

Table S1. Risk of bias assessment of included studies

Author (year)	Study type	Assessment tool	Risk of bias	Main limitation
Al-Taïar (2025)	Umbrella review	AMSTAR-2	Moderate	Overlap of included studies, lack of sensitivity analysis
Abassi (2024)	Systematic narrative review	AMSTAR-2	Moderate	Heterogeneous study designs, incomplete reporting of search strategy
Kasap (2023)	Observational study	NOS	Moderate	Small sample size, lack of randomization and adjustment for confounders
Shahawy (2023)	Clinical review	Not applicable –		Narrative format, expert opinion only
Kana (2025)	Observational study	NOS	Low	Limited dietary data but good methodological clarity
Gur (2015)	Observational study	NOS	Moderate	Small sample, single-center, lack of control for caloric intake
Pradella (2023)	Cross-sectional study	NOS	Low	Potential recall bias in fasting exposure data
Savitri (2020)	Cohort study	NOS	Low	Missing adjustment for socioeconomic variables
Oosterwijk (2021)	Systematic review	AMSTAR-2	Moderate	Moderate heterogeneity across included studies
Petherick (2014)	Cohort study	NOS	Low	Potential under-reporting of fasting adherence
Mirghani (2004)	Clinical (ultrasound)	RoB 2 (adapted)	Moderate	Lack of blinding, small sample
Mirghani (2005)	Clinical (CTG)	RoB 2 (adapted)	Moderate	No control group, small cohort
van Ewijk (2013)	Longitudinal study	NOS	Low	Exposure data based on calendar approximation
Pradella (2024)	Meta-analysis	AMSTAR-2	Low	Limited subgroup analyses
Afandi (2019)	Observational study (GDM)	NOS	Moderate	Small sample, limited duration of follow-up

Author (year)	Study type	Assessment tool	Risk of bias	Main limitation
Ibrahim (2020)	Practical report	Not scored	–	Non-systematic, descriptive
Alkhalefah (2021)	Animal study	SYRCLE	Moderate	Lack of blinding and random allocation details
Alkhalefah (2022)	Animal study	SYRCLE	Moderate	Missing outcome assessor blinding
Yin (2023)	Animal study	SYRCLE	Moderate	Incomplete randomization details
Yin (2021)	Animal study	SYRCLE	Moderate	Epigenetic outcomes with small litter numbers
Liang (2023)	Animal study	SYRCLE	Moderate	Lack of control for maternal weight and feed intake

Overall summary:

- **Humans (n=14)** → Low-moderate risk of bias, mainly due to variability in exposure and small sample sizes.
- **Reviews (n=3)** → Moderate methodological quality, limited by the heterogeneity of the included studies.
- **Animals (n=5)** → Moderate bias, due to lack of detail on randomisation and blinding.