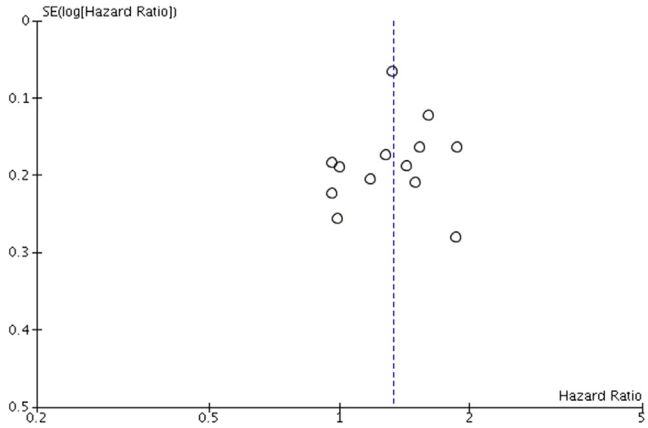
Supplementary Materials

Data Abstraction

Two reviewers independently abstracted data on the following study-related and patient-related characteristics: (1) study characteristics: primary author, time period of study/year of publication, country of the population studied, study design (case-control vs cohort, prospective vs retrospective); (2) patient characteristics: population-type (all pancreatic cancer patients or cancer-free patients at inception), total number and number of patients with pancreatic cancer in cohort, demographic, clinical, and treatment characteristics at time of pancreatic cancer diagnosis (age, sex, smoking status, presence of diabetes, alcohol use, stage of pancreatic cancer, proportion undergoing surgery and/or adjuvant chemotherapy); (3) exposure status: measure of obesity (BMI, waist circumference, or waist-hip ratio), definition and categories of obesity, including reference category for analysis, time period of assessing premorbid obesity in relation to pancreatic cancer diagnosis; (4) outcome assessment: all-cause and cancer-related mortality, attrition rate, information source for exposure ascertainment and outcome assessment; and (5) statistical analysis: HR or relative risk, along with 95% CI, of association between obesity and outcome (using normal category as reference), with unadjusted and adjusted analysis (including variables adjusted for in individual studies).

Linear Trend Statistical Analysis

In this analysis when 3 or more categories of BMI were reported, we assigned the midpoint of the cut-points of the category as the dose value; for studies with open-ended categories, we used the lowest and highest reported BMIs from the study (or if not reported, then imputed by calculating values at 3 standard deviations above and below mean; and if standard deviation also not reported, then arbitrarily choosing BMI 15 kg/m^2 and 45 kg/m^2 as lowest and highest BMI values, respectively) to calculate the midpoint. We then calculated the HR for that range of BMIs (subtracting the midpoints from the highest risk closed category with the reference category) to estimate a per-unit HR after log-transformation. This methodology assumes a linear relationship between mortality and logarithm of HR of BMI.



Supplementary Figure 1. Funnel plot, showing no evidence of publication bias. SE, standard error.

Supplementary Table 1. Study-level Quality Assessment by Using the Quality In Prognosis Studies Tool

Study	Study participation	Study attrition	Prognostic factor measurement	Outcome measurement	Study confounding	Statistical analysis and reporting
Ansary-Moghaddam	L	M	L	L	L	L
Olson	L	M	M	L	L	L
McWilliams	L	L	M	L	L	L
Yuan	L	L	M	L	L	L
Gong	L	M	M	M	L	L
Li	L	L	M	L	L	L
Reeves	L	M	M	L	M	L
Calle	L	L	L	L	M	L
Lin	L	M	M	L	L	L
Bethea	L	M	M	L	L	L
Batty	L	L	M	L	M	L
Gatspur	L	L	L	L	M	L
Lee	L	L	M	L	L	L

NOTE. For assessing risk of bias across each domain, the following criteria were used: (1) Study participation: low risk of bias if study clearly defined sampling frame, period and place of recruitment, description of population of interest, as well baseline study sample, ensured adequate participation of eligible subjects and clearly reported inclusion and exclusion criteria; moderate risk of bias if all of the above, except insufficient description of inclusion and exclusion criteria, and high risk of bias if failed to clearly define sampling frame, period and place of recruitment, inadequate description of population of interest, as well as baseline study sample, was not able to confirm adequate participation of eligible subjects, and did not report inclusion and exclusion criteria; (2) Study attrition: low risk of bias if the study reported 100% follow-up rate or $<$20% attrition at end of study, or in case of $>$20% attrition, a clear statement that patients compliant with follow-up were not significantly different from those lost to follow-up; moderate risk of bias if study did not report any attrition rate or attrition of $>$20% but with no description of any systematic differences between those followed and those lost to follow-up, and high risk of bias if attrition was $>$20% with reported systematic differences between those followed and those lost to follow-up; (3) Prognostic factor measurement: low risk of bias if studies clearly described measuring premorbid BMI at least 1 year before pancreatic cancer diagnosis (using measured height and weight), moderate risk of bias if exposure was based on self-reported BMI occurring at least 1 year before pancreatic cancer diagnosis, and high risk of bias if BMI was assessed (either measured or self-reported) at time of pancreatic cancer diagnosis or timing of measurement is not clearly reported; (4) Outcome measurement: low risk of bias if study clearly and appropriately defined mortality outcome by using a valid and reliable method of ascertainment (record linkage or blinded assessment of charts); moderate risk of bias if study reported mortality on basis of report from surrogates or unblinded assessment, and high risk of bias if there is no clear report of how mortality outcomes were assessed; (5) Study confounding: low risk of bias if study adequately measured relevant confounders and accounted for them in study design or analysis, in particular age, sex, smoking, diabetes, pancreatic cancer stage and treatment; moderate risk of bias if study adjusts for only 2 of the confounding factors, and high risk of bias if the study did not adjust for any of these variables; and (6) Statistical analysis and reporting: low risk of bias if study performed multivariate Cox proportional hazard model without over-fitting (ie, HR, with at least 10 mortality events per variable being added to multivariate model); moderate risk of bias if study reports multivariate Cox regression analysis (ie, relative risk or odds ratio) instead of time to event analysis, and high risk of bias if study just reported univariate analysis or if there is selective reporting of results.

H, high risk of bias; L, low risk of bias; M, moderate risk of bias.