Food Preferences") OR (MH "Food Habits") OR (MH "Mediterranean Diet") OR (MH "Diet, Western") OR (MH "DASH Diet") OR (MH "Vegetarianism")

  OR meal* OR “prudent diet” OR nordiet OR omniheart OR "Optimal Macronutrient Intake Trial to Prevent Heart Disease" OR ((Index OR score OR indices OR scoring) N3 (dietary OR diet OR food OR eating)) OR “adequacy index” OR kidmed OR MedDietScore

  OR “dietary approaches to stop hypertension” OR “plant based diet” OR ((eating OR food* OR diet* OR calori*) N3 (pattern? OR habit? OR profile? OR recommendation? OR guideline? OR style* OR choice* OR intake OR quality))

  OR

  (dietary NEAR/1 change*) OR vegan* OR vegetarian* OR ((ethni* OR racial OR religio* OR asia* OR western OR Okinawa* OR adventist* OR ‘mediterranean' OR Nordic* OR indo-mediterranean OR omni*) N3 (calori* OR diet* OR food OR eating))

  OR (MH "Ethnic Groups+") AND ((mh diet) OR diet* OR (MH food) OR eat OR eating OR (MH "Eating") OR MH “food habits”)) OR

  ((adhere* OR adhering) N3 (diet OR dietary OR food OR eat OR eating)) AND (guideline* OR guidance OR recommendation*))

  (MH "Maternal Nutritional Physiology+") OR (MH "Maternal Exposure") OR (MH "Pregnancy+") OR (MH "Pregnancy in Adolescence+") OR (MH "Maternal Age 14 and Under") OR (MH "Pregnancy Outcomes") OR (MH "Mothers+") OR (MH "Prenatal Nutritional Physiology") OR (MH "Infant, Newborn+") OR (MH "Postnatal Period+") OR (MH "Periconceptual Period")

  AND

  (MH "Hypertension+") OR (MH "Nausea and Vomiting+") OR (MH "Vomiting+") OR (MH "Birth Weight") OR (MH "Glucose Tolerance Test") OR (MH "Prediabetic State") OR (MH "Glucose Intolerance") OR (MH "Insulin Resistance+") OR (MH "Blood Pressure+") OR (MH "Proteinuria+") OR (MH "Hemoglobin A, Glycosylated")

  OR

  (MH "Diabetes Mellitus, Gestational") OR (MH "Gestational Age") OR (MH "Pre-Eclampsia+") OR (MH "Eclampsia+") OR (MH "Fetal Growth Retardation") OR (MH "Fetal Weight") OR (MH "Umbilical Arteries") OR (MH "Delivery,

Obstetric+")

Limiters - Published Date: 19800101-; Peer Reviewed; English Language; Exclude MEDLINE records; Pregnancy

Narrow by SubjectMajor: - energy intake

Narrow by SubjectMajor: - vegetarianism

Narrow by SubjectMajor: - women's health

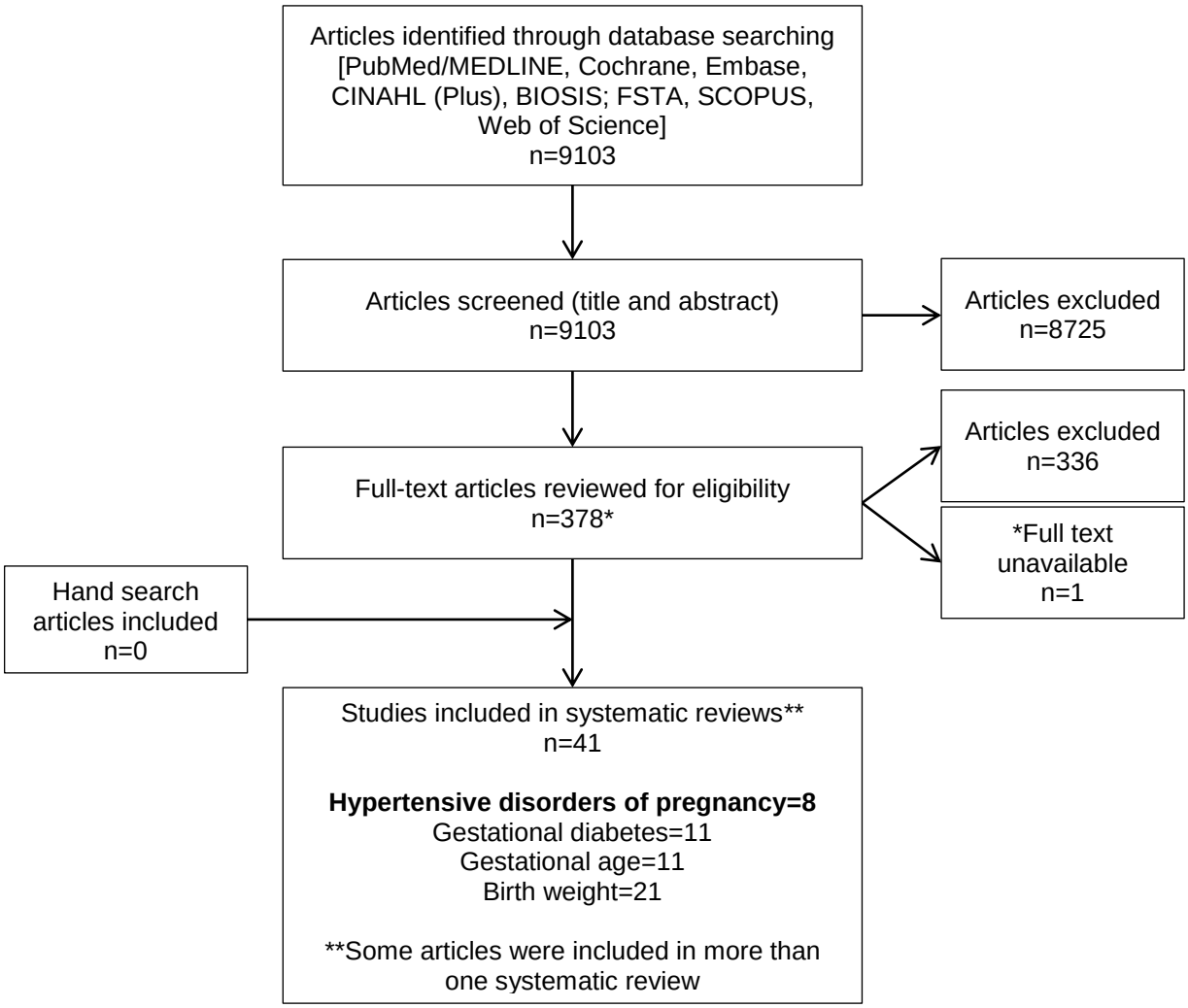
Narrow by SubjectMajor: - pregnancy outcomes

Narrow by SubjectMajor: - pregnancy complications

Narrow by SubjectMajor: - food habits

Narrow by SubjectMajor: - diabetes mellitus, gestational

Figure 2: Flow chart of literature search and screening results



This flow chart illustrates the literature search and screening results for articles examining the relationship between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy. The results of the electronic database searches were screened independently by two NESR analysts in a step-wise manner by reviewing titles, abstracts, and full text articles to determine which articles met the criteria for inclusion. A manual search was done to ascertain articles not identified through the electronic database search. The systematic review on dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy included 9103 articles. The literature search was conducted for multiple systematic reviews that addressed the relationships between dietary patterns before and during pregnancy and risk of hypertensive disorders of pregnancy, risk of gestational diabetes mellitus, gestational age, and gestational age- and sex-adjusted birth weight; the systematic reviews on gestational diabetes mellitus, gestational age, and gestational age- and sex-adjusted birth weight are reported elsewhere.

Excluded articles

The table below lists the excluded articles with at least one reason for exclusion, and may not reflect all possible reasons.

Table 7. Excluded articles

	Citation	Rationale
1	Aaltonen, J, Ojala, T, Laitinen, K et al. Risk Reduction of Infant Insulin Resistance by Dietary Intervention during Pregnancy and Breastfeeding. Pediatric Academic Societies Annual Meeting; 2009 May 2 5; Baltimore MD, United States, 2009	Dependent variable
2	Abel, Ht, Bannert, N, Starke, I et al. Study into Ca/P homeostasis in premature babies on different diets. Klin Padiatr, 1991, 203	Independent variable
3	Adami, G. F., Friedman, D., Cuneo, S. et al. Intravenous nutritional support in pregnancy. Experience following biliopancreatic diversion. Clinical Nutrition, 1992, 11: 106-109	Independent variable
4	Akbari, Z., Mansourian, M., Kelishadi, R. Relationship of the intake of different food groups by pregnant mothers with the birth weight and gestational age: Need for public and individual educational programs. J Educ Health Promot, 2015, 4. PMID:25883993.	Independent variable
5	Alfonso, H. Preventing preeclampsia: the evidence on nutrients. Nurs Womens Health, 2009, 13: 419-21. PMID:19821918.	Study design
6	Ali, H. I., Jarrar, A. H., El Sadig, M. et al. Diet and carbohydrate food knowledge of multi-ethnic women: a comparative analysis of pregnant women with and without Gestational Diabetes Mellitus. PLoS One, 2013, 8. PMID:24069200.	Study design
7	Alwan, N. A., Greenwood, D. C., Simpson, N. A. et al. Dietary iron intake during early pregnancy and birth outcomes in a cohort of British women. Hum Reprod, 2011, 26: 911-9. PMID:21303776.	Independent variable
8	Andreasyan, K., Ponsonby, A. L., Dwyer, T. et al. Higher maternal dietary protein intake in late pregnancy is associated with a lower infant ponderal index at birth. Eur J Clin Nutr, 2007, 61: 498-508. PMID:17136041.	Independent variable
9	Arkkola, T., Uusitalo, U., Kronberg-Kippila, C. et al. Seven distinct dietary patterns identified among pregnant Finnish women--associations with nutrient intake and sociodemographic factors. Public Health Nutr, 2008, 11: 176-82. PMID:17610760.	Dependent variable

	Citation	Rationale
10	Asaka, A., Imaizumi, Y., Inouye, E. Analysis of multiple births in Japan. V. Effects of gestational age, maternal age and other factors on growth rate of weight in twins. Jinrui Idengaku Zasshi, 1981, 26: 83-90. PMID:7328851.	Independent variable
11	Asbee, Sm, Jenkins, Tr, Butler, Jr et al. Dietary counseling prevents excessive weight gain during pregnancy, a randomized controlled trial. Obstet Gynecol, 2008, 111	Dependent variable
12	Asp, N. G. Nutrition and human development. Scandinavian Journal of Food and Nutrition, 2006, 50	Independent variable, study design
13	Babson, Sg, Bramhall, Jl. Diet and growth in the premature infant. Journal of Pediatrics, 1969, 74: 890-900	Date
14	Bakouei, S., Reisian, F., Lamyian, M. et al. High Intake of Manganese During Second Trimester, Increases the Risk of Preterm Delivery: A Large Scale Cohort Study. Glob J Health Sci, 2015, 7: 226-32. PMID:26156900.	Independent variable
15	Bao, W., Bowers, K., Tobias, D. K. et al. Prepregnancy low-carbohydrate dietary pattern and risk of gestational diabetes mellitus: a prospective cohort study. Am J Clin Nutr, 2014, 99: 1378-84. PMID:24717341.	Independent variable
16	Bao, W., Li, S., Chavarro, J. E. et al. Low Carbohydrate-Diet Scores and Long-term Risk of Type 2 Diabetes Among Women With a History of Gestational Diabetes Mellitus: A Prospective Cohort Study. Diabetes Care, 2016, 39: 43-9. PMID:26577416.	Dependent variable
17	Bao, W., Tobias, D. K., Hu, F. B. et al. Pre-pregnancy potato consumption and risk of gestational diabetes mellitus: prospective cohort study. Bmj, 2016, 352. PMID:26759275.	Independent variable
18	Bao, W., Tobias, D. K., Olsen, S. F. et al. Pre-pregnancy fried food consumption and the risk of gestational diabetes mellitus: a prospective cohort study. Diabetologia, 2014, 57: 2485-91. PMID:25303998.	Independent variable
19	Baron, R., Te Velde, S. J., Heymans, M. W. et al. The Relationships of Health Behaviour and Psychological Characteristics with Spontaneous Preterm Birth in Nulliparous Women. Matern Child Health J, 2016, . PMID:27581004.	Independent variable
20	Bell, E. H., Geyer, J., Jones, L. A structured intervention improves breastfeeding success for ill or preterm infants. MCN Am J Matern Child Nurs, 1995, 20: 309-14. PMID:8551932.	Dependent variable
21	Berntorp, K. E. Gestational diabetes: what's up?. Diabetologia, 2016, 59: 1382-1384	Study design

	Citation	Rationale
22	Bertolotto, A., Volpe, L., Calianno, A. et al. Physical activity and dietary habits during pregnancy: effects on glucose tolerance. J Matern Fetal Neonatal Med, 2010, 23: 1310-4. PMID:20334531.	Independent variable, study design
23	Bhatia, B. D., Banerjee, D., Agarwal, D. K. et al. Fetal growth: relationship with maternal dietary intakes. Indian J Pediatr, 1983, 50: 113-20. PMID:6618569.	Country
24	Bjerregaard, P., Hansen, J. C. Effects of smoking and marine diet on birthweight in Greenland. Arctic Med Res, 1996, 55: 156-64. PMID:9115541.	Independent variable
25	Bloomfield, F. H., Oliver, M. H., Hawkins, P. et al. A periconceptional nutritional origin for noninfectious preterm birth. Science, 2003, 300. PMID:12714735.	Independent variable, health status
26	Bo, S., Rosato, R., Ciccone, G. et al. Simple lifestyle recommendations and the outcomes of gestational diabetes. A 2 x 2 factorial randomized trial. Diabetes Obes Metab, 2014, 16: 1032-5. PMID:24646172.	Independent variable, health status
27	Bobinski, R., Mikulska, M., Mojska, H. et al. Assessment of the diet components of pregnant women as predictors of risk of preterm birth and born baby with low birth weight. Ginekol Pol, 2015, 86: 292-9. PMID:26117989.	Independent variable, study design
28	Bobinski, R., Mikulska, M., Mojska, H. et al. The Dietary Composition of Women Who Delivered Healthy Full-Term Infants, Preterm Infants, and Full-Term Infants Who Were Small for Gestational Age. Biol Res Nurs, 2015, 17: 495-502. PMID:25358685.	Independent variable, study design
29	Borberg, C., Gillmer, M. D., Brunner, E. J. et al. Obesity in pregnancy: the effect of dietary advice. Diabetes Care, 1980, 3: 476-81. PMID:6993162.	Independent variable
30	Borgen, I., Aamodt, G., Harsem, N. et al. Maternal sugar consumption and risk of preeclampsia in nulliparous Norwegian women. Eur J Clin Nutr, 2012, 66: 920-5. PMID:22713766.	Independent variable
31	Bower, D. The influence of dietary salt intake on pre-eclampsia. Journal of obstetrics and gynaecology of the British Commonwealth, 1961, 63: 123-6	Date
32	Bowers, K., Tobias, D. K., Yeung, E. et al. A prospective study of prepregnancy dietary fat intake and risk of gestational diabetes. Am J Clin Nutr, 2012, 95: 446-53. PMID:22218158.	Independent variable

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33	Brantsaeter, A. L., Haugen, M., Myhre, R. et al. Diet matters, particularly in pregnancy â€“ Results from MoBa studies of maternal diet and pregnancy outcomes. Norsk Epidemiologi, 2014, 24: 63-77	Study design
34	Brantsaeter, A. L., Myhre, R., Haugen, M. et al. Intake of probiotic food and risk of preeclampsia in primiparous women: the Norwegian Mother and Child Cohort Study. Am J Epidemiol, 2011, 174: 807-15. PMID:21821542.	Independent variable
35	Breslow, S, Belafsky, Ha, Shangold, Je et al. Control of weight gain in pregnancy: double blind study of a dieting aid. Clinical medicine, 1963, 70: 931-8	Date
36	Brooke, O. G. Low birth weight babies. Nutrition and feeding. Br J Hosp Med, 1982, 28: 462-9. PMID:7171896.	Dependent variable
37	Brooke, O. G. Nutrition in the preterm infant. Lancet, 1983, 1: 514-6. PMID:6131220.	Study subjects
38	Brown, J. E., Kahn, E. S., Hartman, T. J. Profet, profits, and proof: do nausea and vomiting of early pregnancy protect women from harmful vegetables?. Am J Obstet Gynecol, 1997, 176: 179-81. PMID:9024110.	Independent variable
39	Brumfield, C. G., Huddleston, J. F. The management of diabetic ketoacidosis in pregnancy. Clin Obstet Gynecol, 1984, 27: 50-9. PMID:6423330.	Independent variable
40	Bruno, R., Petrella, E., Bertarini, V. et al. Adherence to a lifestyle programme in overweight/obese pregnant women and effect on gestational diabetes mellitus: a randomized controlled trial. Matern Child Nutr, 2016, . PMID:27647837.	Independent variable, study design
41	Buchanan, T. A., Kjos, S. L. Diabetes and pregnancy. Curr Ther Endocrinol Metab, 1994, 5: 278-83. PMID:7704732.	Study design
42	Buul, E, Rijpkema, A, Steegers, E et al. Chronic dietary sodium restriction in pregnancy reduces calcium intake. J Perinat Med, 1992, 20	Independent variable
43	Campbell, Dm. Dietary restriction in obesity and its effect on neonatal outcome. Nutrition in Pregnancy. Proceedings of 10th Study Group of the Rcog; 1983; London, UK, 1983, : 243-50	Not peer-reviewed
44	Canda, M. T., Sezer, O., Demir, N. An audit of seafood consumption awareness during pregnancy and its association with maternal and fetal outcomes in a Turkish population. J Obstet Gynaecol, 2011, 31: 293-7. PMID:21534748.	Independent variable
45	Carmichael, S. L., Yang, W., Shaw, G. M. Maternal dietary nutrient intake and risk of preterm delivery. Am J Perinatol, 2013, 30: 579-88. PMID:23208764.	Independent variable, study design

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46	Carter, J. P., Furman, T., Hutcheson, H. R. Preeclampsia and reproductive performance in a community of vegans. South Med J, 1987, 80: 692-7. PMID:3589760.	Independent variable
47	Carver, Jd, Saste, Md, Sosa, R et al. Dietary nucleotide (NT) effects on superior mesenteric artery (SMA) blood flow in preterm infants. Pediatr Res, 2000, 47	Independent variable
48	C'De Baca, J., Lapham, S. C., Skipper, B. J. et al. Use of computer interview data to test associations between risk factors and pregnancy outcomes. Comput Biomed Res, 1997, 30: 232-43. PMID:9281330.	Independent variable
49	Chamberlain, G. Epidemiology and aetiology of the preterm baby. Clin Obstet Gynaecol, 1984, 11: 297-314. PMID:6478726.	Study design
50	Chandler-Laney, P. C., Schneider, C. R., Gower, B. A. et al. Association of late-night carbohydrate intake with glucose tolerance among pregnant African American women. Matern Child Nutr, 2016, 12: 688-98. PMID:25786515.	Independent variable
51	Chavarro, J. E., Halldorsson, T. I., Leth, T. et al. A prospective study of trans fat intake and risk of preeclampsia in Denmark. Eur J Clin Nutr, 2011, 65: 944-51. PMID:21559043.	Independent variable
52	Chen, C. M., Weng, H. C., Li, Y. C. et al. The evaluation of dietary intervention on the blood glucose level of gestational diabetes mellitus pregnant women. Nutritional Sciences Journal, 1999, 24: 250-261	Language
53	Chen, L., Hu, F. B., Yeung, E. et al. Prospective study of pre-gravid sugar-sweetened beverage consumption and the risk of gestational diabetes mellitus. Diabetes Care, 2009, 32: 2236-41. PMID:19940226.	Independent variable
54	Chong, M. F., Chia, A. R., Colega, M. et al. Maternal Protein Intake during Pregnancy Is Not Associated with Offspring Birth Weight in a Multiethnic Asian Population. J Nutr, 2015, 145: 1303-10. PMID:25948786.	Independent variable
55	Christian, K, Andreas, M, Martin, F. Diet and lifestyle modification in mothers with burnout syndrome: Ayurvedic versus conventional standard counselling-design of a randomised clinical pilot study (VEDA-Trial) [abstract]. European journal of integrative medicine [abstracts of the 5th european congress for integrative medicine; 2012 sept 21-22; flo, 2012, 4: 47-8	Dependent variable
56	Clapp, J. F. Effects of Diet and Exercise on Insulin Resistance during Pregnancy. Metab Syndr Relat Disord, 2006, 4: 84-90. PMID:18370754.	Study design
57	Clausen, T., Slott, M., Solvoll, K. et al. High intake of energy, sucrose, and polyunsaturated fatty acids is associated with increased risk of preeclampsia. Am J Obstet Gynecol, 2001, 185: 451-8. PMID:11518908.	Independent variable

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58	Coelho Nde, L., Cunha, D. B., Esteves, A. P. et al. Dietary patterns in pregnancy and birth weight. Rev Saude Publica, 2015, 49. PMID:26398873.	Study design
59	Cooney, G. Food for thought. Midwives, 2008, 11: 30-1. PMID:24902215.	Study design
60	Cooper, M. L. Stories to learn from: toxemia in pregnancy. Midwifery Today Int Midwife, 2014, : 18-21. PMID:25980103.	Not peer-reviewed
61	Corbett, M. A., Burst, H. V. Nutritional intervention in pregnancy. J Nurse Midwifery, 1983, 28: 23-9. PMID:6554311.	Study design, independent variable
62	Cosgrove, M., Davies, D. P. Poor diet in pregnancy may be a proxy for some other hostile influence on fetal growth [8]. Br Med J, 1996, 312: 1478-1479	Independent variable, study design
63	Costa-Orvay, Ja, Figueras-Aloy, J, Romera, G et al. The effects of varying protein and energy intakes on the growth and body composition of very low birth weight infants. Nutr J, 2011, 10	Independent variable
64	Crozier, S. R., Inskip, H. M., Godfrey, K. M. et al. Nausea and vomiting in early pregnancy: Effects on food intake and diet quality. Matern Child Nutr, 2016, . PMID:27896913.	Dependent variable
65	Dancause, K. N., Mutran, D., Elgbeili, G. et al. Dietary change mediates relationships between stress during pregnancy and infant head circumference measures: the QF2011 study. Matern Child Nutr, 2016, . PMID:27562643.	Independent variable
66	Darling, A. M., Mitchell, A. A., Werler, M. M. Preconceptional Iron Intake and Gestational Diabetes Mellitus. Int J Environ Res Public Health, 2016, 13. PMID:27231921.	Independent variable
67	Davidson, J. K. Newer approaches to diet management of diabetes: calorie control. Med Times, 1980, 108: 35-40. PMID:7374404.	Study design
68	Davies, W. E., Hopkins, P. C., Rose, S. J. et al. The influence of different taurine diets on hearing development in normal babies. A preliminary report. Adv Exp Med Biol, 1996, 403: 631-7. PMID:8915404.	Independent variable
69	Davison, J. M., Lindheimer, M. D. Pregnancy in renal transplant recipients. J Reprod Med, 1982, 27: 613-21. PMID:6757420.	Health status
70	Dawn, Cs. Effects of substandard prenatal diet and nutrition on the development and incidence of pre-eclampsia of pregnancy. J Obstet Gynaecol India, 1961, 12: 237-45	Date
71	de Seymour, J., Chia, A., Colega, M. et al. Maternal Dietary Patterns and Gestational Diabetes Mellitus in a Multi-Ethnic Asian Cohort: The GUSTO Study. Nutrients, 2016, 8. PMID:27657116.	Study design

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72	Deka, D., Sharma, N. Nutrition in pregnancy and lactation. Perinatology, 2005, 7: 1-15	Study design
73	Delemarre, F. M., van Leest, L. A., Jongsma, H. W. et al. Effect of low-sodium diet on uteroplacental circulation. J Matern Fetal Med, 2000, 9: 197-200. PMID:11048827.	Independent variable
74	Demmelmair, H, Klingler, M, Campoy, C et al. The influence of habitual diet and increased docosahexaenoic acid intake during pregnancy on the fatty acid composition of individual placental lipids [Study design]. J Pediatr Gastroenterol Nutr, 2005, 40: 622-3	Study design
75	Deveer, R., Deveer, M., Akbaba, E. et al. The effect of diet on pregnancy outcomes among pregnant with abnormal glucose challenge test. Eur Rev Med Pharmacol Sci, 2013, 17: 1258-61. PMID:23690197.	Independent variable
76	Dieckmann, Wj, Davis, Me, Rynkiewicz, Lm et al. Does the administration of diethylstilbestrol during pregnancy have therapeutic value?. Am J Obstet Gynecol, 1953, 66: 1062-75	Date
77	Diet & nutrition. Good news: caffeine in pregnancy doesn't affect the baby's growth..and folic acid seems to prevent cleft lip. Child Health Alert, 2007, 25: 5-6. PMID:17443983.	Not peer-reviewed
78	Dodd, J. M., Deussen, A. R., Mohamad, I. et al. The effect of antenatal lifestyle advice for women who are overweight or obese on secondary measures of neonatal body composition: The LIMIT randomised trial. BJOG: An International Journal of Obstetrics and Gynaecology, 2016, 123: 244-253	Independent variable
79	Dodd, J. M., McPhee, A. J., Turnbull, D. et al. The effects of antenatal dietary and lifestyle advice for women who are overweight or obese on neonatal health outcomes: the LIMIT randomised trial. BMC Med, 2014, 12. PMID:25315325.	Independent variable
80	Dominguez, L. J., Martinez-Gonzalez, M. A., Basterra-Gortari, F. J. et al. Fast food consumption and gestational diabetes incidence in the SUN project. PLoS One, 2014, 9. PMID:25215961.	Independent variable
81	Donnelly, J, Horan, M, Walsh, J et al. Impact of a Low GI Diet on Neonatal Body Composition [ROLO Kids]. Pediatric Academic Societies Annual Meeting, 2013,	Not peer-reviewed
82	Donnelly, J. M., Walsh, J. M., Byrne, J. et al. Impact of maternal diet on neonatal anthropometry: a randomized controlled trial. Pediatr Obes, 2015, 10: 52-6. PMID:24443392.	Independent variable
83	Doyle, W. Maternal nutrition and low birth weight. J Fam Health Care, 2002, 12. PMID:12630147.	Study design
84	Doyle, W., Crawford, M. A., Wynn, A. H. A. et al. Maternal nutrient intake and birth-weight. Journal of Human Nutrition and Dietetics, 1989, 2: 415-422	Independent variable

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85	Drake, A. J., McPherson, R. C., Godfrey, K. M. et al. An unbalanced maternal diet in pregnancy associates with offspring epigenetic changes in genes controlling glucocorticoid action and foetal growth. Clin Endocrinol (Oxf), 2012, 77: 808-15. PMID:22642564.	Dependent variable
86	Drouillet, P., Kaminski, M., De Lauzon-Guillain, B. et al. Association between maternal seafood consumption before pregnancy and fetal growth: evidence for an association in overweight women. The EDEN mother-child cohort. Paediatr Perinat Epidemiol, 2009, 23: 76-86. PMID:19228317.	Independent variable
87	Dubois, S., Coulombe, C., Pencharz, P. et al. Ability of the Higgins Nutrition Intervention Program to improve adolescent pregnancy outcome. J Am Diet Assoc, 1997, 97: 871-8. PMID:9259709.	Independent variable
88	Dunn, C., Kolasa, K., Dunn, P. C. et al. Dietary intake of pregnant adolescents in a rural southern community. J Am Diet Assoc, 1994, 94: 1040-1. PMID:8071488.	Independent variable, dependent variable
89	Ebbs, Jh, Tisdall, Ff, Scott, Wa. The influence of prenatal diet on the mother and child. Journal of Nutrition, 1941, 22: 515-26	Date
90	Elmacioglu, F., Surucu, B., Alper, T. et al. Is adequate and balanced nutrition during pregnancy more effective than iron and folic acid supplements?. Central European Journal of Medicine, 2010, 5: 235-242	Dependent variable
91	Ershoff, Dh, Aaronson, Nk, Danaher, Bg et al. Behavioral, health, and cost outcomes of an HMO based prenatal health education program. Public health reports, 1983, 98: 536-47	Independent variable
92	Ershoff, D. H., Aaronson, N. K., Danaher, B. G. et al.. Behavioral, health, and cost outcomes of an HMO-based prenatal health education program. Public Health Rep, 1983, 98: 536-47. PMID:6419268.	Duplicate
93	Eshriqui, I., Vilela, A. A., Rebelo, F. et al. Gestational dietary patterns are not associated with blood pressure changes during pregnancy and early postpartum in a Brazilian prospective cohort. Eur J Nutr, 2016, 55: 21-32. PMID:25526968.	Dependent variable
94	Fairburn, C. G., Stein, A., Jones, R. Eating habits and eating disorders during pregnancy. Psychosom Med, 1992, 54: 665-72. PMID:1454960.	Independent variable
95	Farbu, J., Haugen, M., Meltzer, H. M. et al. Impact of singlehood during pregnancy on dietary intake and birth outcomes- a study in the Norwegian Mother and Child Cohort Study. BMC Pregnancy Childbirth, 2014, 14. PMID:25475509.	Independent variable

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96	Fard, N Mehrabian F Sarraf-Zadegan NS. Fat-modified diets during pregnancy and lactation and serum lipids after birth. Indian J Pediatr, 2004, 71: 683-7	Country
97	Farland, L. V., Rifas-Shiman, S. L., Gillman, M. W. Early Pregnancy Cravings, Dietary Intake, and Development of Abnormal Glucose Tolerance. J Acad Nutr Diet, 2015, 115. PMID:26099686.	Study design, independent variable
98	Ferland, S., O'Brien, H. T. Maternal dietary intake and pregnancy outcome. J Reprod Med, 2003, 48: 86-94. PMID:12621791.	Independent variable
99	Flynn, A. C., Seed, P. T., Patel, N. et al. Dietary patterns in obese pregnant women; influence of a behavioral intervention of diet and physical activity in the UPBEAT randomized controlled trial. Int J Behav Nutr Phys Act, 2016, 13. PMID:27894316.	Health status
100	Ford, J. H. Preconception risk factors and SGA babies: Papilloma virus, omega 3 and fat soluble vitamin deficiencies. Early Hum Dev, 2011, 87: 785-9. PMID:21705161.	Independent variable
101	Fowles, E. R., Gabrielson, M. First trimester predictors of diet and birth outcomes in low-income pregnant women. J Community Health Nurs, 2005, 22: 117-30. PMID:15877540.	Independent variable, study design
102	Fraser, R. B., Ford, F. A., Milner, R. D. G. A controlled trial of a high dietary fibre intake in pregnancy-effects in plasma glucose and insulin levels. Diabetologia, 1983, 25: 238-241	Independent variable
103	Fraser, Rb. High fibre diets in pregnancy. Nutrition in Pregnancy. Proceedings of 10th Study Group of the Royal College of Obstetricians and Gynaecologists; 1982 September, 1983, : 269-80	Independent variable, not peer reviewed
104	Garratt, F. N. Pre-eclampsia: a challenge to public health teams worldwide to ensure that maternal diets contain adequate levels of folic acid, n3 polyunsaturated fatty acids and vitamin D at conception. Public Health, 2009, 123: 95-6. PMID:19058819.	Study design
105	Gennaro, S., Biesecker, B., Fantasia, H. C. et al. Nutrition profiles of African [corrected] American women in the third trimester. MCN Am J Matern Child Nurs, 2011, 36: 120-6. PMID:21350375.	Independent variable, dependent variable
106	Gerrard, J., Popeski, D., Ebbeling, L. et al. Dietary omega 3 fatty acids and gestational hypertension in the Inuit. Arctic Med Res, 1991, : 763-7. PMID:1365294.	Independent variable, study design

	Citation	Rationale
107	Gesteiro, E., Rodriguez Bernal, B., Bastida, S. et al. Maternal diets with low healthy eating index or Mediterranean diet adherence scores are associated with high cord-blood insulin levels and insulin resistance markers at birth. Eur J Clin Nutr, 2012, 66: 1008-15. PMID:22828732.	Dependent variable
108	Ghebremeskel, K., Leighfield, M., Ashwell, M. et al. Infant brain lipids and diet [1]. Lancet, 1992, 340: 1093-1094	Dependent variable
109	Gillen, L., Tapsell, L. C., Martin, G. S. et al. The type and frequency of consumption of carbohydrate-rich foods may play a role in the clinical expression of insulin resistance during pregnancy. Dietetics, 2002, 59: 135-143	Dependent variable
110	Glueck, C. J., Goldenberg, N., Pranikoff, J. et al. Effects of metformin-diet intervention before and throughout pregnancy on obstetric and neonatal outcomes in patients with polycystic ovary syndrome. Curr Med Res Opin, 2013, 29: 55-62. PMID:23205605.	Health status
111	Godfrey, K., Robinson, S., Barker, D. J. et al. Maternal nutrition in early and late pregnancy in relation to placental and fetal growth. Bmj, 1996, 312: 410-4. PMID:8601112.	Independent variable
112	Grant, S. M., Wolever, T. M., O'Connor, D. L. et al. Effect of a low glycaemic index diet on blood glucose in women with gestational hyperglycaemia. Diabetes Res Clin Pract, 2011, 91: 15-22. PMID:21094553.	Independent variable
113	Gray-Donald, K., Robinson, E., Collier, A. et al. Intervening to reduce weight gain in pregnancy and gestational diabetes mellitus in Cree communities: an evaluation. Cmaj, 2000, 163: 1247-51. PMID:11107459.	Independent variable
114	Grivell, R. M., Yelland, L. N., Deussen, A. et al. Antenatal dietary and lifestyle advice for women who are overweight or obese and the effect on fetal growth and adiposity: the LIMIT randomised trial. Bjog, 2016, 123: 233-43. PMID:26841216.	Independent variable
115	Guilloty, N. I., Soto, R., Anzalota, L. et al. Diet, Pre-pregnancy BMI, and Gestational Weight Gain in Puerto Rican Women. Matern Child Health J, 2015, 19: 2453-61. PMID:26100133.	Independent variable, dependent variable
116	Guldner, L., Monfort, C., Rouget, F. et al. Maternal fish and shellfish intake and pregnancy outcomes: a prospective cohort study in Brittany, France. Environ Health, 2007, 6. PMID:17958907.	Independent variable
117	Gupta, A. P., Bhandari, B., Gupta, A. et al. Stool pH and sugar in preterm neonates. Indian J Pediatr, 1984, 51: 391-3. PMID:6526446.	Independent variable

	Citation	Rationale
118	Haas, A. V. Diet du jour! Pregnancy and popular diets. Midwifery Today Int Midwife, 2014, : 53-5. PMID:25975083.	Study design, non peer-reviewed
119	Haggarty, P., Campbell, D. M., Duthie, S. et al. Diet and deprivation in pregnancy. Br J Nutr, 2009, 102: 1487-97. PMID:19682400.	Independent variable
120	Halldorsson, T. I., Thorsdottir, I., Meltzer, H. M. et al. Dioxin-like activity in plasma among Danish pregnant women: dietary predictors, birth weight and infant development. Environ Res, 2009, 109: 22-8. PMID:18945425.	Independent variable
121	Halldorsson, T. I., Thorsdottir, I., Meltzer, H. M. et al. Linking exposure to polychlorinated biphenyls with fatty fish consumption and reduced fetal growth among Danish pregnant women: a cause for concern?. Am J Epidemiol, 2008, 168: 958-65. PMID:18718897.	Independent variable
122	Hankin, Me, Symonds, Em. Body weight, diet and pre-eclamptic toxaemia of pregnancy. gynaecology, 1962, 4: 156-60	Date
123	Harper, V., MacInnes, R., Campbell, D. et al. Increased birth weight in northerly islands: is fish consumption a red herring?. Bmj, 1991, 303. PMID:1878642.	Independent variable
124	Hatfield, Hm, Dunstan, Ja, Hayes, L et al. Dietary N-3 polyunsaturated fatty acid (PUFA) supplementation during pregnancy is associated with changes in cord blood (CB) progenitor numbers and responsiveness to IL-5 in infants at risk of atopy [Abstract]. Journal of allergy and clinical immunology, 2003, 111	Study design
125	Haugen, M., Brantsaeter, A. L., Trogstad, L. et al. Vitamin D supplementation and reduced risk of preeclampsia in nulliparous women. Epidemiology, 2009, 20: 720-6. PMID:19451820.	Independent variable
126	Hayashi, Tt, Phitaksphraiwan, P, Willson, Jr. Effects of diet and diuretic agents in pregnancy toxemias. Obstet Gynecol, 1963, 22: 327-34	Date
127	Healthy diet halves the risk of diabetes after pregnancy. Kidney Care, 2013, 10: 6-6	Dependent variable
128	Hegsted, D. M. What is a healthful diet?. Prim Care, 1982, 9: 445-73. PMID:6924383.	Dependent variable
129	Heim, T. Energy and lipid requirements of the fetus and the preterm infant. J Pediatr Gastroenterol Nutr, 1983, . PMID:6417303.	Independent variable, study design
130	Hellmuth, C., Lindsay, K. L., Uhl, O. et al. Association of maternal prepregnancy BMI with metabolomic profile across gestation. Int J Obes (Lond), 2017, 41: 159-169. PMID:27569686.	Dependent variable

	Citation	Rationale
131	Hennessy, M. D., Volpe, S. L., Sammel, M. D. et al. Skipping meals and less walking among African Americans diagnosed with preterm labor. J Nurs Scholarsh, 2010, 42: 147-55. PMID:20618599.	Independent variable
132	Heppe, D. H., Steegers, E. A., Timmermans, S. et al. Maternal fish consumption, fetal growth and the risks of neonatal complications: the Generation R Study. Br J Nutr, 2011, 105: 938-49. PMID:21266095.	Independent variable
133	Hernandez-Diaz, S., Boeke, C. E., Romans, A. T. et al. Triggers of spontaneous preterm delivery--why today?. Paediatr Perinat Epidemiol, 2014, 28: 79-87. PMID:24384058.	Independent variable, study design
134	Herrera, Mg, Mora, Jo, Paredes, B et al. Maternal weight/height and the effect of food supplementation during pregnancy and lactation. Maternal Nutrition during Pregnancy and Lactation. A Nestle Foundation Workshop; 1979 April 26-27; Lausanne Switzerland, 1980, : 252-63	Independent variable, not peer reviewed
135	Hoff, C., Wertelecki, W., Reyes, E. et al. Diet, blood pressure, and hematologic variables of nulliparous women attending a prenatal clinic. Obstet Gynecol, 1986, 67: 868-72. PMID:3703412.	Independent variable
136	Hoffman, D, Uauy, R, Birch, D et al. Essentiality of dietary docosahexaenoic acid (dha) for optimal visual maturation in preterm infants: plasma and red blood cell (rbc) fatty acid profiles. Iovs, 1992, 33	Dependent variable
137	Hoffman, Dr, Uauy, R. Essentiality of dietary n-3 fatty acids for premature infants; plasma and red blood cell fatty acid composition. Lipids, 1992, 27: 886-95	Independent variable
138	Hollingsworth, D. R., Ney, D., Stubblefield, N. et al. Metabolic and therapeutic assessment of gestational diabetes by two-hour and twenty-four-hour isocaloric meal tolerance tests. Diabetes, 1985, : 81-7. PMID:3888746.	Dependent variable
139	Hook, E. B. Influence of pregnancy on dietary selection. Int J Obes, 1980, 4: 338-40. PMID:7419353.	Study design
140	Horan, M. K., McGowan, C. A., Gibney, E. R. et al. Maternal low glycaemic index diet, fat intake and postprandial glucose influences neonatal adiposity--secondary analysis from the ROLO study. Nutr J, 2014, 13. PMID:25084967.	Independent variable

	Citation	Rationale
141	Horan, M. K., McGowan, C. A., Gibney, E. R. et al. Maternal Nutrition and Glycaemic Index during Pregnancy Impacts on Offspring Adiposity at 6 Months of Age--Analysis from the ROLO Randomised Controlled Trial. Nutrients, 2016, 8. PMID:26742066.	Independent variable, dependent variable
142	Horan, M. K., McGowan, C. A., Gibney, E. R. et al. Maternal nutrition and glycaemic index during pregnancy impacts on offspring adiposity at 6 months of ageâ€"analysis from the ROLO randomised controlled trial. Nutrients, 2016, 8.	Duplicate
143	Huh, S. Y., Rifas-Shiman, S. L., Kleinman, K. P. et al. Maternal protein intake is not associated with infant blood pressure. Int J Epidemiol, 2005, 34: 378-84. PMID:15576466.	Independent variable
144	Hui, A. L., Ludwig, S. M., Gardiner, P. et al. Community-based exercise and dietary intervention during pregnancy: A pilot study. Canadian Journal of Diabetes, 2006, 30: 169-175	Independent variable
145	Hui, A., Back, L., Ludwig, S. et al. Lifestyle intervention on diet and exercise reduced excessive gestational weight gain in pregnant women under a randomized controlled trial. Obstetrical and Gynecological Survey, 2012, 67: 263-264	Independent variable
146	Iyengar, L. Effects of dietary supplements late in pregnancy on the expectant mother and her newborn. Indian Journal of Medical Research, 1967, 55: 85-9	Date
147	Jedrychowski, W., Perera, F., Mrozek-Budzyn, D. et al. Higher fish consumption in pregnancy may confer protection against the harmful effect of prenatal exposure to fine particulate matter. Ann Nutr Metab, 2010, 56: 119-26. PMID:20134157.	Independent variable
148	Jing, W., Huang, Y., Liu, X. et al. The effect of a personalized intervention on weight gain and physical activity among pregnant women in China. Int J Gynaecol Obstet, 2015, 129: 138-41. PMID:25697965.	Independent variable
149	Johnson, A. A., Knight, E. M., Edwards, C. H. et al. Dietary intakes, anthropometric measurements and pregnancy outcomes. J Nutr, 1994, 124. PMID:8201444.	Independent variable
150	Jovanovic-Peterson, L, Durak, Ep, Peterson, Cm. Randomized trial of diet vs diet plus cardiovascular conditioning on glucose levels in gestational diabetes. Am J Obstet Gynecol, 1989, 161: 415-9	Health status
151	Jovanovic-Peterson, L., Peterson, C. M. Turning point in the management of pregnancies complicated by diabetes. Normoglycemia with self blood glucose monitoring of diet and insulin dosing. ASAIO Trans, 1990, 36: 799-804. PMID:2268482.	Independent variable, study design
152	Jowett, N. I., Nichol, S. G. Diabetic pregnancy. Midwives Chron, 1987, 100: 33-6. PMID:3645266.	Study design

	Citation	Rationale
153	Kafatos, A. G., Vlachonikolis, I. G., Codrington, C. A. Nutrition during pregnancy: the effects of an educational intervention program in Greece. Am J Clin Nutr, 1989, 50: 970-9. PMID:2816804.	Independent variable
154	Kalhan, S. C., Tserng, K. Y., Gilfillan, C. et al. Metabolism of urea and glucose in normal and diabetic pregnancy. Metabolism, 1982, 31: 824-33. PMID:7098852.	Dependent variable
155	Kaseb, F., Kimiagar, M., Ghafarpoor, M. et al. Effect of traditional food supplementation during pregnancy on maternal weight gain and birthweight. Int J Vitam Nutr Res, 2002, 72: 389-93. PMID:12596505.	Independent variable
156	Kelleher, C. C., Viljoen, K., Khalil, H. et al. Longitudinal follow-up of the relationship between dietary intake and growth and development in the Lifeways cross-generation cohort study 2001-2013. Proc Nutr Soc, 2014, 73: 118-31. PMID:24300176.	Study design
157	Kesmodel, U., Olsen, S. F., Salvig, J. D. Marine n-3 fatty acid and calcium intake in relation to pregnancy induced hypertension, intrauterine growth retardation, and preterm delivery. A case-control study. Acta Obstet Gynecol Scand, 1997, 76: 38-44. PMID:9033242.	Independent variable
158	Khoury, J, Haugen, G, Tonstad, S et al. Effect of an antiatherogenic diet on maternal and fetal Doppler velocimetry: a randomized clinical trial. 35th Nordic Congress of Obstetrics and Gynecology; 2006 May 23-25; Goteburg, Sweden, 2008,	Not peer-reviewed
159	Khoury, J, Henriksen, T, Seljeflot, I et al. Effects of a cholesterol-lowering diet during pregnancy on cardiovascular risk factors and pregnany outcome: a randomized clinical trial [Study design]. Atherosclerosis. Supplements, 2006, 7	Study design
160	Khoury, J., Haugen, G., Tonstad, S. et al. Effect of a cholesterol-lowering diet during pregnancy on maternal and fetal Doppler velocimetry: the CARRDIP study. Am J Obstet Gynecol, 2007, 196. PMID:17547890.	Independent variable
161	Kinnunen, T. I., Pasanen, M., Aittasalo, M. et al. Preventing excessive weight gain during pregnancy - a controlled trial in primary health care. Eur J Clin Nutr, 2007, 61: 884-91. PMID:17228348.	Independent variable
162	Kinnunen, T. I., Puhkala, J., Raitanen, J. et al. Effects of dietary counselling on food habits and dietary intake of Finnish pregnant women at increased risk for gestational diabetes - a secondary analysis of a cluster-randomized controlled trial. Matern Child Nutr, 2014, 10: 184-97. PMID:22735030.	Independent variable, dependent variable

	Citation	Rationale
163	Kizirian, N. V., Kong, Y., Muirhead, R. et al. Effects of a low-glycemic index diet during pregnancy on offspring growth, body composition, and vascular health: a pilot randomized controlled trial. Am J Clin Nutr, 2016, 103: 1073-82. PMID:26936333.	Independent variable
164	Klebanoff, M. A., Harper, M., Lai, Y. et al. Fish consumption, erythrocyte fatty acids, and preterm birth. Obstet Gynecol, 2011, 117: 1071-7. PMID:21508745.	Independent variable
165	Knudsen, V. K., Heitmann, B. L., Halldorsson, T. I. et al. Maternal dietary glycaemic load during pregnancy and gestational weight gain, birth weight and postpartum weight retention: a study within the Danish National Birth Cohort. Br J Nutr, 2013, 109: 1471-8. PMID:22906835.	Independent variable
166	Knuist, M., Bonsel, G. J., Zondervan, H. A. et al. Low sodium diet and pregnancy-induced hypertension: a multi-centre randomised controlled trial. Br J Obstet Gynaecol, 1998, 105: 430-4. PMID:9609271.	Independent variable
167	Koivusalo, S. B., Rono, K., Klemetti, M. M. et al. Gestational Diabetes Mellitus Can Be Prevented by Lifestyle Intervention: The Finnish Gestational Diabetes Prevention Study (RADIEL): A Randomized Controlled Trial. Diabetes Care, 2016, 39: 24-30. PMID:26223239.	Independent variable
168	Kokanali, M. K., Tokmak, A., Kaymak, O. et al. The effect of treatment on pregnancy outcomes in women with one elevated oral glucose tolerance test value. Ginekol Pol, 2014, 85: 748-53. PMID:25546925.	Independent variable
169	Kolu, P., Raitanen, J., Rissanen, P. et al. Cost-effectiveness of lifestyle counselling as primary prevention of gestational diabetes mellitus: findings from a cluster-randomised trial. PLoS One, 2013, 8. PMID:23457562.	Independent variable
170	Korpi-Hyovalti, E., Schwab, U., Laaksonen, D. E. et al. Effect of intensive counselling on the quality of dietary fats in pregnant women at high risk of gestational diabetes mellitus. Br J Nutr, 2012, 108: 910-7. PMID:22093485.	Independent variable
171	Kubota, K., Itoh, H., Tasaka, M. et al. Changes of maternal dietary intake, bodyweight and fetal growth throughout pregnancy in pregnant Japanese women. J Obstet Gynaecol Res, 2013, 39: 1383-90. PMID:23815608.	Independent variable
172	Kumar, P., Nangia, S., Saili, A. et al. Growth and morbidity patterns of exclusively breast-fed preterm babies. Indian Pediatr, 1999, 36: 296-300. PMID:10713842.	Dependent variable
173	Lakin, V., Haggarty, P., Abramovich, D. R. et al. Dietary intake and tissue concentration of fatty acids in omnivore, vegetarian and diabetic pregnancy. Prostaglandins Leukot Essent Fatty Acids, 1998, 59: 209-20. PMID:9844995.	Independent variable

	Citation	Rationale
174	Langley-Evans, A. J., Langley-Evans, S. C. Relationship between maternal nutrient intakes in early and late pregnancy and infants weight and proportions at birth: prospective cohort study. J R Soc Promot Health, 2003, 123: 210-6. PMID:14669495.	Independent variable
175	Laraia, B. A., Siega-Riz, A. M., Kaufman, J. S. et al. Proximity of supermarkets is positively associated with diet quality index for pregnancy. Prev Med, 2004, 39: 869-75. PMID:15475018.	Dependent variable
176	Latva-Pukkila, U., Isolauri, E., Laitinen, K. Dietary and clinical impacts of nausea and vomiting during pregnancy. J Hum Nutr Diet, 2010, 23: 69-77. PMID:19943842.	Dependent variable
177	Leblance, H., Passa, P. Diabetes and pregnancy. Revue du Praticien - Medecine Generale, 1992, 6: 577-582	Study design, language
178	Lechtig, A, Habicht, Jp, Delgado, H et al. Effect of food supplementation during pregnancy on birthweight. Pediatrics, 1975, 56: 508-20	Date
179	Lenders, C. M., Hediger, M. L., Scholl, T. O. et al. Gestational age and infant size at birth are associated with dietary sugar intake among pregnant adolescents. J Nutr, 1997, 127: 1113-7. PMID:9187625.	Independent variable
180	Ley, S. H., Hanley, A. J., Retnakaran, R. et al. Effect of macronutrient intake during the second trimester on glucose metabolism later in pregnancy. Am J Clin Nutr, 2011, 94: 1232-40. PMID:21955650.	Independent variable, study design
181	L'Heureux, J. Got sugar? Tips on preventing diabetes. Posit Living, 2002, 11: 12-4. PMID:12083048.	Study design
182	Li, S., Zhu, Y., Chavarro, J. E. et al. Healthful Dietary Patterns and the Risk of Hypertension Among Women With a History of Gestational Diabetes Mellitus: A Prospective Cohort Study. Hypertension, 2016, 67: 1157-65. PMID:27091899.	Dependent variable
183	Lilja, G, Dannaeus, A, Foucard, T et al. Effects of maternal diet during late pregnancy and lactation on the development of atopic disease in infants up to 18 months of age - in-vivo results. Clinical and Experimental Allergy, 1989, 19: 473-9	Dependent variable
184	Liu, X., Lv, L., Zhang, H. et al. Folic acid supplementation, dietary folate intake and risk of preterm birth in China. European Journal of Nutrition, 2016, 55: 1411-1422	Independent variable, study design
185	Lorber, D. Gestational diabetes: The hidden epidemic. Female Patient - Practical Ob/Gyn Medicine, 1990, 15: 15-25	Study design

	Citation	Rationale
186	Luoto, R, Nermes, M, Laitinen, K et al. Impact of Maternal Probiotic-Supplemented Dietary Counselling on Pregnancy Outcome and Prenatal and Postnatal Growth: A Double-Blind, Placebo-Controlled Study. Pediatric Academic Societies Annual Meeting; 2009 May 2 5; Baltimore MD, United States, 2009,	Not peer-reviewed
187	MacGillivray, I. Aetiology of pre-eclampsia. Br J Hosp Med, 1981, 26. PMID:7296126.	Independent variable, study design
188	MacNeill, S., Dodds, L., Hamilton, D. C. et al. Rates and risk factors for recurrence of gestational diabetes. Diabetes Care, 2001, 24: 659-62. PMID:11315827.	Independent variable
189	Mahony, R, Byrne, J, Curran, S et al. A pilot study of the feasibility of a randomised trial of low glycaemic diet versus normal diet from early pregnancy in euglycaemic women. Arch Dis Child Fetal Neonatal Ed, 2008, 93	Not peer-reviewed
190	Makela, J., Lagstrom, H., Kaljonen, A. et al. Hyperglycemia and lower diet quality in pregnant overweight women and increased infant size at birth and at 13 months of age--STEPS study. Early Hum Dev, 2013, 89: 439-44. PMID:23375946.	Study design
191	Maresh, M, Alderson, C, Beard, Rw et al. Comparison of insulin against diet treatment in the management of abnormal carbohydrate tolerance in pregnancy. Nutrition in Pregnancy. Proceedings of 10th Study Group of the Rcog; 1983, 1983, : 255-67	Independent variable, not peer reviewed
192	Mariscal-Arcas, M., Rivas, A., Monteagudo, C. et al. Proposal of a Mediterranean diet index for pregnant women. Br J Nutr, 2009, 102: 744-9. PMID:19243664.	Dependent variable
193	Markovic, T. P., Muirhead, R., Overs, S. et al. Randomized Controlled Trial Investigating the Effects of a Low-Glycemic Index Diet on Pregnancy Outcomes in Women at High Risk of Gestational Diabetes Mellitus: The GI Baby 3 Study. Diabetes Care, 2016, 39: 31-8. PMID:26185283.	Independent variable
194	Marshall, J. Infant feeding: 8. Breastfeeding premature babies. Pract Midwife, 2013, 16. PMID:23789255.	Dependent variable
195	Martin, C. L., Siega-Riz, A. M., Sotres-Alvarez, D. et al. Maternal Dietary Patterns are Associated with Lower Levels of Cardiometabolic Markers during Pregnancy. Paediatr Perinat Epidemiol, 2016, 30: 246-55. PMID:26848932.	Study design
196	Maten, Gd, Hammen, Rm, Visman, L et al. Effects of a sodium restricted diet during pregnancy on maternal blood pressure and zinc status. J Perinat Med, 1992, 20	Independent variable

	Citation	Rationale
197	Mathews, F., Yudkin, P., Neil, A. Influence of maternal nutrition on outcome of pregnancy: prospective cohort study. Bmj, 1999, 319: 339-43. PMID:10435950.	Independent variable
198	Mathewson, M. Women diagnosed with pregnancy-induced hypertension (pre-eclampsia) should be placed on sodium restricted diets. Crit Care Nurse, 1983, 3. PMID:6552952.	Study design
199	McFadyen, A. Intervention in mothers with eating disorders and their babies (controlled trial). National Research Register, 2000,	Not peer-reviewed
200	McGowan, C. A., Walsh, J. M., Byrne, J. et al. The influence of a low glycemic index dietary intervention on maternal dietary intake, glycemic index and gestational weight gain during pregnancy: a randomized controlled trial. Nutr J, 2013, 12. PMID:24175958.	Independent variable
201	McGuire, Mk, Burgert, Sl, Milner, Ja et al. Selenium status of infants is influenced by supplementation of formula or maternal diets. American Journal of Clinical Nutrition, 1993, 58: 643-8	Independent variable
202	Meinila, J., Koivusalo, S. B., Valkama, A. et al. Nutrient intake of pregnant women at high risk of gestational diabetes. Food Nutr Res, 2015, 59. PMID:25994096.	Dependent variable
203	Meinila, J., Valkama, A., Koivusalo, S. B. et al. Healthy Food Intake Index (HFII) - Validity and reproducibility in a gestational-diabetes-risk population. BMC Public Health, 2016, 16. PMID:27475905.	Dependent variable
204	Meltzer, H. M., Brantsaeter, A. L., Nilsen, R. M. et al. Effect of dietary factors in pregnancy on risk of pregnancy complications: results from the Norwegian Mother and Child Cohort Study. Am J Clin Nutr, 2011, 94. PMID:21543541.	Study design
205	Mendelson, R., Dollard, D., Hall, P. et al. The impact of the Healthiest Babies Possible Program on maternal diet and pregnancy outcome in underweight and overweight clients. J Can Diet Assoc, 1991, 52: 229-34. PMID:10116012.	Independent variable
206	Mendez, M. A., Plana, E., Guxens, M. et al. Seafood consumption in pregnancy and infant size at birth: results from a prospective Spanish cohort. J Epidemiol Community Health, 2010, 64: 216-22. PMID:19710045.	Independent variable
207	Mestman, J. H. Outcome of diabetes screening in pregnancy and perinatal morbidity in infants of mothers with mild impairment in glucose tolerance. Diabetes Care, 1980, 3: 447-52. PMID:7389561.	Independent variable
208	Mikkelsen, T. B., Osler, M., Orozova-Bekkevold, I. et al. Association between fruit and vegetable consumption and birth weight: a prospective study among 43,585 Danish women. Scand J Public Health, 2006, 34: 616-22. PMID:17132595.	Independent variable

	Citation	Rationale
209	Mikode, M. S., White, A. A. Dietary assessment of middle-income pregnant women during the first, second, and third trimesters. J Am Diet Assoc, 1994, 94: 196-9. PMID:8300999.	Independent variable
210	Misra, A., Ray, S., Patrikar, S. A longitudinal study to determine association of various maternal factors with neonatal birth weight at a tertiary care hospital. Med J Armed Forces India, 2015, 71: 270-3. PMID:26288495.	Country
211	Mitchell, J., Mackerras, D. The traditional humoral food habits of pregnant Vietnamese-Australian women and their effect on birth weight. Aust J Public Health, 1995, 19: 629-33. PMID:8616205.	Independent variable
212	Mohanty, A. F., Thompson, M. L., Burbacher, T. M. et al. Periconceptional Seafood Intake and Fetal Growth. Paediatr Perinat Epidemiol, 2015, 29: 376-87. PMID:26147526.	Independent variable
213	Moldenhauer, J, Guo, S, Liang, R et al. Dietary intake levels of the antioxidants vitamin c and vitamin e are adequately achieved with standard prenatal vitamin supplementation in high risk pregnancy groups [abstract]. Am J Obstet Gynecol, 2002, 187	Not peer-reviewed
214	Moore, V. M., Davies, M. J., Willson, K. J. et al. Dietary composition of pregnant women is related to size of the baby at birth. J Nutr, 2004, 134: 1820-6. PMID:15226475.	Independent variable
215	Morley, R, Lucas, A. Randomised diet in the neonatal period and growth performance until 7.5-8 y of age in preterm children. American Journal of Clinical Nutrition, 2000, 71: 822-8	Dependent variable
216	Morley, R., Lucas, A. Early diet and outcome in prematurely born. Clinical Nutrition, 1993, 12: 6-11	Independent variable, health status
217	Morrison, Ra, Brien, Pms, Micklewright, A. The effect of dietary supplementation with linoleic acid on the development of pregnancy induced hypertension. 4th World Congress of the International Society for the Study of Hypertension in Pregnancy;1984 June 18-21; Amsterdam, the Neth, 1984,	Not peer-reviewed
218	Morrison, Ra, Brien, Pms. The effect of dietary supplementation with prostaglandin precursors in pregnancy induced hypertension (PIH). 5th International Congress of the International Society for the Study of Hypertension in Pregnancy; 1986 7-10 July, Nottingham,, 1986,	Not peer-reviewed
219	Morton, N. E., Gulbrandsen, C. L., Rao, D. C. et al. Determinants of blood pressure in Japanese-American Families. Hum Genet, 1980, 53: 261-6. PMID:7358393.	Independent variable, health status

	Citation	Rationale
220	Moses, R. G., Casey, S. A., Quinn, E. G. et al. Pregnancy and Glycemic Index Outcomes study: effects of low glycemic index compared with conventional dietary advice on selected pregnancy outcomes. Am J Clin Nutr, 2014, 99: 517-23. PMID:24351875.	Independent variable
221	Moses, R. G., Luebcke, M., Davis, W. S. et al. Effect of a low-glycemic-index diet during pregnancy on obstetric outcomes. Am J Clin Nutr, 2006, 84: 807-12. PMID:17023707.	Independent variable
222	Moses, R. G., Luebke, M., Petocz, P. et al. Maternal diet and infant size 2 y after the completion of a study of a low-glycemic-index diet in pregnancy [5]. American Journal of Clinical Nutrition, 2007, 86	Duplicate
223	Moses, Rg, Luebke, M, Petocz, P et al. Maternal diet and infant size 2 y after the completion of a study of a low-glycemic-index diet in pregnancy. American Journal of Clinical Nutrition, 2007, 86	Dependent variable
224	Moss, J. L., Harris, K. M. Impact of maternal and paternal preconception health on birth outcomes using prospective couples' data in Add Health. Arch Gynecol Obstet, 2015, 291: 287-98. PMID:25367598.	Independent variable
225	Mullaney, Laura, Brennan, Aisling, Cawley, Shona et al. Relationship between fasting plasma glucose levels and maternal food group and macronutrient intakes in pregnancy. Dietetics, 2016, 73: 441-447	Independent variable
226	Munson, M., Saatkamp, R., West, C. Late preterm infants: steps to success. Neonatal Netw, 2011, 30: 267-70. PMID:21729860.	Dependent variable
227	Musaiger, A. O. Food habits of mothers and children in two regions of Oman. Nutr Health, 1996, 11: 29-48. PMID:8817582.	Independent variable, study design
228	Musselman, J. R., Jurek, A. M., Johnson, K. J. et al. Maternal dietary patterns during early pregnancy and the odds of childhood germ cell tumors: A Children's Oncology Group study. Am J Epidemiol, 2011, 173: 282-91. PMID:21098631.	Dependent variable
229	Myhre, R., Brantsaeter, A. L., Myking, S. et al. Intakes of garlic and dried fruits are associated with lower risk of spontaneous preterm delivery. J Nutr, 2013, 143: 1100-8. PMID:23700347.	Independent variable
230	Newman, Ak, Deussen, Ar, Moran, Lj et al. The effect of antenatal dietary and lifestyle advice on maternal psychological health in women who are overweight or obese-findings from the limit randomised trial. Journal of Paediatrics and Child Health [abstracts of the 17th Congress of the Perinatal Society of Australia and New Zealand, , 2013, 49	Not peer-reviewed

	Citation	Rationale
231	Ney, D., Hollingsworth, D. R., Cousins, L. Decreased insulin requirement and improved control of diabetes in pregnant women given a high-carbohydrate, high-fiber, low-fat diet. Diabetes Care, 1982, 5: 529-33. PMID:6329613.	Independent variable, health status
232	Nicholls, M. G. Reduction of dietary sodium in Western Society. Benefit or risk?. Hypertension, 1984, 6: 795-801. PMID:6394485.	Study design
233	Niedhammer, I., Murrin, C., O'Mahony, D. et al. Explanations for social inequalities in preterm delivery in the prospective Lifeways cohort in the Republic of Ireland. Eur J Public Health, 2012, 22: 533-8. PMID:21746747.	Independent variable
234	Odent, M. Land food .. sea food .. brain food. Midwifery Today Childbirth Educ, 1996, : 18-20. PMID:9016057.	Study design
235	Olafsdottir, A. S., Skuladottir, G. V., Thorsdottir, I. et al. Maternal diet in early and late pregnancy in relation to weight gain. Int J Obes (Lond), 2006, 30: 492-9. PMID:16331301.	Independent variable
236	Olsen, S. F., Beck, D. N., Kollslid, R. et al. High birth weights in prewar Faroe Islands. J Epidemiol Community Health, 2001, 55. PMID:11160178.	Independent variable
237	Olsen, S. F., Grandjean, P., Weihe, P. et al. Frequency of seafood intake in pregnancy as a determinant of birth weight: evidence for a dose dependent relationship. J Epidemiol Community Health, 1993, 47: 436-40. PMID:8120495.	Independent variable
238	Olsen, S. F., Secher, N. J. Low consumption of seafood in early pregnancy as a risk factor for preterm delivery: prospective cohort study. Bmj, 2002, 324. PMID:11859044.	Independent variable
239	Paisey, R. B., Hartog, M., Savage, P. A high-fibre diet in gestational diabetes--wheat fibre, leguminous fibre or both?. Hum Nutr Appl Nutr, 1987, 41: 146-9. PMID:3032872.	Study design
240	Papadopoulou, E., Kogevinas, M., Botsivali, M. et al. Maternal diet, prenatal exposure to dioxin-like compounds and birth outcomes in a European prospective mother-child study (NewGeneris). Sci Total Environ, 2014, 484: 121-8. PMID:24691212.	Study design
241	Papazian, T., Hout, H., Sibai, D. et al. Development, reproducibility and validity of a food frequency questionnaire among pregnant women adherent to the Mediterranean dietary pattern. Clinical Nutrition, 2016, 35: 1550-1556	Dependent variable
242	Pedersen, M., von Stedingk, H., Botsivali, M. et al. Birth weight, head circumference, and prenatal exposure to acrylamide from maternal diet: the European prospective mother-child study (NewGeneris). Environ Health Perspect, 2012, 120: 1739-45. PMID:23092936.	Study design

	Citation	Rationale
243	Pentieva, K., Petrova, S., Ovcharova, D. et al. Influence of some sociodemographic factors and smoking on the risk for intrauterine growth retardation. Khigiena i Zdraveopazvane, 1996, 39: 5-8	Language
244	Perez-Ferre, N., Fernandez, D., Torrejon, M. J. et al. Effect of lifestyle on the risk of gestational diabetes and obstetric outcomes in immigrant Hispanic women living in Spain. J Diabetes, 2012, 4: 432-8. PMID:22742428.	Health status
245	Persson, B, Stangenberg, M, Hansson, U et al. Gestational diabetes mellitus (GDM): comparative evaluation of two treatment regimens, diet vs insulin and diet. Diabetes, 1985, 34: 101-5	Independent variable
246	Petrella, E., Malavolti, M., Bertarini, V. et al. Gestational weight gain in overweight and obese women enrolled in a healthy lifestyle and eating habits program. J Matern Fetal Neonatal Med, 2014, 27: 1348-52. PMID:24175912.	Independent variable
247	Petridou, E., Stoikidou, M., Diamantopoulou, M. et al. Diet during pregnancy in relation to birthweight in healthy singletons. Child Care Health Dev, 1998, 24: 229-42. PMID:9618037.	Independent variable, study design
248	Phelan, S., Hart, C., Phipps, M. et al. Maternal behaviors during pregnancy impact offspring obesity risk. Exp Diabetes Res, 2011, 2011. PMID:22110475.	Independent variable
249	Picaud, Jc, Lapillonne, A, Boucher, P et al. Dietary cholesterol does not affect vitamin D metabolism in preterm infants : preliminary results. Pediatr Res, 1999, 45	Dependent variable
250	Picone, T. A., Allen, L. H., Olsen, P. N. et al. Pregnancy outcome in North American women. II. Effects of diet, cigarette smoking, stress, and weight gain on placentas, and on neonatal physical and behavioral characteristics. Am J Clin Nutr, 1982, 36: 1214-24. PMID:7148740.	Independent variable
251	Pinto, E., Barros, H., dos Santos Silva, I. Dietary intake and nutritional adequacy prior to conception and during pregnancy: a follow-up study in the north of Portugal. Public Health Nutr, 2009, 12: 922-31. PMID:18752697.	Independent variable, dependent variable
252	Piraquive, J, Grieve, P, Sudha, K et al. Quality of Diet and Central Nervous System Activity in Low Birth Weight Infants. Pediatric Academic Societies Annual Meeting, 2013,	Independent variable
253	Popeski, D., Ebbeling, L. R., Brown, P. B. et al. Blood pressure during pregnancy in Canadian Inuit: community differences related to diet. Cmaj, 1991, 145: 445-54. PMID:1878826.	Independent variable
254	Qiu, C., Coughlin, K. B., Frederick, I. O. et al. Dietary fiber intake in early pregnancy and risk of subsequent preeclampsia. Am J Hypertens, 2008, 21: 903-9. PMID:18636070.	Independent variable

	Citation	Rationale
255	Qiu, C., Zhang, C., Gelaye, B. et al. Gestational diabetes mellitus in relation to maternal dietary heme iron and nonheme iron intake. Diabetes Care, 2011, 34: 1564-9. PMID:21709295.	Independent variable
256	Radder, J. K., Terpstra, J. Comparison of postprandial (lunch tolerance) and postglucose (oral glucose tolerance) blood sugar values in pregnancy. Eur J Obstet Gynecol Reprod Biol, 1980, 10: 163-71. PMID:7189481.	Independent variable
257	Raman, L. Influence of maternal nutritional factors affecting birthweight. Am J Clin Nutr, 1981, 34: 775-83. PMID:7223693.	Country
258	Ramon, R., Ballester, F., Aguinagalde, X. et al. Fish consumption during pregnancy, prenatal mercury exposure, and anthropometric measures at birth in a prospective mother-infant cohort study in Spain. Am J Clin Nutr, 2009, 90: 1047-55. PMID:19710189.	Independent variable
259	Ramon, R., Ballester, F., Iniguez, C. et al. Vegetable but not fruit intake during pregnancy is associated with newborn anthropometric measures. J Nutr, 2009, 139: 561-7. PMID:19158218.	Independent variable
260	Ramos-LevÃ, A. M., PÃ©rez-Ferre, N., FernÃ¡ndez, M. D. et al. Risk factors for gestational diabetes mellitus in a large population of women living in Spain: Implications for preventative strategies. International Journal of Endocrinology, 2012, 2012	Independent variable, study design
261	Ray, J. G., Mamdani, M. M. Association between folic acid food fortification and hypertension or preeclampsia in pregnancy. Arch Intern Med, 2002, 162: 1776-7. PMID:12153382.	Independent variable
262	Reddy, S., Sanders, T. A., Obeid, O. The influence of maternal vegetarian diet on essential fatty acid status of the newborn. Eur J Clin Nutr, 1994, 48: 358-68. PMID:8055852.	Independent variable
263	Reece, Ea, Gay, L, DeGennaro, N et al. A randomized clinical trial of a fiber-enriched diabetic diet vs the standard American Diabetes Association recommended diet in the management of diabetes mellitus in pregnancy. Proceedings of 10th Annual Meeting of Society of Perinatal Obstetricians; 1990 Jan 23-27; Houston, Texas, USA, 1990,	Not peer-reviewed
264	Renzaho, A. M., Skouteris, H., Oldroyd, J. Preventing gestational diabetes mellitus among migrant women and reducing obesity and type 2 diabetes in their offspring: a call for culturally competent lifestyle interventions in pregnancy. J Am Diet Assoc, 2010, 110: 1814-7. PMID:21111090.	Study design
265	Rhodes, E. T., Pawlak, D. B., Takoudes, T. C. et al. Effects of a low-glycemic load diet in overweight and obese pregnant women: a pilot randomized controlled trial. Am J Clin Nutr, 2010, 92: 1306-15. PMID:20962162.	Independent variable

	Citation	Rationale
266	Ribeiro, M. D. Diet and pregnancy toxemia: new thoughts on an old problem. Public Health Rev, 1982, 10: 149-67. PMID:7167640.	Study design
267	Rogers, I., Emmett, P., Baker, D. et al. Financial difficulties, smoking habits, composition of the diet and birthweight in a population of pregnant women in the South West of England. ALSPAC Study Team. Avon Longitudinal Study of Pregnancy and Childhood. Eur J Clin Nutr, 1998, 52: 251-60. PMID:9578337.	Independent variable
268	Ross, Ra, Perlzweig, Wa, Taylor, Hm et al. A study of certain dietary factors of possible etiologic significance in toxemias of pregnancy. Am J Obstet Gynecol, 1938, 35: 426-40	Date
269	Ruiz-Gracia, T., Duran, A., Fuentes, M. et al. Lifestyle patterns in early pregnancy linked to gestational diabetes mellitus diagnoses when using IADPSG criteria. The St Carlos gestational study. Clin Nutr, 2016, 35: 699-705. PMID:25998584.	Independent variable
270	Rush, D., Stein, Z., Susser, M. Diet in pregnancy: a randomized controlled trial of nutritional supplements. Birth Defects Orig Artic Ser, 1980, 16. PMID:7000197.	Independent variable
271	Saldana, T. M., Siega-Riz, A. M., Adair, L. S. Effect of macronutrient intake on the development of glucose intolerance during pregnancy. Am J Clin Nutr, 2004, 79: 479-86. PMID:14985225.	Independent variable
272	Sanders, T. A., Reddy, S. The influence of a vegetarian diet on the fatty acid composition of human milk and the essential fatty acid status of the infant. J Pediatr, 1992, 120. PMID:1560329.	Dependent variable
273	Sauder, K. A., Starling, A. P., Shapiro, A. L. et al. Diet, physical activity and mental health status are associated with dysglycaemia in pregnancy: the Healthy Start Study. Diabet Med, 2016, 33: 663-7. PMID:26872289.	Study design
274	Saunders, J. B. Investing in healthy babies. NCSL Legisbrief, 2009, 17: 1-2. PMID:19301480.	Not peer-reviewed
275	Saunders, L., Guldner, L., Costet, N. et al. Effect of a Mediterranean diet during pregnancy on fetal growth and preterm delivery: results from a French Caribbean Mother-Child Cohort Study (TIMOUN). Paediatr Perinat Epidemiol, 2014, 28: 235-44. PMID:24754337.	Study design
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277	Schneck, M. E., Sideras, K. S., Fox, R. A. et al. Low-income pregnant adolescents and their infants: dietary findings and health outcomes. J Am Diet Assoc, 1990, 90: 555-8. PMID:2319076.	Independent variable

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278	Scott, F. W., Kolb, H. Dietary intervention for diabetes prevention in the neonate. Diabetes Metab Rev, 1998, 14. PMID:9605633.	Study design
279	Seely, E. W., Maxwell, C. Cardiology patient page. Chronic hypertension in pregnancy. Circulation, 2007, 115. PMID:17309919.	Independent variable, study design
280	Sen, S., Rifas-Shiman, S. L., Shivappa, N. et al. Dietary Inflammatory Potential during Pregnancy Is Associated with Lower Fetal Growth and Breastfeeding Failure: Results from Project Viva. J Nutr, 2016, 146: 728-36. PMID:26936137.	Independent variable
281	Shin, D., Lee, K. W., Song, W. O. Dietary Patterns during Pregnancy Are Associated with Risk of Gestational Diabetes Mellitus. Nutrients, 2015, 7: 9369-82. PMID:26569302.	Study design
282	Siega-Riz, A. M., Herrmann, T. S., Savitz, D. A. et al. Frequency of eating during pregnancy and its effect on preterm delivery. Am J Epidemiol, 2001, 153: 647-52. PMID:11282791.	Independent variable
283	Siega-Riz, A. M., Savitz, D. A., Zeisel, S. H. et al. Second trimester folate status and preterm birth. Am J Obstet Gynecol, 2004, 191: 1851-7. PMID:15592264.	Independent variable
284	Simoes-Wust, A. P., Kummeling, I., Mommers, M. et al. Influence of alternative lifestyles on self-reported body weight and health characteristics in women. Eur J Public Health, 2014, 24: 321-7. PMID:23639916.	Independent variable
285	Sister, MorningStar. Sick pregnancies. Midwifery Today Int Midwife, 2014, : 12-5. PMID:25980101.	Study design, non peer-reviewed
286	Smeeth, L., Williams, D. Can a dietary supplement prevent pre-eclampsia? L-arginine with vitamins show promise, but there are good grounds for caution. Bmj, 2011, 342	Independent variable
287	Smith, L. K., Draper, E. S., Evans, T. A. et al. Associations between late and moderately preterm birth and smoking, alcohol, drug use and diet: a population-based case-cohort study. Arch Dis Child Fetal Neonatal Ed, 2015, 100. PMID:25972442.	Study design
288	Smith, V. M. Preterm infant nutrition. Midwives Chron, 1989, 102: 143-6. PMID:2725350.	Study design
289	Sokup, A., Mioduszewska, M., BaÌ§k, A. et al. Unhealthy eating habits precede gestational diabetes mellitus in Polish women Part I: Evaluation of frequency, regularity of consumed meals and consumed snacks, bread, sweets, fruit and vegetables. Eating habits and gestational diabetes. Diabetologia Doswiadczalna i Kliniczna, 2010, 10: 17-22	Independent variable, health status

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290	Soto, R., Guilloty, N., Anzalota, L. et al. Association between maternal diet factors and hemoglobin levels, glucose tolerance, blood pressure and gestational age in a Hispanic population. Arch Latinoam Nutr, 2015, 65: 86-96. PMID:26817380.	Independent variable
291	Souza, Lalitha, Jayaweera, Hiranthi, Pickett, Kate E. Pregnancy diets, migration, and birth outcomes. Health Care Women Int, 2016, 37: 964-978	Study design
292	Sparks, J. W. Fetal growth and diet. Mead Johnson Symp Perinat Dev Med, 1984, : 21-7. PMID:6545381.	Study design
293	Standards of care of diabetes mellitus in pregnancy. Diabetologie Metabolismus Endokrinologie Vyziva, 2007, 10: 229-231	Study design, language
294	Steegers, E. A., Van Lakwijk, H. P., Jongsma, H. W. et al. (Patho)physiological implications of chronic dietary sodium restriction during pregnancy; a longitudinal prospective randomized study. Br J Obstet Gynaecol, 1991, 98: 980-7. PMID:1751444.	Independent variable
295	Steegers, E. A. P., Van Lakwijk, H. P. J. M., Jongsma, H. W. et al. (Patho)physiological implications of chronic dietary sodium restriction during pregnancy; a longitudinal prospective randomzied study. Br J Obstet Gynaecol, 1991, 98: 980-987	Duplicate
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297	Stein, A. Adressing disturbances in the relationship between mothers with eating disorders and their infants: a randomized controlled trial. Personal communication, 2004,	Independent variable, not peer reviewed
298	Stein, A. The influence of maternal eating disorder on infant development: an intervention study. ControlledTrials.com [http://www.controlled-trials.com/ISRCTN95026274], 2004,	Independent variable, not peer reviewed
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	Citation	Rationale
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301	Suhail, M., Suhail, M. F., Khan, H. Role of vitamins C and E in regulating antioxidant and pro-oxidant markers in preeclampsia. Journal of Clinical Biochemistry and Nutrition, 2008, 43: 210-220	Country
302	Svenningsen, Nw, Lindquist, B. Incidence of metabolic acidosis in term, preterm and small for gestational age infants in relation to dietary protein intake. Acta Paediatr Scand, 1973, 62: 1-10	Date
303	Switkowski, K. M., Jacques, P. F., Must, A. et al. Maternal protein intake during pregnancy and linear growth in the offspring. Am J Clin Nutr, 2016, 104: 1128-1136. PMID:27581477.	Independent variable
304	Symonds, M. E., Budge, H., Edwards, L. J. et al. Maternal nutrition, cortisol and programming of fetal development. Perinatology, 2002, 4: 67-74	No full text
305	Tande, D. L., Ralph, J. L., Johnson, L. K. et al. First trimester dietary intake, biochemical measures, and subsequent gestational hypertension among nulliparous women. J Midwifery Womens Health, 2013, 58: 423-30. PMID:23895215.	Independent variable
306	Tanha, F. D., Mohseni, M., Ghajarzadeh, M. et al. The effects of healthy diet in pregnancy. Journal of Family and Reproductive Health, 2013, 7: 121-125	Independent variable, dependent variable
307	Taylor, C. M., Golding, J., Emond, A. M. Blood mercury levels and fish consumption in pregnancy: Risks and benefits for birth outcomes in a prospective observational birth cohort. Int J Hyg Environ Health, 2016, 219: 513-20. PMID:27252152.	Independent variable
308	Thacker, S. M., Petkewicz, K. A. Gestational diabetes mellitus. U.S. Pharm., 2009, 34: 43-48	Study design
309	Thomas, B., Ghebremeskel, K., Lowy, C. et al. Nutrient intake of women with and without gestational diabetes with a specific focus on fatty acids. Nutrition, 2006, 22: 230-6. PMID:16500549.	Independent variable, study design
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312	Tielemans, M. J., Erler, N. S., Leermakers, E. T. M. et al. A Priori and a Posteriori dietary patterns during pregnancy and gestational weight gain: The generation R study. Nutrients, 2015, 7: 9383-9399	Dependent variable
313	Tobias, D. K., Zhang, C., Chavarro, J. et al. Healthful dietary patterns and long-term weight change among women with a history of gestational diabetes mellitus. Int J Obes (Lond), 2016, 40: 1748-1753. PMID:27569683.	Dependent variable
314	Tovar, A., Must, A., Bermudez, O. I. et al. The impact of gestational weight gain and diet on abnormal glucose tolerance during pregnancy in Hispanic women. Matern Child Health J, 2009, 13: 520-30. PMID:18597166.	Independent variable
315	Uusitalo, U., Arkkola, T., Ovaskainen, M. L. et al. Unhealthy dietary patterns are associated with weight gain during pregnancy among Finnish women. Public Health Nutr, 2009, 12: 2392-9. PMID:19323867.	Dependent variable
316	Valentini, R., Dalfra, M. G., Masin, M. et al. A pilot study on dietary approaches in multiethnicity: two methods compared. Int J Endocrinol, 2012, 2012. PMID:22505892.	Health status
317	Van Buul, B. J. A., Steegers, E. A. P., Van Der Maten, G. D. et al. Dietary sodium restriction does not prevent gestational hypertension: A Dutch two-center randomized trial. Hypertension in Pregnancy, 1997, 16: 335-346	Independent variable
318	van Buul, B. J., Steegers, E. A., Jongsma, H. W. et al. Dietary sodium restriction in the prophylaxis of hypertensive disorders of pregnancy: effects on the intake of other nutrients. Am J Clin Nutr, 1995, 62: 49-57. PMID:7598066.	Independent variable
319	van der Maten, G. D. Low sodium diet in pregnancy: effects on maternal nutritional status. Eur J Obstet Gynecol Reprod Biol, 1995, 61: 63-4. PMID:8549849.	Independent variable
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323	Vitolo, Mr, Fraga, Bueno Ms, Mendes, Gama C. Impact of a dietary counseling program on the gain weight speed of pregnant women attended in a primary care service. Revista Brasileira de Ginecologia e Obstetricia, 2011, 33: 13-19	Language
324	Wakimoto, Patricia, Akabike, Andrea, King, Janet C. Maternal Nutrition and Pregnancy Outcomeâ€"A Look Back. Nutrition Today, 2015, 50: 221-229	Study design, non peer-reviewed
325	Walsh, J. M., Mahony, R. M., Culliton, M. et al. Impact of a low glycemic index diet in pregnancy on markers of maternal and fetal metabolism and inflammation. Reprod Sci, 2014, 21: 1378-81. PMID:24642719.	Dependent variable
326	Walsh, J. M., McGowan, C. A., Mahony, R. et al. Low glycaemic index diet in pregnancy to prevent macrosomia (ROLO study): randomised control trial. Bmj, 2012, 345. PMID:22936795.	Independent variable
327	Wang, C., Zhu, W., Wei, Y. et al. Exercise intervention during pregnancy can be used to manage weight gain and improve pregnancy outcomes in women with gestational diabetes mellitus. BMC Pregnancy Childbirth, 2015, 15. PMID:26459271.	Independent variable
328	Weed, S. S. Preeclampsia. Midwifery Today Int Midwife, 2014, : 22-3. PMID:25980104.	Study design
329	Wen, L. M., Simpson, J. M., Rissel, C. et al. Maternal junk food diet during pregnancy as a predictor of high birthweight: findings from the healthy beginnings trial. Birth, 2013, 40: 46-51. PMID:24635424.	Independent variable
330	Wheeler, S. J., Poston, L., Thomas, J. E. et al. Maternal plasma fatty acid composition and pregnancy outcome in adolescents. Br J Nutr, 2011, 105: 601-10. PMID:21269546.	Independent variable
331	Widga, A. C., Lewis, N. M. Defined, in-home, prenatal nutrition intervention for low-income women. J Am Diet Assoc, 1999, 99. PMID:10491673.	Independent variable
332	Williams, C., Highley, W., Ma, E. H. et al. Protein, amino acid, and caloric intakes of selected pregnant women. J Am Diet Assoc, 1981, 78: 28-35. PMID:7217557.	Independent variable
333	Williams, E. J. Gestational diabetes mellitus and diet control. Diabetes Educ, 1986, 12: 16-7. PMID:3633805.	Study design
334	Wolff, C. B., Wolff, H. K. Maternal eating patterns and birth weight of Mexican American infants. Nutr Health, 1995, 10: 121-34. PMID:7491165.	Study design
335	Wood,. Diet for diabetics: fact vs. hypothesis. Compr Ther, 1980, 6: 56-61. PMID:7408433.	Study design

	Citation	Rationale
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337	Zielinsky, P., Piccoli,, Vian, I. et al. Maternal restriction of polyphenols and fetal ductal dynamics in normal pregnancy: an open clinical trial. Arq Bras Cardiol, 2013, 101: 217-25. PMID:23949325.	Independent variable