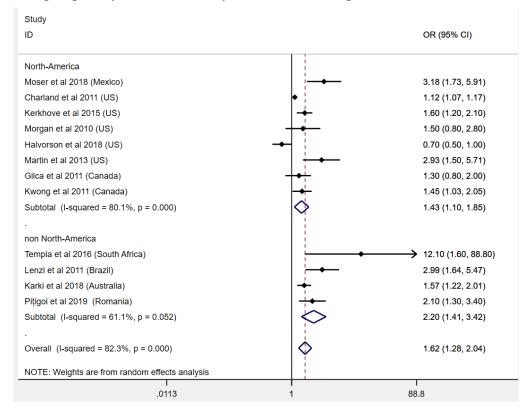
Supplementary Files

1. Subgroup analysis

1.1 subgroup analysis on the obesity and influenza infection.

Study		%
ID	OR (95% CI)	Weight
North-America		
Maier et al 2018 (US)	2.04 (1.35, 3.09)	8.51
Neidich et al 2017 (US)	2.01 (1.12, 3.06)	6.38
Cocoros et al 2014 (US)	1.90 (0.68, 5.27)	1.85
Coleman et al 2012 (US)	- 0.95 (0.75, 1.20)	16.30
Subtotal (I-squared = 79.6%, p = 0.002)	1.57 (0.95, 2.61)	33.04
non North-America		
Murphy et al 2016 (UK)	1.16 (0.97, 1.38)	20.14
Karki et al 2018 (Australia)	1.27 (1.10, 1.46)	22.56
Guerrisi et al 2019 (France)	1.28 (1.14, 1.44)	24.26
Subtotal (I-squared = 0.0%, p = 0.639)	1.25 (1.15, 1.36)	66.96
Overall (I-squared = 61.5%, p = 0.016)	1.29 (1.11, 1.49)	100.00
NOTE: Weights are from random effects analysis		
.19 1	5.27	

1.2 subgroup analysis on the obesity and influenza hospitalization

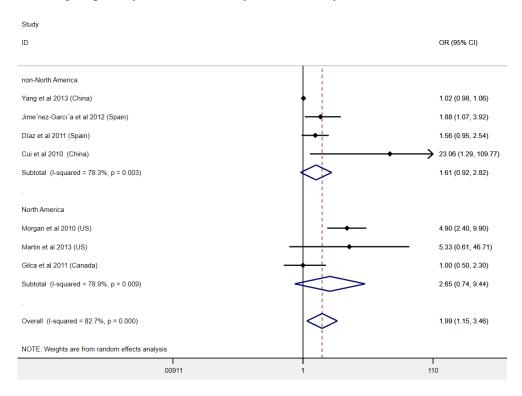


1.3 subgroup analysis on the obesity and severity of influenza and admission to

ICU.

Study ID	OR (95% CI)
Asia	
Ren et al 2013 (China)	35.61 (7.96, 159.21)
Yu et al 2011 (China)	1.54 (1.35, 1.76)
Tang et al 2010 (China)	◆ 4.05 (1.72, 9.52)
Zhou et al 2015 (China)	1.19 (1.01, 1.42)
Subtotal (I-squared = 89.7%, p = 0.000)	2.12 (1.32, 3.39)
North America	
Segaloff et al 2017 (US)	2.90 (0.50, 20.90)
Braun et al 2015 (US)	0.90 (0.76, 1.08)
Kerkhove et al 2015 (US)	1.60 (1.20, 2.10)
Campitelli et al 2014 (Canada)	1.17 (1.13, 1.22)
Subtotal (I-squared = 78.9%, p = 0.003)	1.18 (0.94, 1.48)
Other region	
Dimitrijević et al 2017 (Serbia)	3.32 (1.39, 8.14)
Bijani et al 2016 (Iran)	0.89 (0.08, 10.43)
Santa et al 2010 (Spain)	2.01 (1.38, 2.94)
Myles et al 2012 (UK)	- 2.22 (1.18, 4.18)
Subtotal (I-squared = 0.0%, p = 0.668)	2.15 (1.59, 2.91)
Overall (I-squared = 85.1%, p = 0.000)	1.56 (1.28, 1.90)
NOTE: Weights are from random effects analysis	
.00628 1	159

1.4 subgroup analysis on the obesity and mortality of influenza

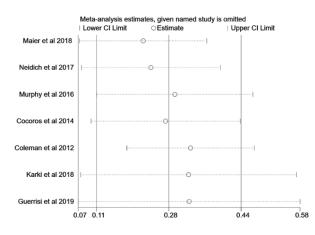


Content	P value for Begg's test
Obesity and Influenza Risk	1.00
Obesity and Influenza Hospitalization	0.12
Obesity and severe outcome	0.174
Obesity and morality	0.533
Morbid obesity and severe outcome	1.00

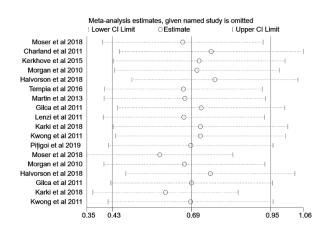
2. Publication bias assessment by Begg's test

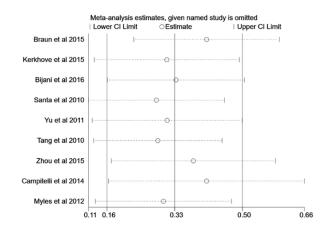
3. Sensitivity analysis

3.1 Sensitivity analysis on the obesity and influenza risk



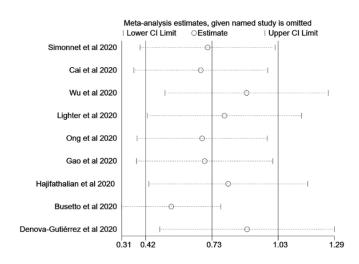
2.2 Sensitivity analysis on the obesity and influenza hospitalization



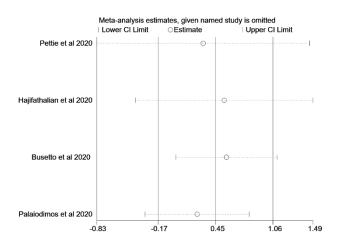


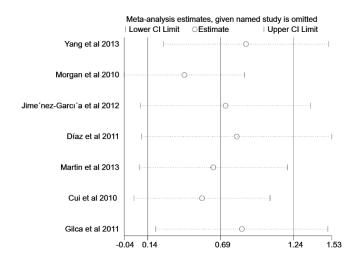
2.3 Sensitivity analysis on the obesity and influenza severity

2.4 Sensitivity analysis on the obesity and COVID-19 severity



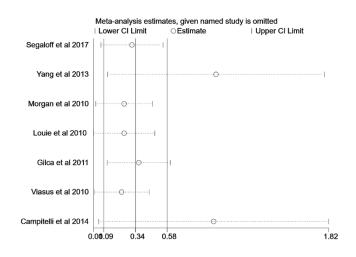
2.5 Sensitivity analysis on the obesity and COVID-19 death





2.6 Sensitivity analysis on the obesity and influence death

2.7 Sensitivity analysis on the morbid obesity and severity, mortality of influenza



2.8 Sensitivity analysis on the morbid obesity and severity, mortality of COVID-19

