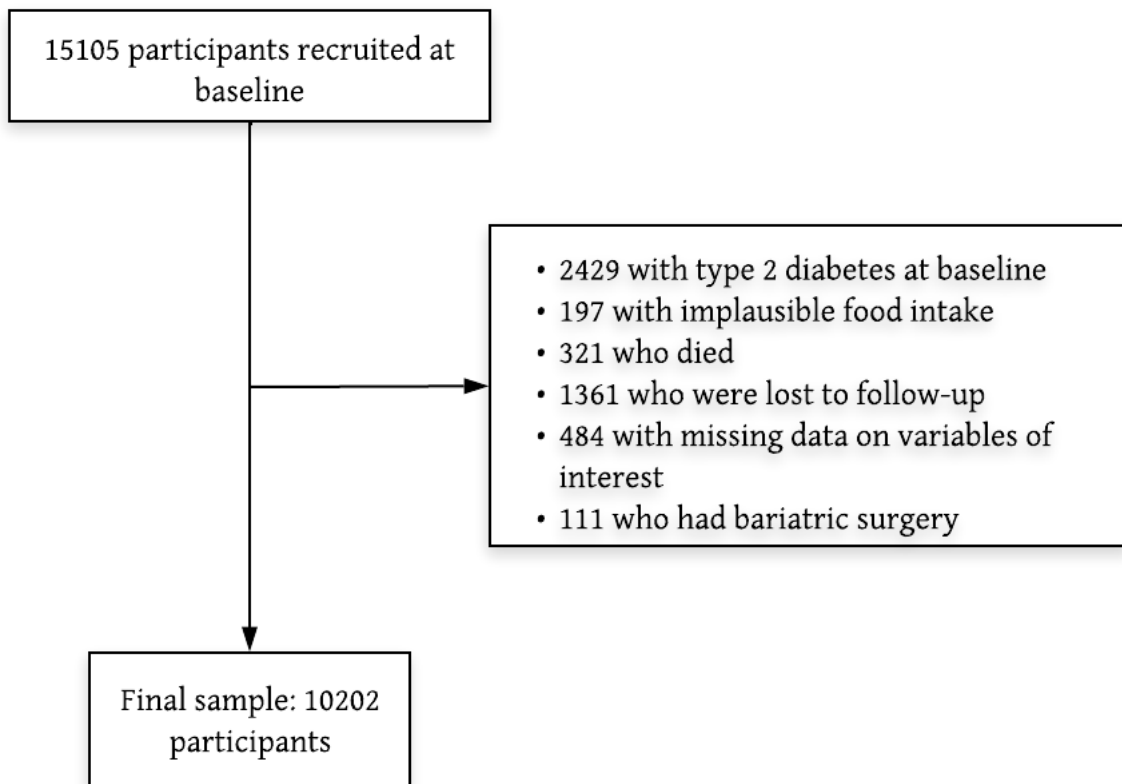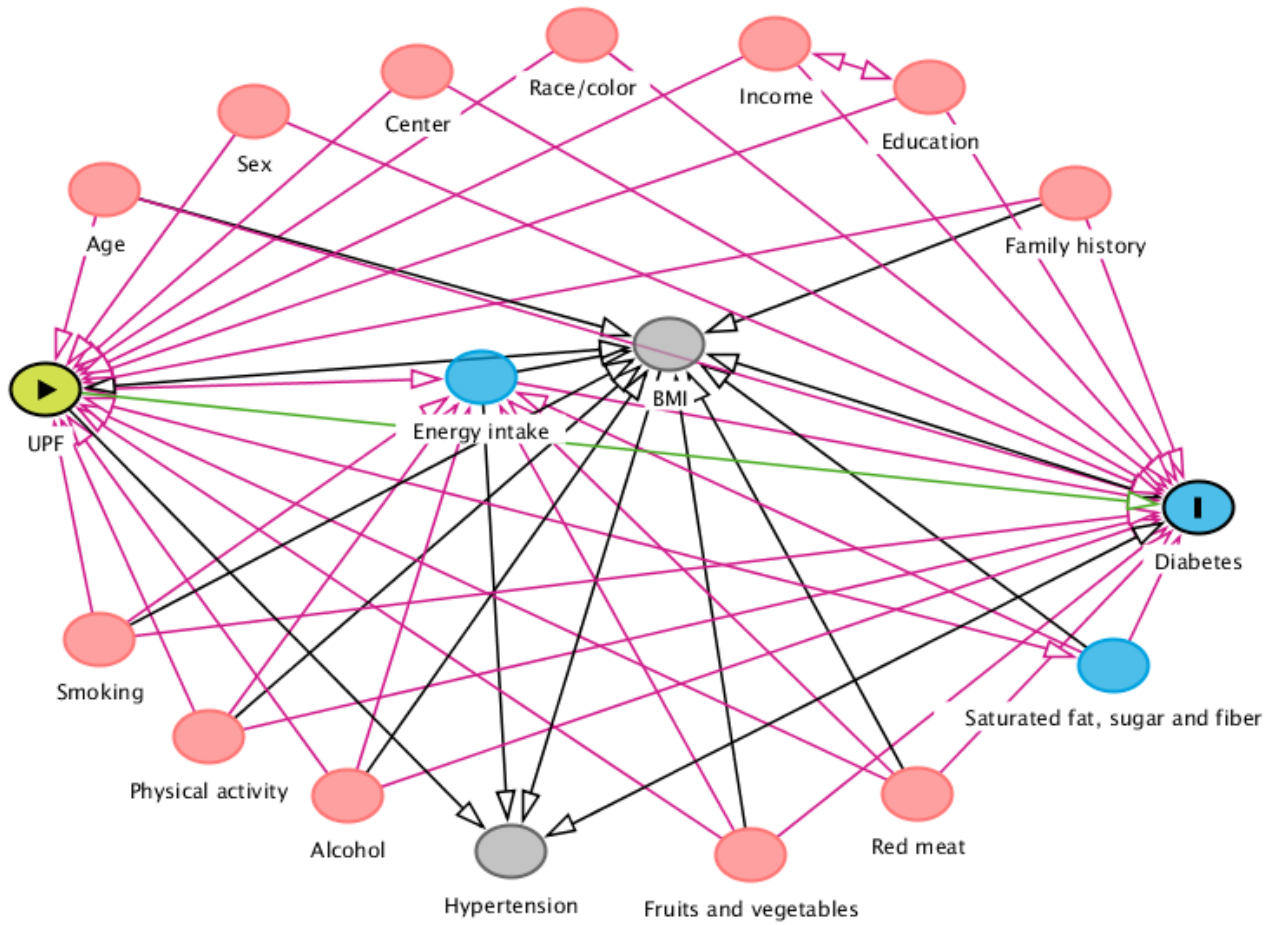**Association between Ultra-Processed Food Consumption and the Incidence of Type 2**

Diabetes – the ELSA-Brasil Cohort

Additional File

Figure S1. Flowchart of the analytical sample.

Figure S2. Directed acyclic graph for the association between ultra-processed food consumption and the incidence of type 2 diabetes.

Table S1. Studies reporting the association between ultra-processed food (UPF) consumption and the incidence of type 2 diabetes.

Study, year of publication	Age, range and/or central estimate	UPF assessment and consumption	Method for T2DM definition	Duration of follow-up	Models for covariate adjustments	Absolute increment in UPF intake	Comparing UPF consumption extremes
NutriNet-Santé, 2020	≥18 years 42.7 years	24-h dietary record 17.3%	Self-reported and confirmed by medical-administrative databases	6 years	Age, sex, educational level, BMI, physical activity level, smoking status, alcohol intake, number of 24-hour dietary records, energy intake, family history of T2DM, and percentage of weight change.	1.13 (1.01-1.27)	
UK Biobank, 2021	40-69 years 55.8 years	24-h dietary recall 22.1%	Self-reported	5.4 years	Stratification by sex and ethnicity; family history of T2DM, Index of Multiple Deprivation, physical activity level, current smoking status, total energy intake, and BMI.	1.12 (1.04-1.20)	1.44 (1.04-2.02)
SUN, 2021	Range not informed 37.4 years	Food frequency questionnaire 9.5%	Self-reported and confirmed by medical records	12 years	Sex, age, BMI, educational status, family history of diabetes, smoking status, snacking between meals, active + sedentary lifestyle score, and following a special diet at baseline. Stratified by decades of age and recruitment period.		1.53 (1.06-2.22)
Lifelines, 2022	35-70 years 49.1 years	Food frequency questionnaire 34.9%	Self-reported or laboratory measurements	3.4 years	Age, sex, diet score, total energy intake, alcohol intake, smoking status, educational level, physical activity level, TV watching time, and BMI.	1.17 (1.09-1.26)	1.56 (1.27-1.92)
Nurses' Health Study, 2023	30-55 years Central estimate not informed	Food frequency questionnaire 36.1%	Self-reported and confirmed by a validated questionnaire	32 years	Age, race/ethnicity, family history of diabetes, history of hypercholesterolemia, history of hypertension, smoking status, physical activity, postmenopausal hormone use, physical examination, neighborhood income, total energy, total alcohol consumption, and BMI.	1.02 (1.01-1.03)	1.19 (1.09-1.30)
Nurses' Health Study II, 2023	25-42 years Central estimate not informed	Food frequency questionnaire 36.1%	Self-reported and confirmed by a validated questionnaire	26	Age, race/ethnicity, family history of diabetes, history of hypercholesterolemia, history of hypertension, smoking status, physical activity, oral contraceptive use, postmenopausal	1.04 (1.03-1.05)	1.46 (1.33-1.60)

Study	Age	Dietary assessment	Outcome assessment	Follow-up	Adjustments		
Health Professional Follow-up Study, 2023	40-75 years Central estimate not informed	Food frequency questionnaire 36.1%	Self-reported and confirmed by a validated questionnaire	30	hormone use, physical examination, neighborhood income, total energy, total alcohol consumption, and BMI. Age, race/ethnicity, family history of diabetes, history of hypercholesterolemia, history of hypertension, smoking status, physical activity, physical examination, neighborhood income, total energy, total alcohol consumption, and BMI.	1.02 (1.01-1.04)	1.22 (1.07-1.39)
ELSA-Brasil, 2023	35-74 years 50.7 years	Food frequency questionnaire 18%	Self-reported and/or laboratory measurements	8.2 years	Age, sex, race/color, income, school achievement, family history of diabetes, smoking, physical activity, and alcohol.	1.05 (1.03- 1.07)	1.24 (1.10-1.39)
					Plus energy intake.	1.07 (1.04- 1.09)	1.29 (1.13-1.47)
					Plus hypertension.	1.05 (1.03- 1.07)	1.22 (1.09-1.37)
					Plus BMI.	1.02 (1.00- 1.05)	1.09 (0.97-1.22)

UPF consumption is expressed as % of total grams/day. For Nurses' Health Study, Nurses' Health Study II, and the Health Professional Follow-up Study: in the original article, the data is presented for all three cohorts together.

The column of 'Absolute increment in UPF intake' is expressed as in 10% increments of grams per day, except for the Nurses' Health Study, Nurses' Health Study II, and the Health Professional Follow-up Study, which are presented as for 1 serving/day increment.

The comparison between extremes of UPF consumption (quintiles, quartiles, or terciles) was as follows: for UK Biobank, 41.9% vs 7.7% of total grams per day; for SUN project, >323.3 vs <214.6 g/day; for Lifelines, 48.7% vs 23.7% of total g/day; for Nurses' Health Study, 10.5 vs 3.3 servings/day; for Nurses' Health Study II, 11.2 vs 3.6 servings/day; for Health Professional Follow-up Study, 11.2 vs 3.2 servings/day; and for ELSA-Brasil, ≥ 566 vs ≤ 235 g/day.

T2DM: type 2 diabetes.