

Factors associated with the prescribing of high-dose opioids in primary care: a systematic review and meta-analysis

Georgia C Richards, Kamal R Mahtani, Tonny B Muthee, Nicholas J DeVito, Constantinos Koshiaris, Jeffrey K Aronson, Ben Goldacre, Carl Heneghan

Introduction

- The risks of harms from opioids increase substantially at high doses, and high-dose prescribing has increased in primary care.
- Little is known about what leads to high-dose prescribing, and studies exploring this have not been synthesized.
- We aimed to systematically synthesize factors associated with the prescribing of high-dose opioids in primary care.
- We included **six** studies with **4,248,119** participants taking opioids; high-doses were prescribed in 3.6% of the participants.

Methods

We preregistered our protocol (Prospero CRD42018088057).

Inclusion criteria: Observational studies in high-income countries that used patient-level primary care data and explored any factor(s) in people for whom opioids were prescribed, stratified by oral morphine equivalents (OME). We defined high doses as 90 mg/day OME or more.

Databases: We searched Medline, Embase, and Web of Science from database inception to 5 April 2019.

Risk of bias (quality) assessment: We used the National Institute of Health (NIH), National Heart, Lung, and Blood Institute (NHLBI) Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies.

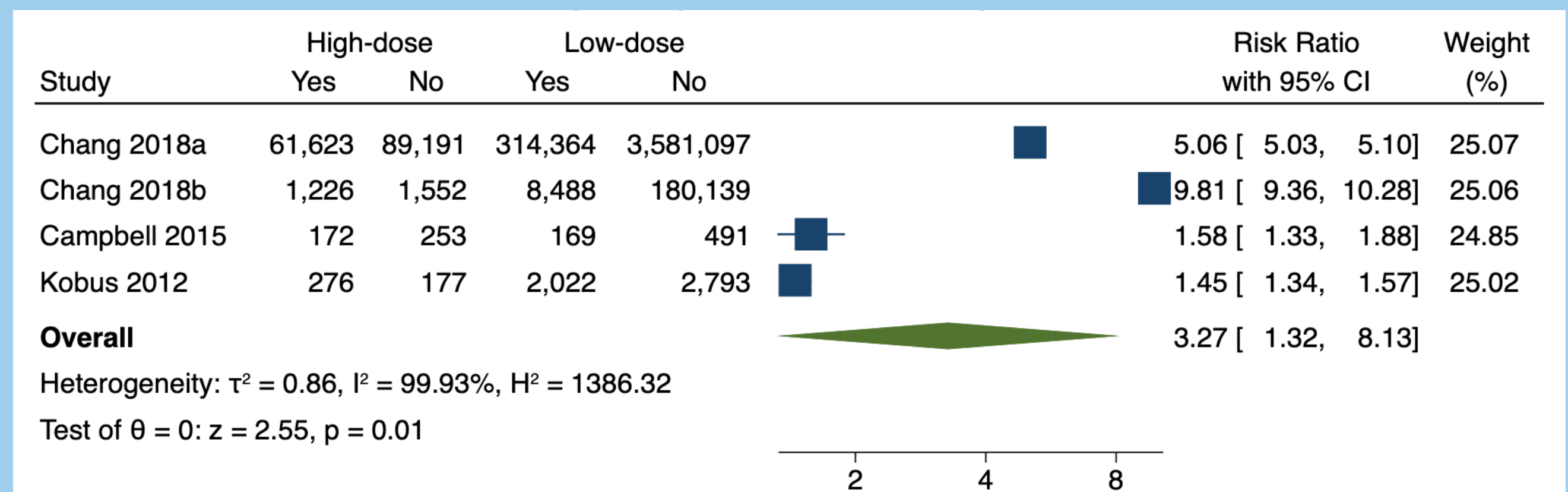
Statistical analyses: We pooled data on factors using random-effects meta-analyses and reported relative risks (RR) or mean differences, with 95% confidence intervals (CI) when appropriate. We also performed a number needed to harm (NNT_H) calculation on factors when applicable.

Results

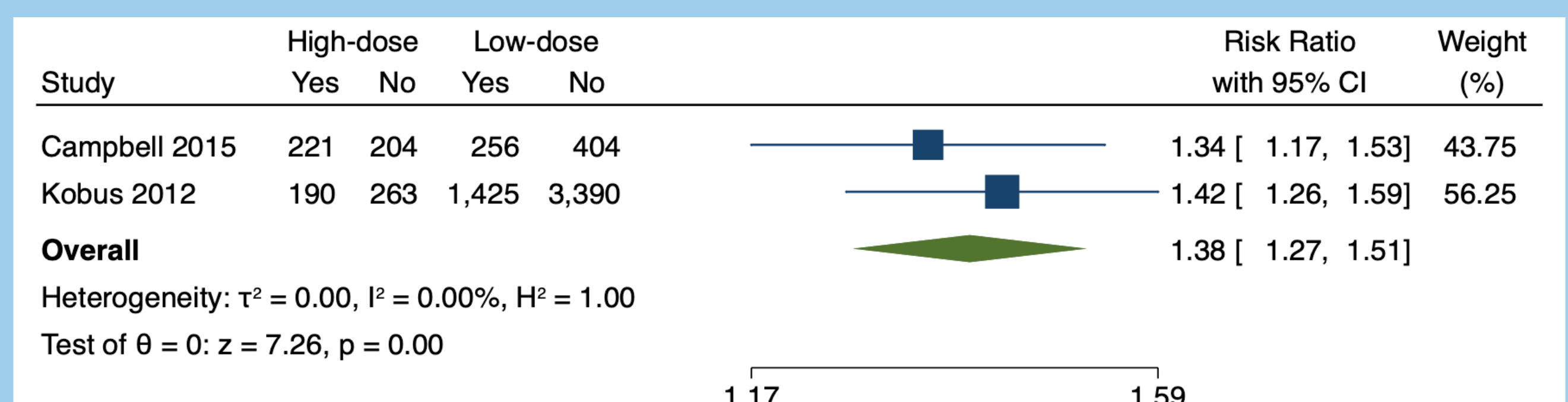
- The results are shown in Figure 1.
- Co-prescription of benzodiazepines (RR=3.3), depression (RR=1.4), visits to the Emergency Department (RR=1.5), unemployment (RR=1.4), and male gender (RR=1.2) were significantly associated with prescribing of high doses of opioids in primary care.

Conclusions

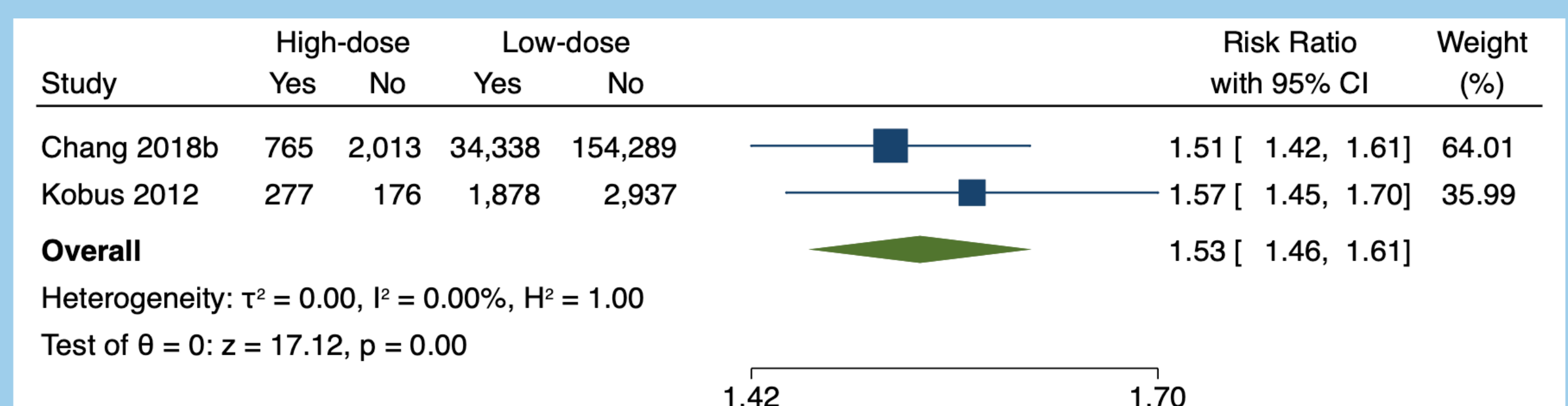
High doses of opioids are associated with greater risks of harms. Associated factors identify priority features that can be considered when selecting a person for opioid therapy, identifying people who may experience harms, and when managing people taking high-dose opioids in primary care and designing services for them.



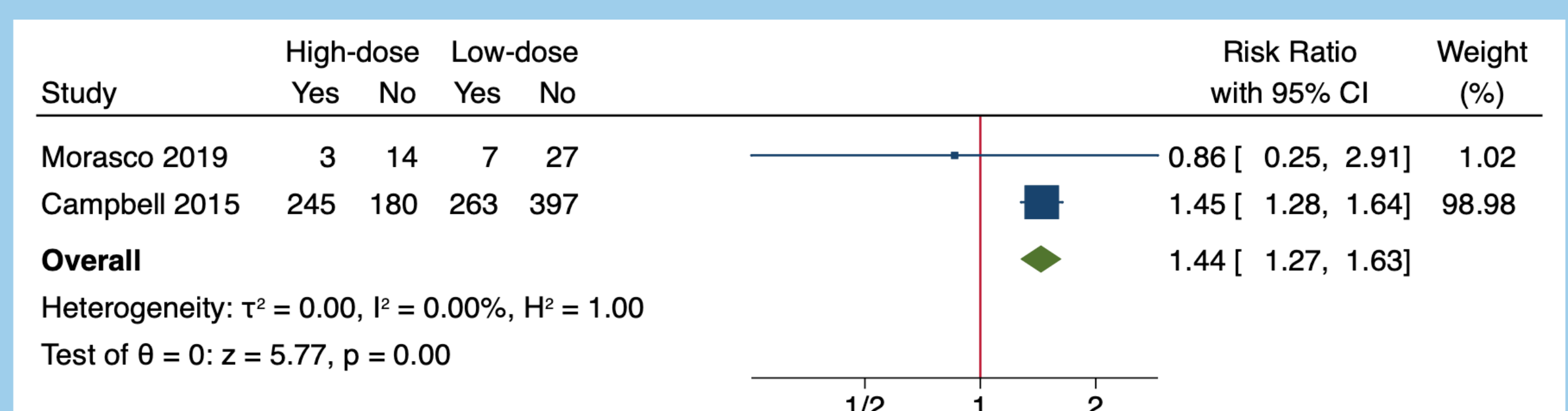
Participants taking high doses were **3.3 times** more likely to have **benzodiazepines co-prescribed** than participants taking low doses.



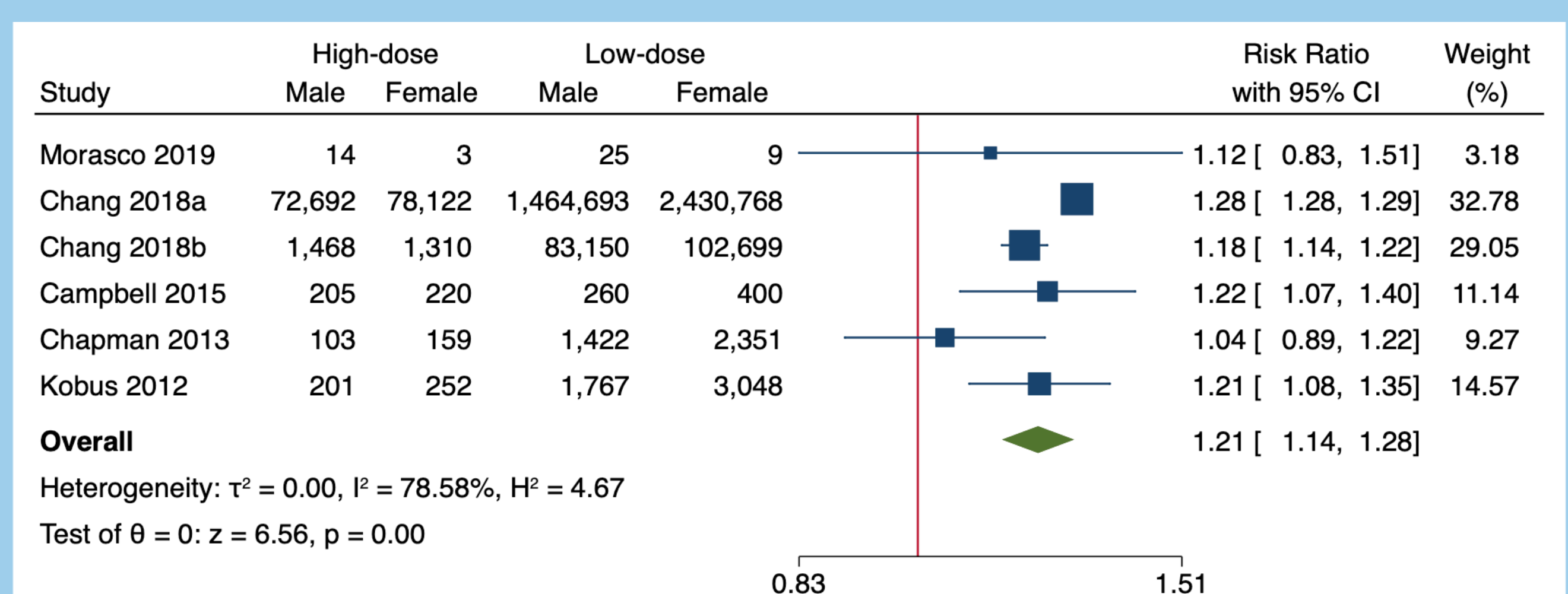
Participants taking high doses of opioids were **1.4 times** more likely to have **depression** than participants taking low doses.



Participants taking high doses of opioids were **1.5 times** more likely to attend the **Emergency Department** than participants taking low doses.
For every 15 participants on high doses, one will present to the Emergency Department (NNT_H = 15; 95% CI: 12 to 20).



Participants taking high doses of opioids were **1.4 times** more likely to be **unemployed** than participants taking low doses.



Participants taking high doses of opioids were **1.2 times** more likely to be of **male gender** than participants taking low doses.

Figure 1: Forest plots of the factors associated with prescribing of high-dose opioids in primary care



Contact:

Georgia Richards

@Richards_G_C

georgia.richards@phc.ox.ac.uk

Funders

naji foundation

The Rotary Foundation

Funded by
NHS
National Institute for Health Research