Webappendix for Aune D, Yahya MS, Norat T, Riboli E. Body mass index, abdominal fatness and the risk of pancreatitis: a systematic review and meta-analysis of prospective studies.

Supplementary text

PubMed search terms:

1) “body mass index” OR body mass index[MeSH] OR BMI OR overweight OR overweight[MeSH] OR obesity OR obesity[MeSH] OR anthropometry OR anthropometry[MeSH] OR fatness OR “body fatness” OR “abdominal fatness” OR “abdominal obesity” OR abdominal obesity[MeSH] OR “waist circumference” OR "hip circumference" OR “waist-to-hip ratio” OR waist-to-hip ratio[MeSH] OR adiposity OR adiposity[MeSH] OR "weight gain" OR weight gain[MeSH] OR "weight change" OR weight change[MeSH] OR “weight loss” OR weight loss[MeSH]

2) diabetes OR diabetes[MeSH] OR glucose OR glucose[MeSH] OR "medical history" OR medical history[MeSH]

3) "physical activity" OR physical activity[MeSH] OR exercise OR exercise[MeSH] OR sports OR sports[MeSH] OR walking OR walking[MeSH] OR biking OR bicycling OR bicycling[MeSH] OR running OR running[MeSH] OR fitness OR "exercise test" OR exercise test[MeSH] OR inactivity OR sedentary

4) smoking OR smoking[MeSH] OR cigarette OR cigarette[MeSH] OR cigarettes OR cigarettes[MeSH] smoke OR smoke[MeSH] OR tobacco OR tobacco[MeSH] OR snus OR snuff OR snuff[MeSH] OR "environmental tobacco smoke” OR environmental tobacco smoke[MeSH] OR “passive smoking” OR passive smoking[MeSH] OR “smoking cessation" OR smoking cessation[MeSH]

5) pancreatitis OR pancreatitis[MeSH]

6) "case-control" OR cohort OR prospective OR longitudinal OR retrospective OR "follow-up" OR "cross-sectional" OR "hazard ratio" OR "hazard ratios" OR "relative risk" OR "relative risks" OR "incidence rate ratio" OR "incidence rate ratios" OR "odds ratio" OR odds ratios OR incidence

7) 1 OR 2 OR 3 OR 4

8) 7 AND 5 AND 6

Embase search terms

1) body mass index OR BMI OR overweight OR obesity OR anthropometry OR fatness OR body fatness OR abdominal fatness OR abdominal obesity OR waist circumference OR hip circumference OR waist-to-hip ratio OR adiposity OR weight gain OR weight change OR weight loss

2) body mass index/ OR BMI/ OR overweight/ OR obesity/ OR anthropometry/ OR fatness/ OR body fatness/ OR abdominal fatness/ OR abdominal obesity/ OR waist circumference/ OR hip circumference/ OR waist-to-hip ratio/ OR adiposity/ OR weight gain/ OR weight change/ OR weight loss/

3) diabetes OR glucose OR medical history

4) diabetes/ OR glucose/ OR medical history/

5) physical activity/ OR exercise/ OR sports/ OR walking/ OR biking/ OR bicycling/ OR running/ OR fitness/ OR exercise test/ OR inactivity/ OR sedentary/

6) physical activity OR exercise OR sports OR walking OR biking OR bicycling OR running OR fitness OR exercise test OR inactivity OR sedentary

7) smoking OR smoke OR tobacco OR snus OR snuff OR environmental tobacco smoke OR passive smoking OR smoking cessation

8) smoking/ OR smoke/ OR tobacco/ OR snus/ OR snuff/ OR environmental tobacco smoke/ OR passive smoking/ OR smoking cessation/

9) pancreatitis

10) pancreatitis/

11) case-control OR cohort OR prospective OR longitudinal OR retrospective OR follow-up OR cross-sectional OR hazard ratio OR hazard ratios OR relative risk OR relative risks OR incidence rate ratio OR incidence rate ratios OR odds ratio OR odds ratios OR incidence

12) 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8

13) 9 OR 10

14) 12 AND 13 AND 11

Supplementary Table 1. List of excluded studies and exclusion reason

Exclusion reason	References
Abstract	(1-6)
Bariatric surgery	(7)
Case-control study	(8-20)
Cross-sectional study	(21;22)
Duplicate	(23)
Meta-analysis	(24)
No risk estimate	(25)
Not relevant outcome	(26-32)
Patient population	(33-78)
Prognosis	(79-95)
Readmission for chronic pancreatitis	(96)
Review	(97-105)
Studies in children	(106;107)

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Supplementary table 2. Body mass index and acute pancreatitis, relative risks and 95% confidence intervals from the nonlinear dose-response analysis

	Main analysis	Sensitivity analysis excluding Korean study
BMI	RR (95% CI)	RR (95% CI)
17.5	1.25 (1.00-1.56)	0.88 (0.73-1.06)
18.5	1.15 (0.97-1.35)	0.90 (0.79-1.02)
20.0	1.05 (0.96-1.14)	0.93 (0.88-0.99)
22.0	1.00	1.00
22.5	1.00 (0.98-1.02)	1.02 (1.01-1.03)
25.0	1.04 (0.93-1.16)	1.14 (1.09-1.18)
27.5	1.15 (0.94-1.41)	1.28 (1.22-1.34)
30.0	1.34 (1.01-1.79)	1.45 (1.39-1.51)
32.5	1.62 (1.11-2.37)	1.65 (1.60-1.71)
35.0	2.02 (1.26-3.25)	1.89 (1.83-1.95)
37.5	2.58 (1.45-4.59)	2.16 (2.07-2.25)
40.0	3.35 (1.69-6.64)	2.47 (2.30-2.66)
$p_{nonlinearity}$	<0.0001	0.001

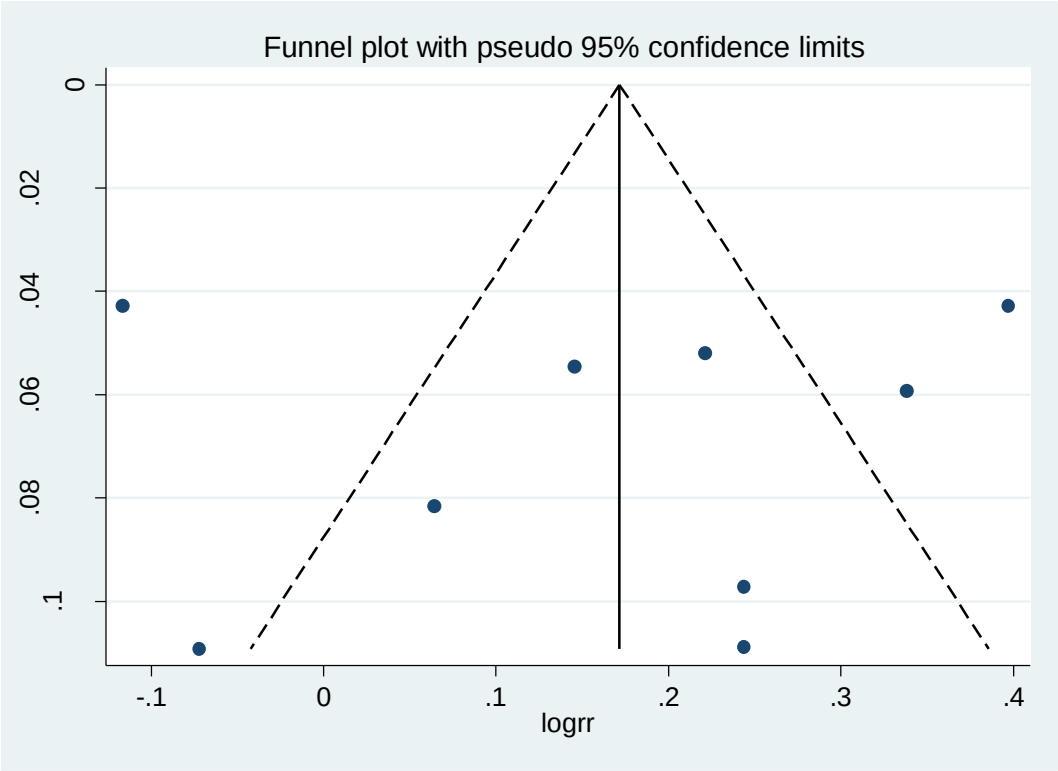
Supplementary table 3. Waist circumference and acute pancreatitis, relative risks and 95% confidence intervals from the nonlinear dose-response analysis

WC	RR (95% CI)
69	1.00
70	1.06 (1.03-1.08)
75	1.33 (1.21-1.46)
80	1.62 (1.40-1.87)
85	1.93 (1.63-2.29)
90	2.28 (1.90-2.75)
95	2.66 (2.19-3.23)
100	3.08 (2.49-3.83)
105	3.55 (2.75-4.59)
110	4.08 (2.95-5.64)
$p_{nonlinearity}$	0.19

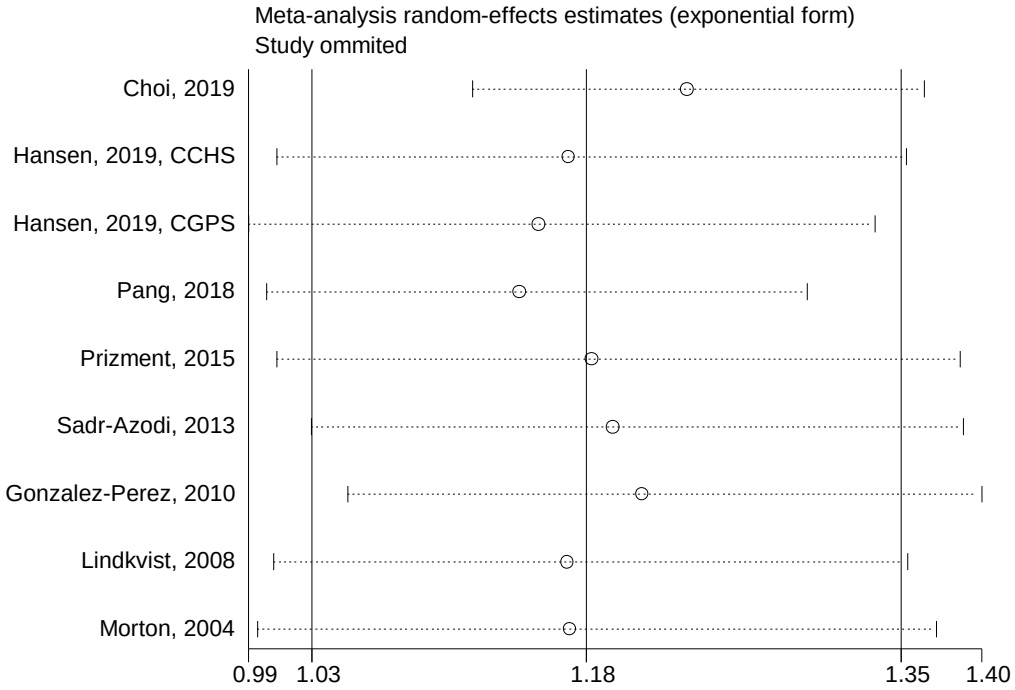
Supplementary Table 4. Study quality of the included studies (Newcastle-Ottawa scale)

Author, publication year	Representative-ness	Selection of non-exposed cohort	Exposure ascertainment	Demonstration of outcome not present at start	Adjustment for one confounder	Adjustment for a second confounder	Assessment of outcome	Long enough follow-up	Loss to follow-up	Total
Choi, 2019	1	1	1	0.5	1	1	1	1	1	8.5
Hansen, 2019, CCHS	1	1	1	1	1	1	1	1	1	9
Hansen, 2019, CGPS	1	1	1	1	1	1	1	1	1	9
Pang, 2018	1	1	1	1	1	1	1	1	1	9
Prizment, 2015	1	1	1	0	1	1	1	1	1	8
Sadr-Azodi, 2013	1	1	1	1	1	1	1	1	0	8
Gonzalez-Perez, 2010	1	1	1	1	1	1	1	1	0	8
Lindkvist, 2008	1	1	1	1	1	1	1	1	0	8
Morton, 2004	1	1	1	1	1	1	1	1	0	8

Supplementary Figure 1. Funnel plot of BMI and acute pancreatitis

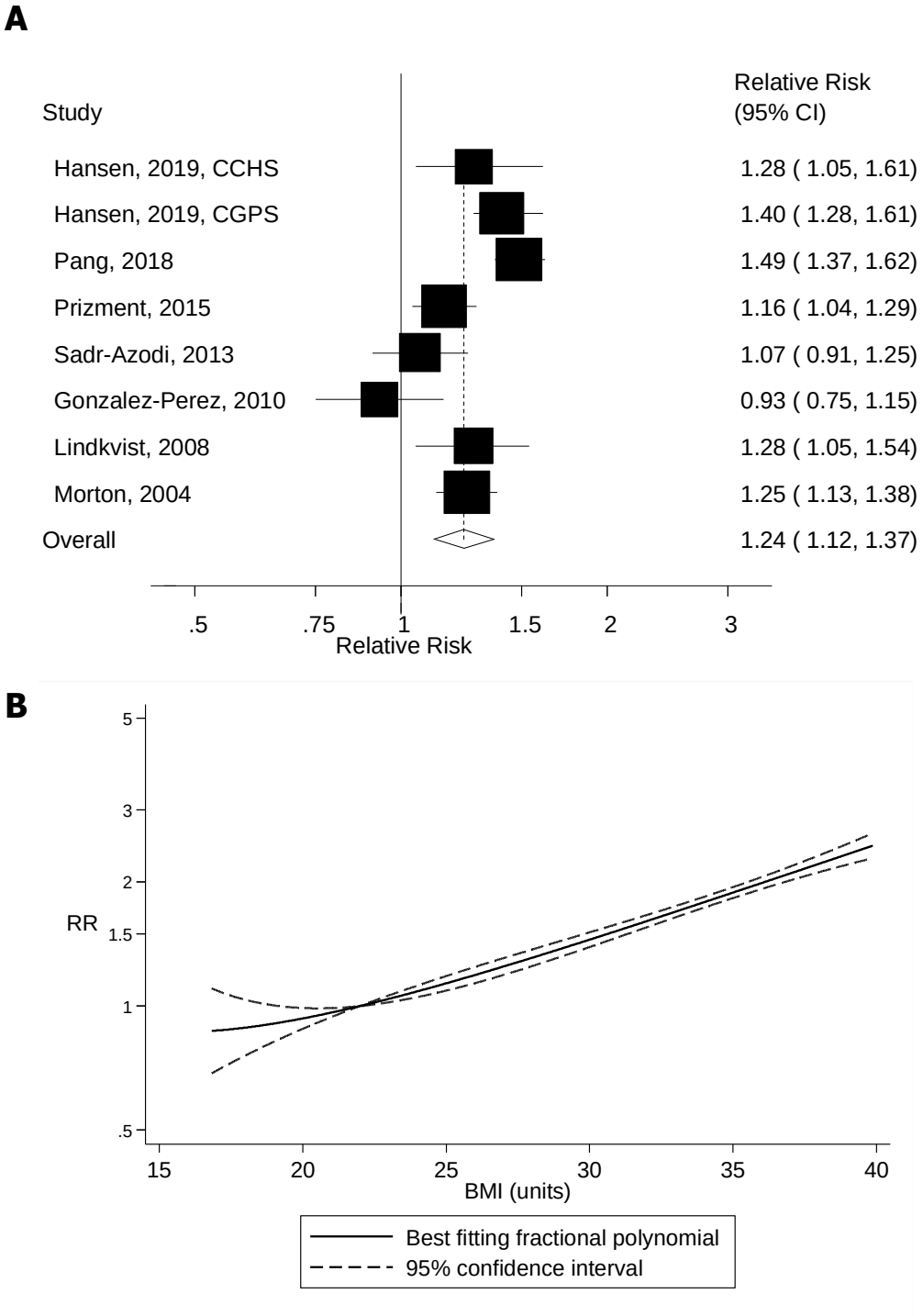


Supplementary Figure 2. Influence analysis excluding one study at a time

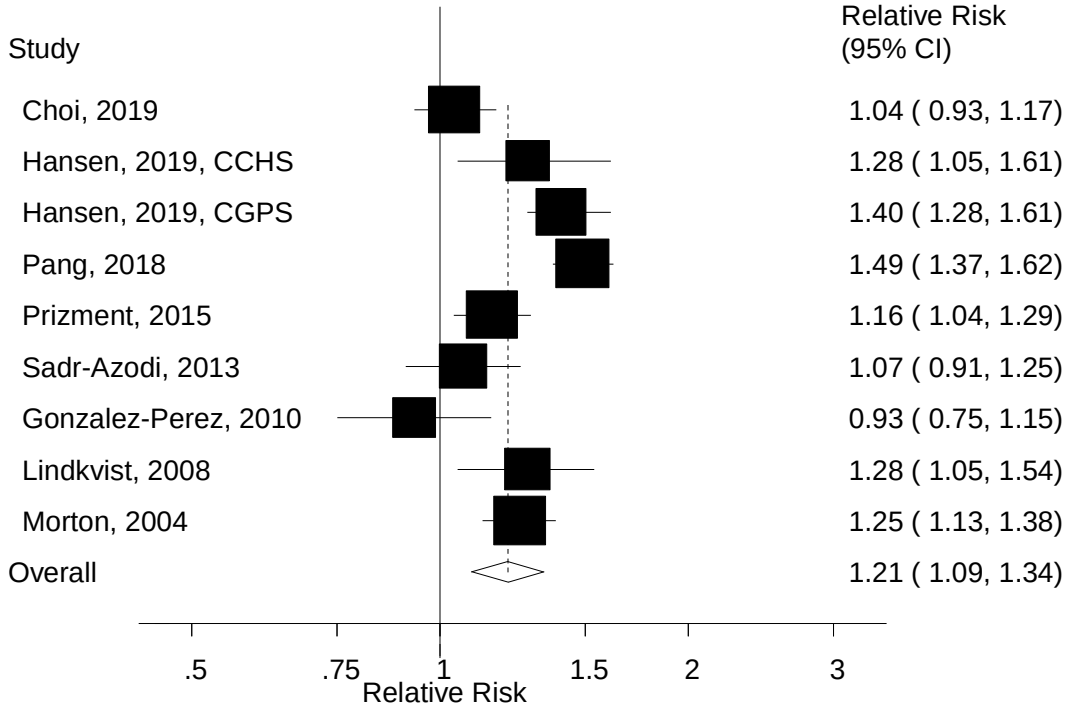


Study omitted	Estimate	[95% Conf.	Interval]
Choi, 2019 (2019)	1.2351166	1.1168832	1.3658663
Hansen, 2019, CCHS (2019)	1.1697131	1.0088975	1.3561624
Hansen, 2019, CGPS (2019)	1.1532032	0.99331123	1.3388327
Pang, 2018 (2018)	1.1425717	1.003206	1.3012979
Prizment, 2015 (2015)	1.1824709	1.0089624	1.3858173
Sadr-Azodi, 2013 (2013)	1.1942681	1.0279	1.3875633
Gonzalez-Perez, 2010 (2010)	1.2103428	1.047999	1.3978348
Lindkvist, 2008 (2008)	1.1691473	1.0073425	1.3569419
Morton, 2004 (2004)	1.1706042	0.99830061	1.3726469
Combined	1.1798485	1.0285269	1.3534333

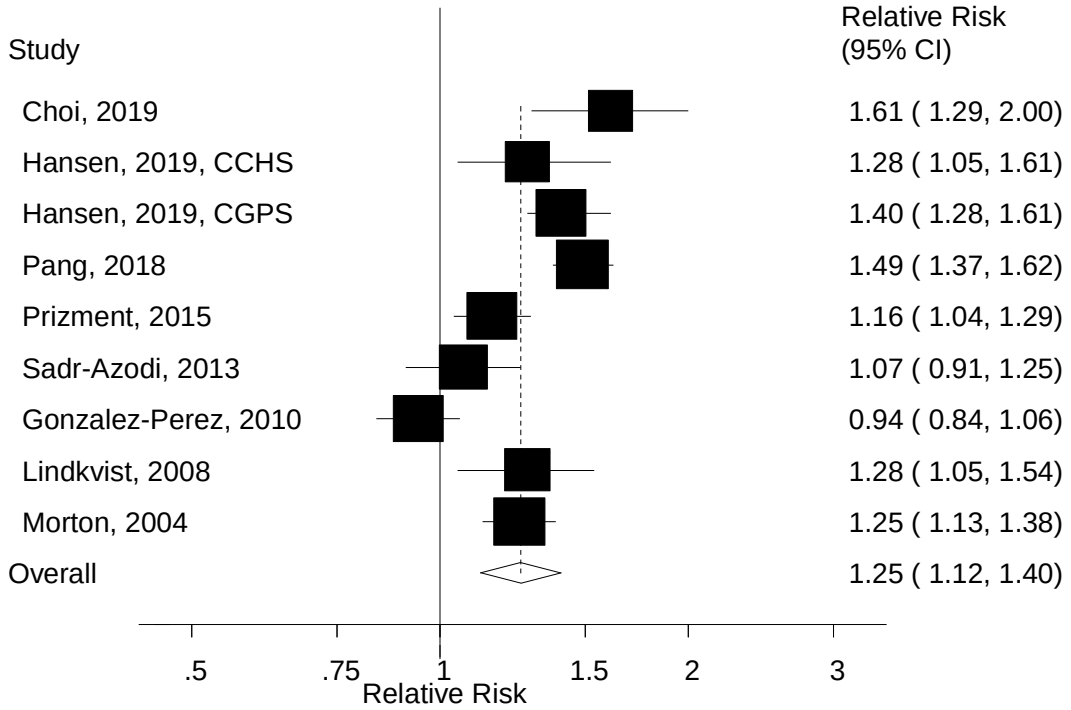
Supplementary figure 3. BMI and acute pancreatitis, sensitivity analysis excluding the study by Choi et al, 2019



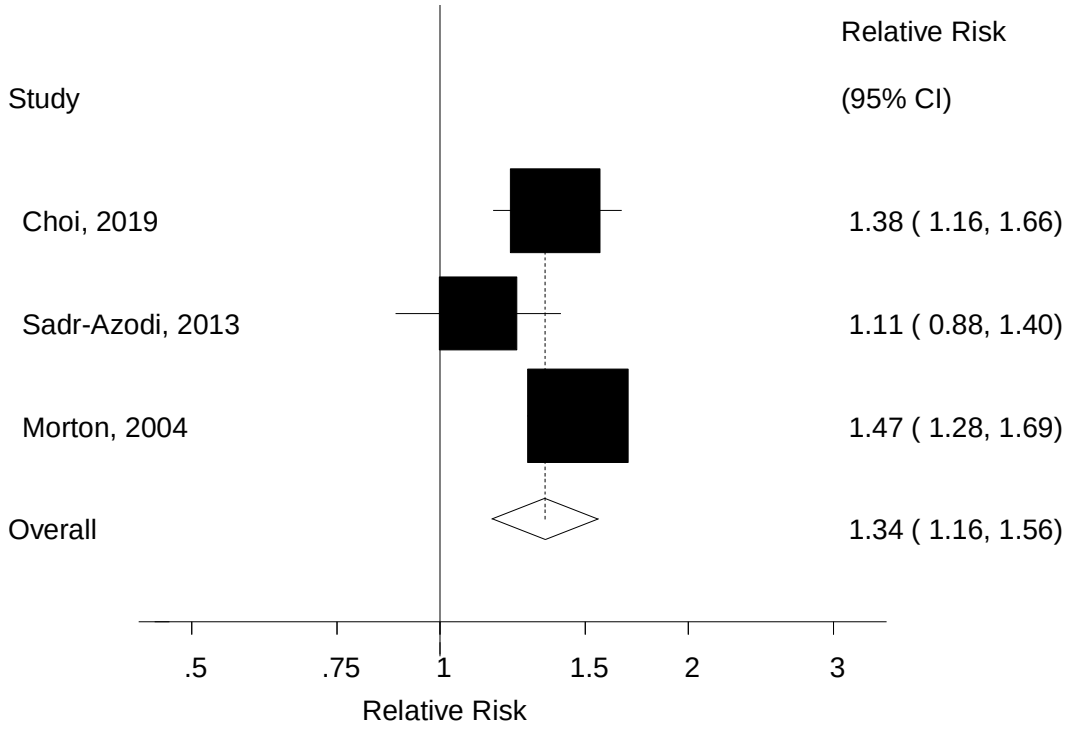
Supplementary Figure 4. BMI and acute pancreatitis, sensitivity analysis using never smokers rather than the full population for the study by Choi et al, 2019.



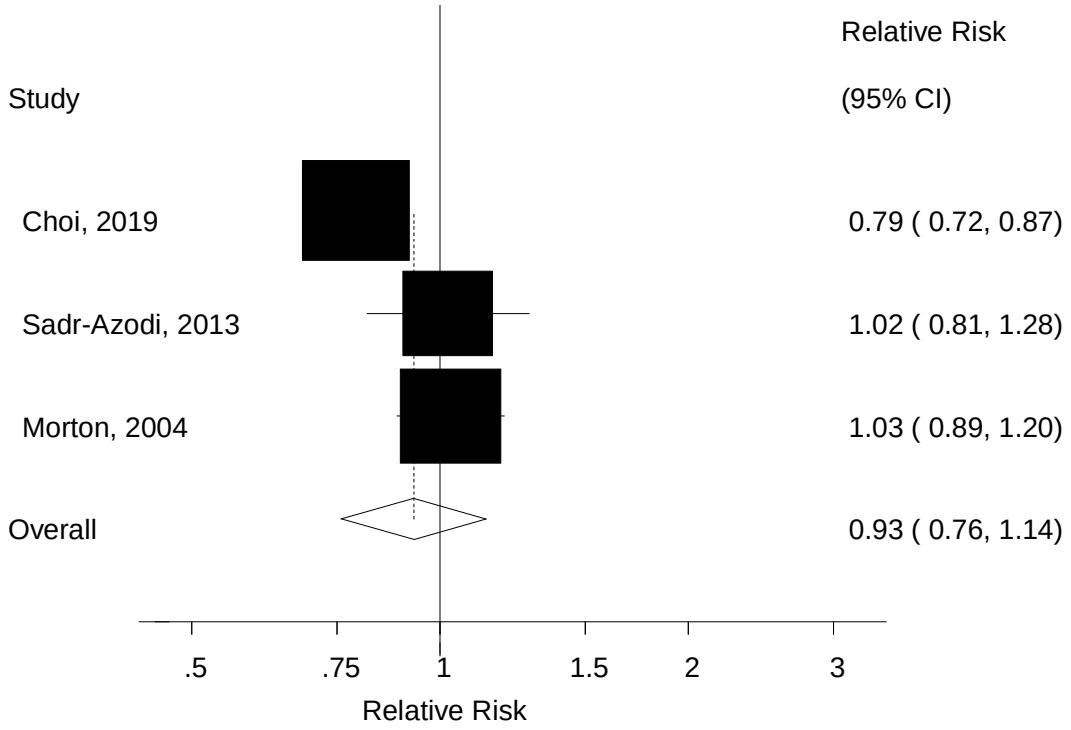
Supplementary Figure 5. BMI and acute pancreatitis, sensitivity analysis excluding categories below the reference category when the lowest category was not the reference category.



Supplementary Figure 6. BMI and gallstone-related pancreatitis



Supplementary Figure 7. BMI and non-gallstone-related pancreatitis



Supplementary Figure 8. BMI and chronic pancreatitis