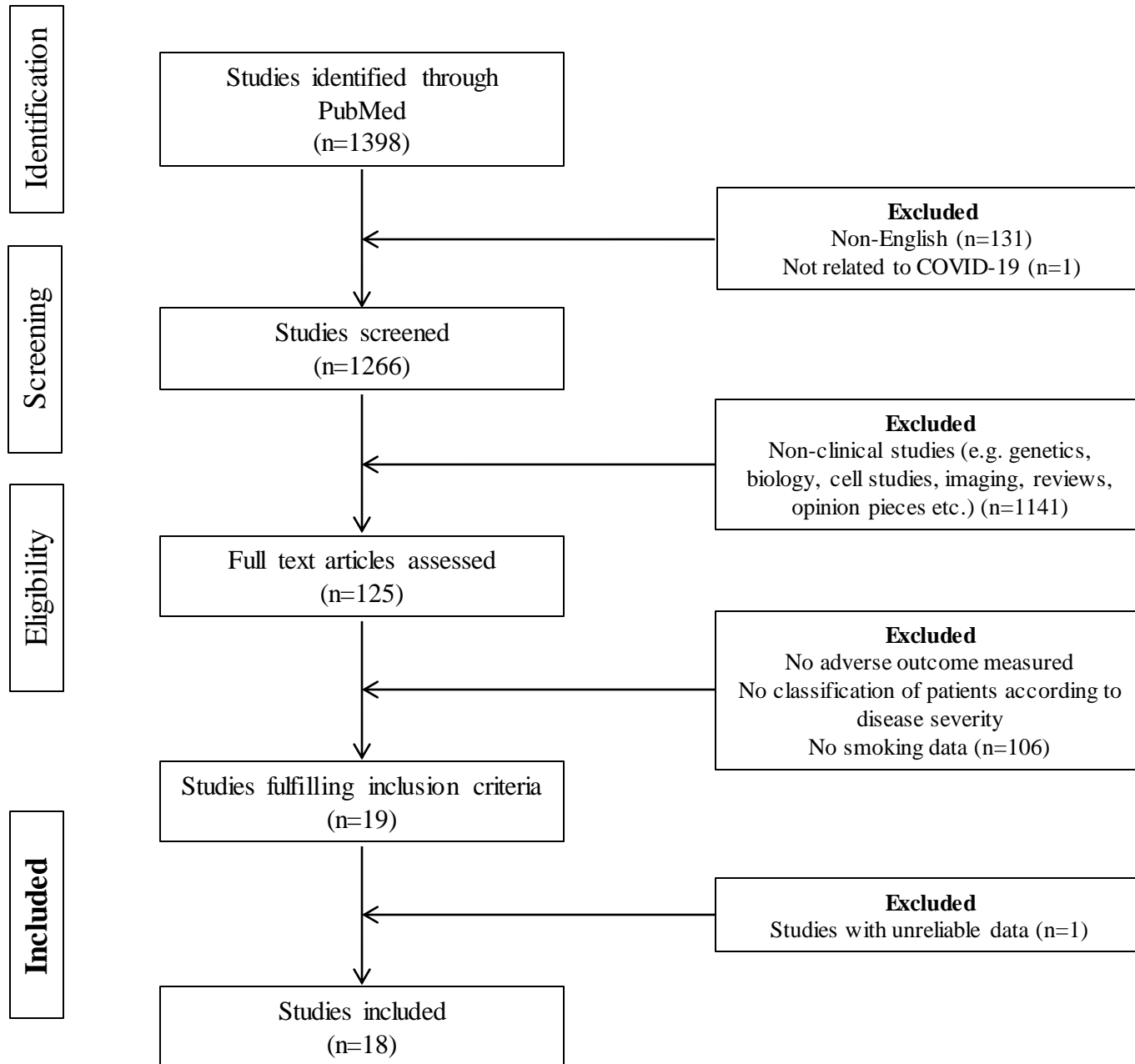


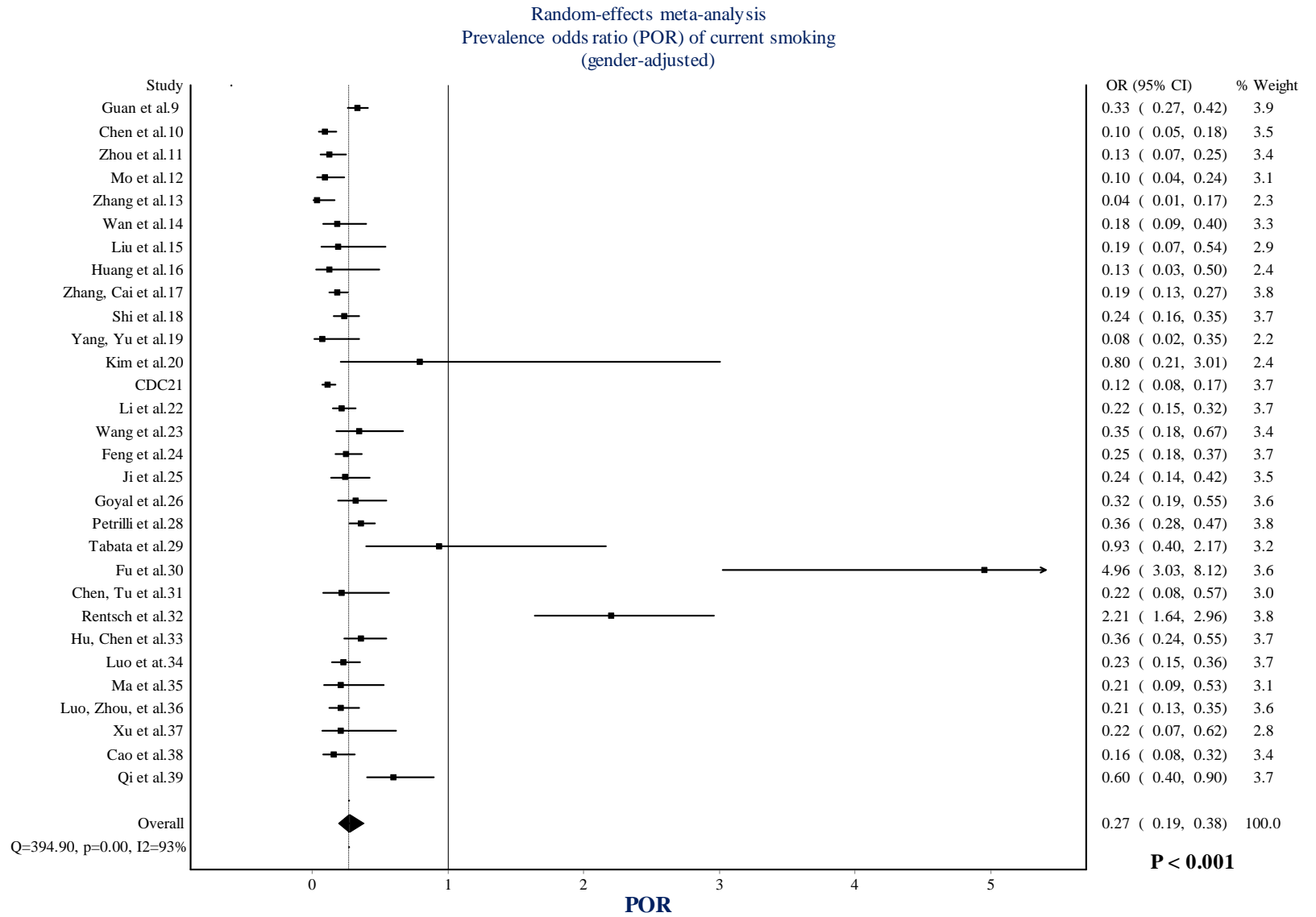
Supplementary Table 1. Definition of outcomes in the studies examined.

	Definition of adverse outcome
Guan et al. ⁹	Composite end point of admission to an intensive care unit, the use of mechanical ventilation, or death.
Chen et al. ¹⁰	Mild vs. Severe disease
Zhou et al. ¹¹	Death
Mo et al. ¹²	Death
	Refractory disease, defined as not fulfilling the following criteria: (i) obvious alleviation of respiratory symptoms (eg. cough, chest distress and breath shortness) after treatment; (ii) maintenance of normal body temperature for ≥ 3 days without the use of corticosteroid or antipyretics; (iii) improvement in radiological abnormalities on chest CT or X-ray after treatment; (iv) a hospital stay of ≤ 10 days.
Zhang et al. ¹³	Severe disease, designated when the patients had one of the following criteria: (a) respiratory distress with respiratory frequency ≥ 30 /min; (b) pulse oximeter oxygen saturation $\leq 93\%$ at rest; and (c) oxygenation index (artery partial pressure of oxygen/inspired oxygen fraction, PaO ₂ / FiO ₂) ≤ 300 mm Hg.
Wan et al. ¹⁴	Severe disease, defined as having: respiratory distress, RR ≥ 30 beats/minute in a resting state, a mean oxygen saturation of $\leq 93\%$, and an arterial blood oxygen partial pressure (PaO ₂)/oxygen concentration (FiO ₂) ≤ 300 mmHg. Critical cases were also included, defined as: having respiratory failure and requiring mechanical ventilation, the occurrence of shock, and the combined failure of other organs that required intensive care unit (ICU) monitoring and treatment.
Liu et al. ¹⁵	Disease progression, defined as: common-type disease changed to severe- or critical-type, or death; severe-type changed to critical-type or death; critical-type progressed to death.
Huang et al. ¹⁶	ICU care.
Zhang, Cai et al. ¹⁷	Pneumonia, diagnosed based on imaging findings (abnormal imaging findings).
Shi et al. ¹⁸ (1)	Occurrence of death or severe cases
Yang, Yu et al. ¹⁹	Death
Kim et al. ²⁰	Oxygen administration in mask or nasal canula
CDC ²¹	ICU Admission
	Not hospitalized vs. hospitalized
Li et al. ²²	Severe disease
Wang et al. ²³	Critical patients
Feng et al. ²⁴	Severe, defined as respiratory distress or respiratory rate ≥ 30 per min or oxygen saturation on room air at rest $\leq 93\%$ or partial pressure of oxygen in arterial blood / fraction of inspired oxygen ≤ 300 mmHg Critical, defined as respiratory failure and mechanical ventilation or shock or other organ dysfunction needing intensive care unit treatment.
Ji et al. ²⁵	Progression to severe disease, defined as respiratory rate ≥ 30 breaths/min or resting oxygen saturation $\leq 93\%$ or PaO ₂ /FiO ₂ ≤ 300 mmHg or requirement of mechanical ventilation or worsening lung CT.
Goyal et al. ²⁶	Invasive mechanical ventilation
Pre-publications	
Petrilli et al. ²⁸	Critical illness
Tabata et al. ²⁹	Severe symptomatic, defined as showing clinical symptoms of pneumonia (dyspnea, tachypnea, peripheral capillary oxygen saturation $< 93\%$, and need for oxygen therapy)
Fu et al. ³⁰ (4)	Death
Chen, Tu et al. ³¹	Severe
Rentsch et al. ³²	Hospitalization
Hu, Chen et al. ³³	Unfavorable outcome, defined as death, progression from non-severe to severe/critical disease status or severe to critical status, and/or maintenance of severe or critical status.
Luo et al. ³⁴	Death
Ma et al. ³⁵	Severe
Luo, Zhou, et al. ³⁶	Death
Xu et al. ³⁷	Severe, defined as respiratory rate > 30 breaths/min, severe respiratory distress, or SpO ₂ $< 90\%$ on room air. or critical, defined as pneumonia (ARDS, sepsis, septic shock).
Cao et al. ³⁸	ICU
Qi et al. ³⁹	Severe

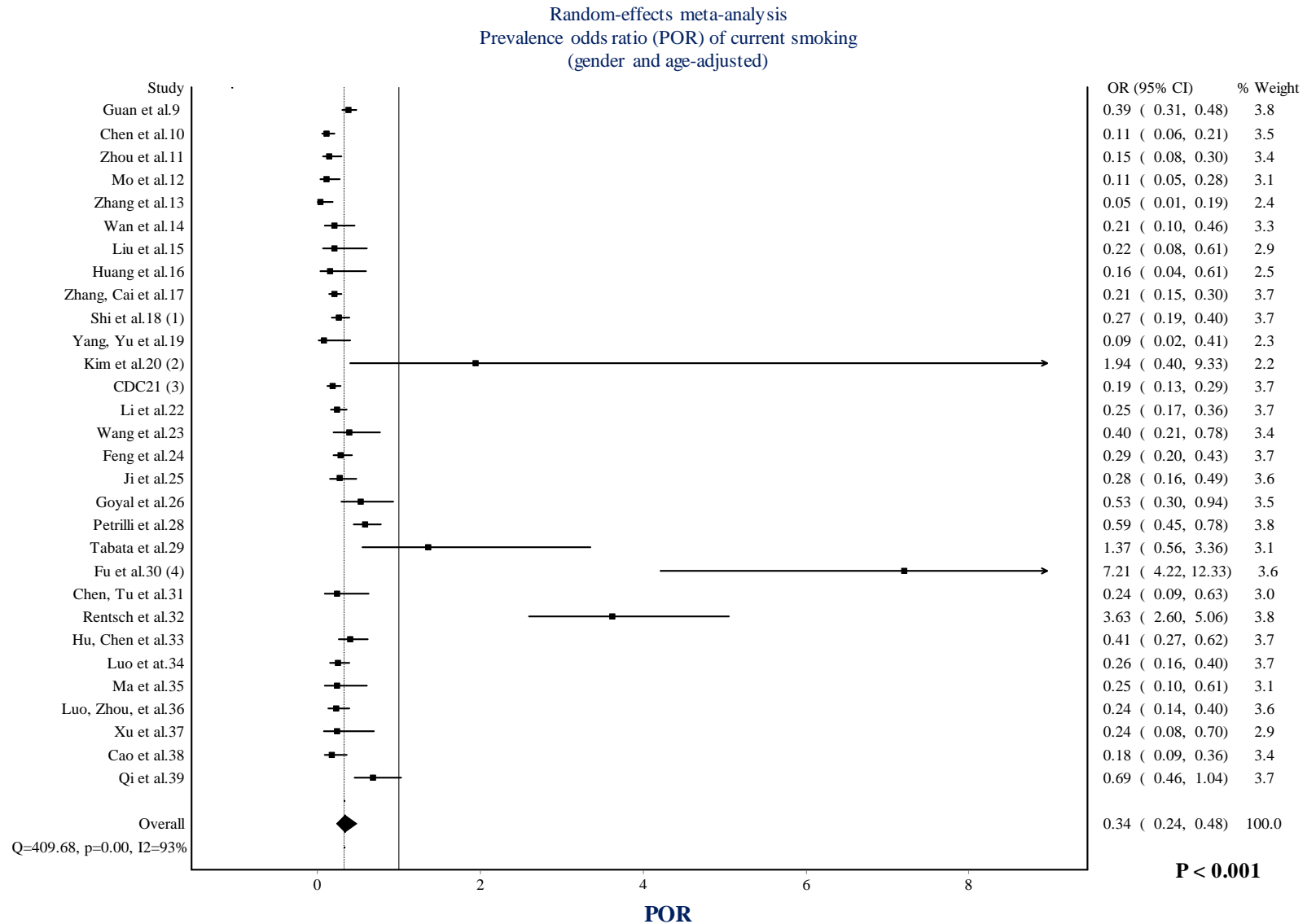
Supplementary Figure 1. PRISMA flow diagram



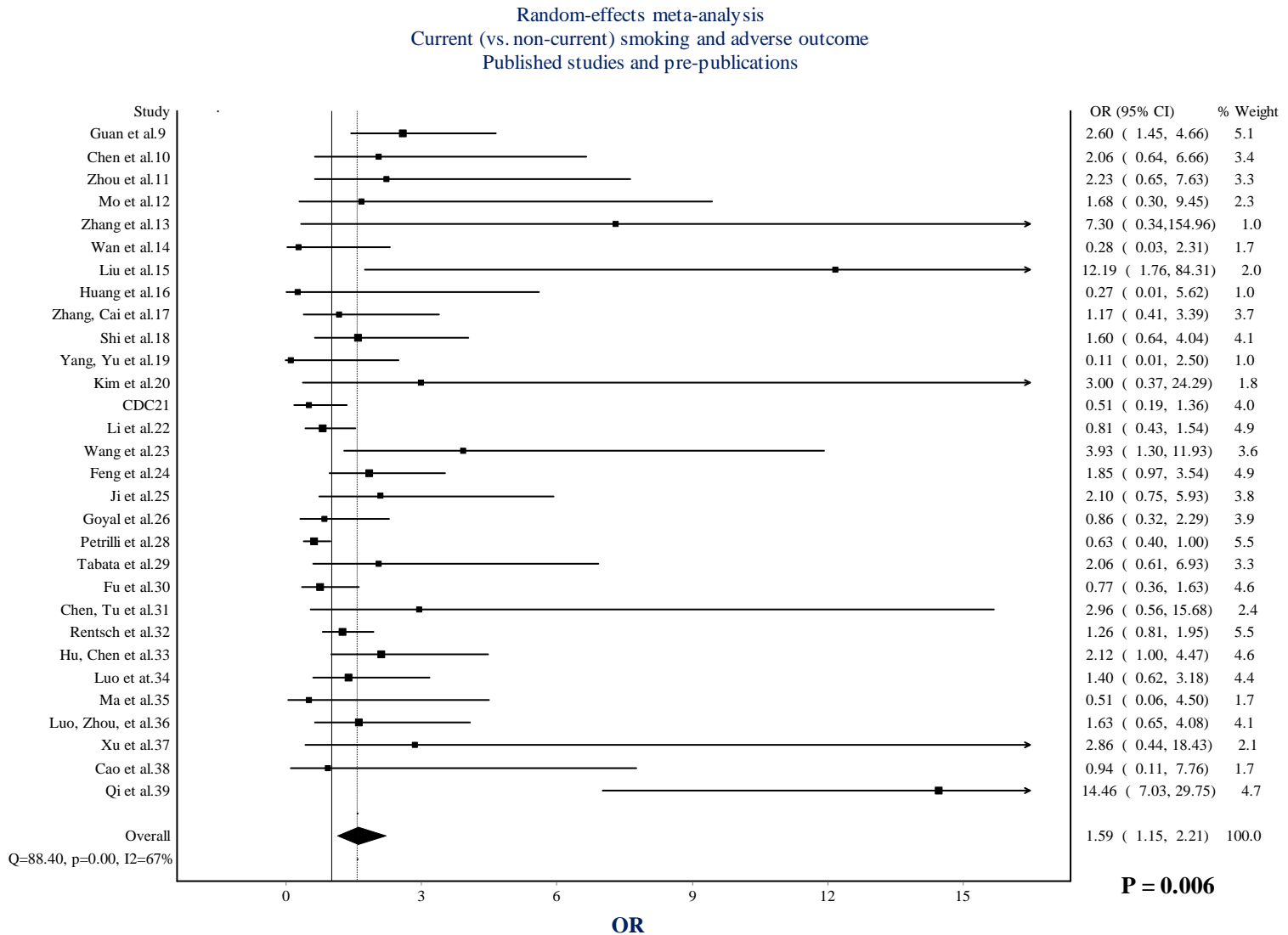
Supplementary Figure 2. Random-effects meta-analysis of the gender-adjusted prevalence odds ratio (POR). Analysis of all studies (published and pre-publications).



Supplementary Figure 3. Random-effects meta-analysis of the gender and age-adjusted prevalence odds ratio (POR). All patients were assumed to be aged ≥ 65 years. Analysis of all studies (published and pre-publications).



Supplementary Figure 4. Random-effects meta-analysis of the association between current (vs. non-current) smoking and adverse outcome in COVID-19. Analysis of all studies (published and pre-publications).



Supplementary Figure 5. Random-effects meta-analysis of the association between current (vs. former) smoking and adverse outcome in COVID-19. Analysis of all studies (published and pre-publications).

