

Supplementary Table 1 NIH bias assessment of cohort studies. [4-5,9-12,14-18,20]

First Author/year	Was the research question or objective clearly stated?	Was the study population clearly specified and defined?	Was participation at least 50%?	Were all the subjects selected from the same/ similar population? Were inclusion & exclusion criteria prespecified and applied uniformly?	Was a sample size justification, power description, or variance and effect estimates provided?	Were the exposures of interest measured prior to the outcome(s) being measured?	Was the timeframe sufficient to expect to see an association between exposure and outcome if it existed?	Did the study examine different levels of the exposure as related to the outcome?	Were the exposures clearly defined, valid, reliable & implemented consistently across all study participants?	Was the exposure assessed more than once over time?	Were the outcome measures clearly defined, valid, reliable & implemented consistently across all participants?	Were the outcome assessors blinded to the exposure status of participants?	Was loss to follow-up after baseline 20% or less?	Were confounding variables measured & adjusted statistically for their impact on the relationship between exposures & outcomes?
Ahmed/2021	Y	Y	NR	Y/Y	N	Y	Y	N	Y	N	Y	N	Y	N
AlSaif/2020	Y	Y	Y	Y/Y	N	Y	Y	N	Y	N	Y	N	Y	N
Chandrakar/2022	Y	Y	Y	Y/Y	N	Y	Y	N	Y	N	Y	N	Y	N
Hareedy/2021	Y	Y	Y	Y/Y	N	Y	Y	N	Y	N	Y	N	Y	N
Karadag/2011	Y	Y	Y	Y/Y	N	Y	Y	N	Y	N	Y	N	Y	N
Karadag/2015	Y	Y	Y	Y/Y	N	Y	Y	Y	Y	N	Y	N	Y	N
Kotb/2025	Y	Y	Y	Y/Y	N	Y	Y	N	Y	N	Y	N	Y	N
Lyons/1982	Y	Y	NR	Y/N	N	Y	Y	N	Y	N	Y	N	Y	N
Marsden/1984	Y	Y	NR	Y/N	N	Y	Y	N	Y	N	Y	N	Y	N
Morey/2020	Y	Y	Y	Y/Y	N	Y	Y	N	Y	N	Y	N	Y	N
O'Leary/1986	Y	Y	NR	Y/N	N	Y	Y	N	Y	N	Y	N	Y	N

Yilidrim/2017	Y	Y	NR	Y/Y	N	Y	Y	N	Y	N	Y	N	Y	N
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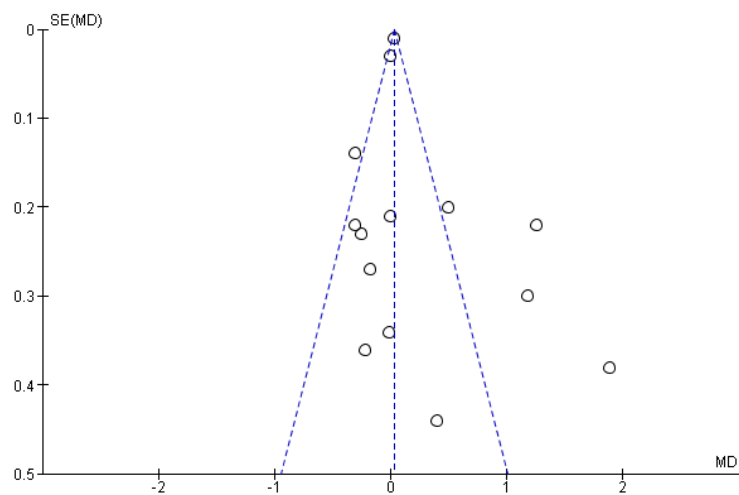
Notes: NR, Not Reported.

Supplementary Table 2 NIH bias assessment of case control studies.[8,13,19]

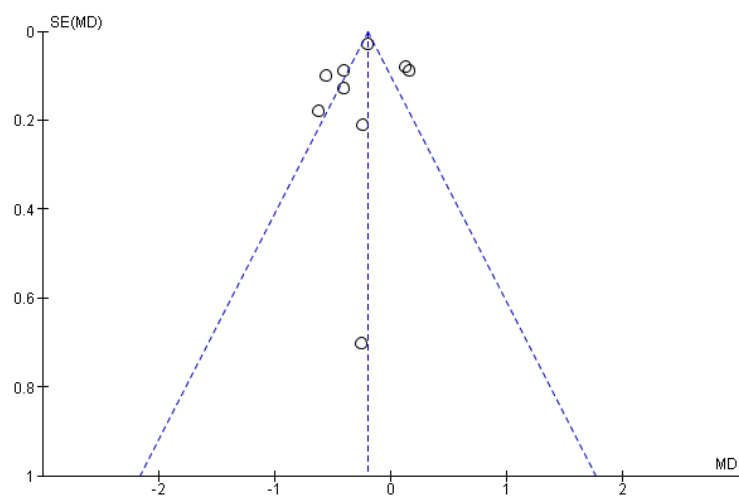
First author/year	Was the research question or objective clearly stated and appropriate?	Was the study population clearly specified and defined?	Did the authors include a sample size justification?	Were controls selected or recruited from the same or similar population that gave rise to the cases?	Were the definitions, inclusion and exclusion criteria, algorithms or processes used to select cases and controls valid, reliable & implemented consistently across all study participants?	Were the cases clearly defined and differentiated from controls?	If less than 100% of eligible cases and/or controls were selected for the study, were the cases and/or controls randomly selected from those eligible?	Was there use of concurrent controls?	Were the investigators able to confirm that the exposure/risk occurred prior to the development of the condition or event that defined a participant as a case?	Were the measures of exposure/risk clearly defined, valid, reliable, and implemented consistently (including time period) across all study participants?	Were the assessors of exposure/risk blinded to the case or control status of participants?	Were key potential confounding variables measured and adjusted statistically in the analyses? If matching was used, did the investigators account for matching during study analysis?
Aktar/2020	Y	Y	N	Y	Y	Y	NS	Y	Y	Y	N	N
Kocyigit/2020	Y	Y	N	Y	Y	Y	NS	Y	Y	Y	N	Y
Uyar/2016	Y	Y	N	Y	Y	Y	NS	Y	Y	Y	N	N

NS, Not Specified.

Supplementary Figure 1 Funnel plot of studies reporting TSH levels.[4-5,8-18,20]



Supplementary Figure 2 Funnel plot of studies reporting Triiodothyronine (T3) levels.[4-5,11-12,14,16-18,20]



Supplementary Figure 3 Funnel plot of studies reporting Thyroxine (T4) levels.[4-5, 11-18,20]

