

# The prevalence of hazardous and harmful alcohol use across occupations with an increased risk of trauma exposure: a meta-analysis and meta-regression

## Background

- Approximately **70% of adults** experience a **traumatic stressor** at least once during their lifetime [1], **certain occupations** have an increased risk of **frequent trauma exposure** [2].
- Trauma exposure is associated with an increased risk of **hazardous or harmful alcohol consumption** [3], trauma-exposed individuals use substances as a form of avoidance coping [4].
- Recurrent work-related trauma increases the likelihood of developing **mental health problems** [5], and mental health and alcohol problems often **co-occur** [6].
- The following occupations have an increased risk of trauma exposure: **health care workers, first responders, armed forces personnel, train drivers and journalists** [2].

## Aims

- To determine the prevalence of **hazardous** and **harmful** alcohol use in **occupations** with an increased risk of **trauma exposure**
- To **compare** the prevalence of hazardous and harmful alcohol use across the **different occupational groups**
- To examine whether the prevalence of hazardous and harmful alcohol use **varies** depending on the **measure used, mental health, sex or age**.

## Method

### Eligibility Criteria

#### Condition

- Prevalence of hazardous and/or harmful alcohol use
- Standardised measure

#### Context

- All geographical locations

#### Population

- Subjects who are currently working in occupations with an increased risk of trauma exposure
- Subjects must be of working age (i.e., > 16 years old)

### Quality Assessment

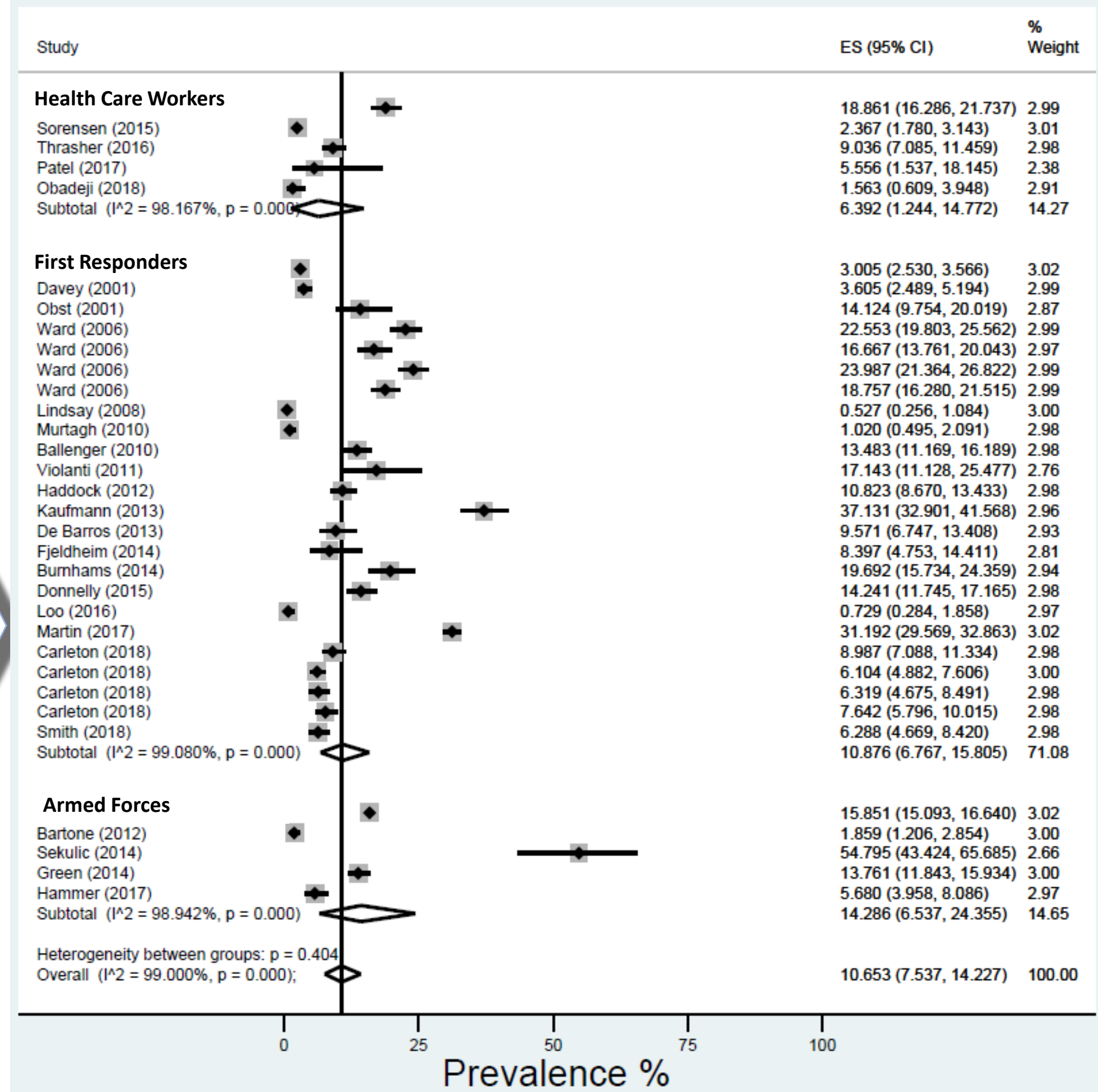
Question	Yes	No	Unclear	Not Applicable
1. Was the sample frame appropriate to address the target...	44	6	4	0
2. Were study participants sampled in an appropriate way?	22	21	9	0
3. Was the sample size adequate?	38	16	0	0
4. Were the study subjects and the setting described in detail?	44	4	4	0
5. Was the data analysis conducted with sufficient coverage of...	9	8	32	0
6. Were valid methods used for the identification of the condition?	42	7	5	0
7. Was the condition measured in a standard, reliable way for all...	52	1	10	0
8. Was there appropriate statistical analysis?	20	27	5	0
9. Was the response rate adequate, and if not, was the low...	21	20	11	0

### Data Analysis

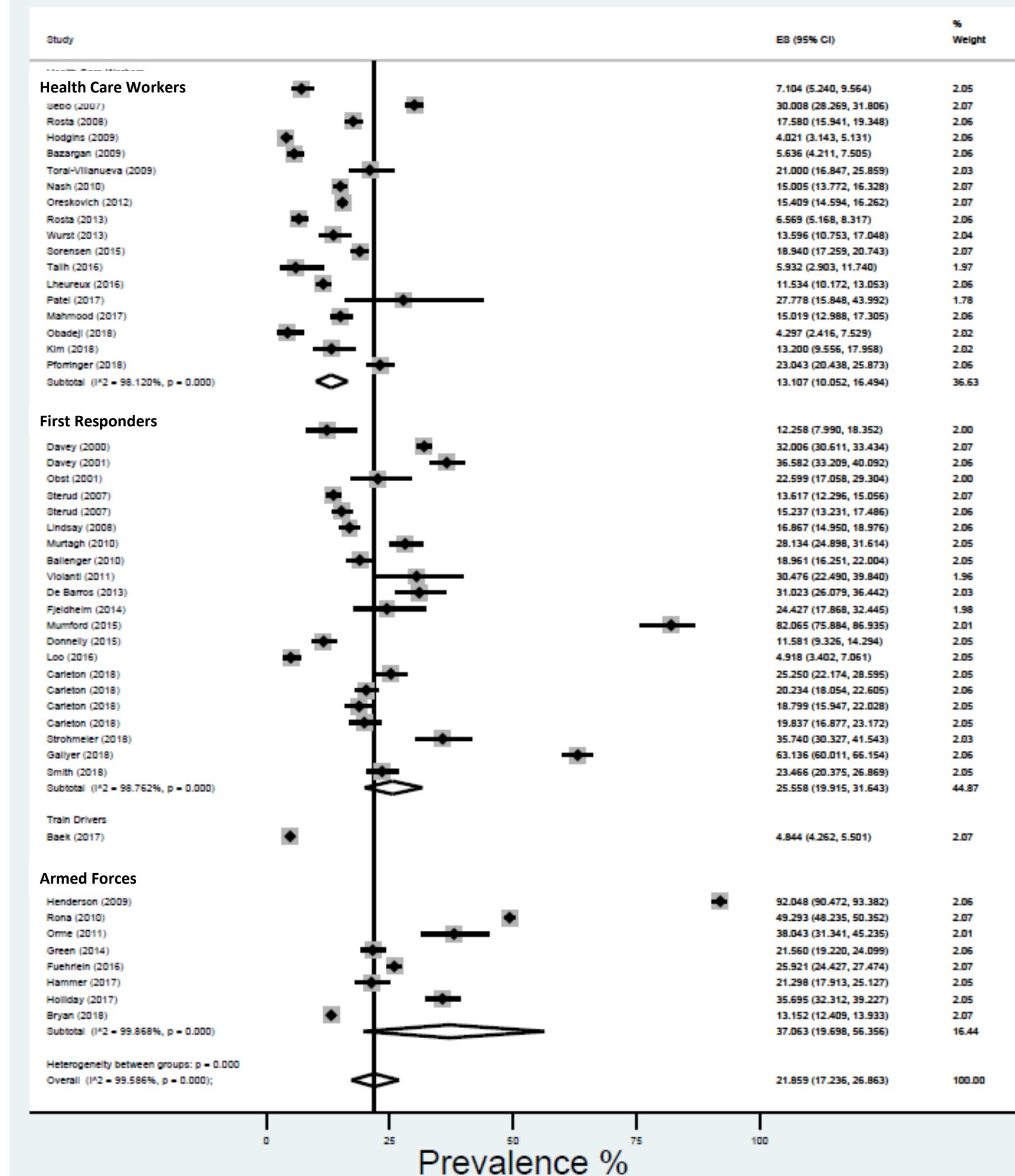
- Random-effects meta-analysis, Freeman-Tukey double arcsine transformation.
- Sub-group analysis by occupational groups.
- Sub-group analysis by measure used.
- Sensitivity analysis → assess the impact of methodological quality on results.
- Meta-regression → age, sex and mental health.

## Results

### Harmful alcohol use separated by broad occupational groups

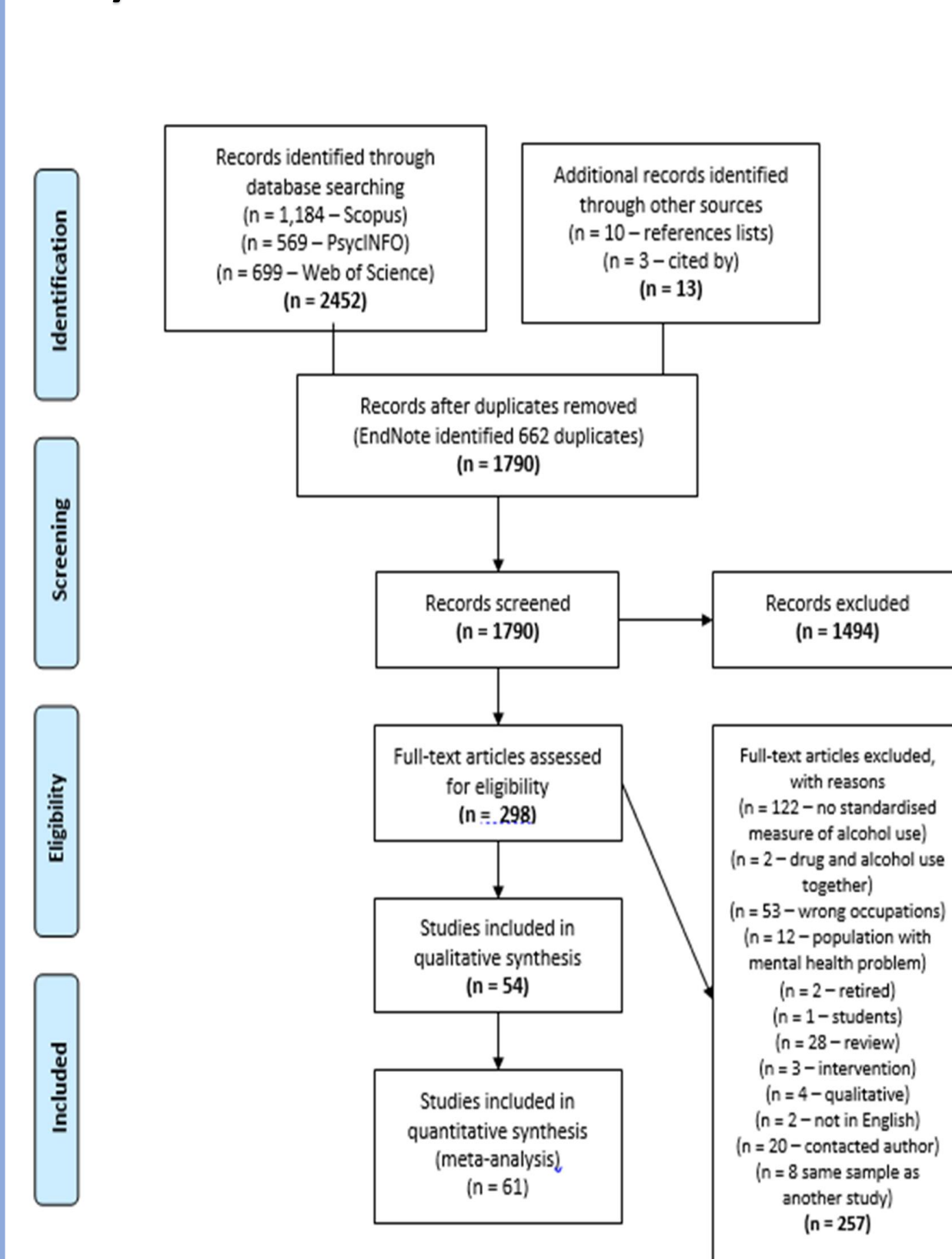


### Hazardous alcohol use separated by broad occupational groups



## Results

### Study Characteristics



### Hazardous Use

- Overall prevalence = **22% (95% CI: 17% to 27%)**
- Lower in health care workers (**13%; 95% CI: 10% to 16%**), compared to first responders (**26%; 95% CI: 20% to 32%**) and armed forces (**37%; 95% CI: 20% to 56%**)

### Harmful Use

- Overall prevalence = **11% (95% CI: 8% to 14%)**
- Highest was in armed forces (**14%; 95% CI: 7% to 24%**), but this was not significantly greater than first responders (**11%; 95% CI: 7% to 16%**) or health care workers (**6%; 95% CI: 1% to 15%**)

### Measure Used

- The AUDIT C showed higher prevalence estimates (**36%; 95% CI: 23% to 51%**) than the full AUDIT (**18%; 95% CI: 13% to 23%**) for hazardous use
- There was no difference between full AUDIT and CAGE for harmful use

### Meta-regression

- Depression and PTSD were not significant predictors of variance in heterogeneity

### Sensitivity Analysis

- Low quality studies obtained higher prevalence estimates for both hazardous (**28%; 95% CI: 24% to 32%**) and harmful (**23%; 95% CI: 6% to 47%**) alcohol use

## Discussion

- Studies of **armed forces** personnel showed **higher levels** of hazardous and harmful alcohol use → **male-dominated**, occupational culture which encourages drinking, experience **higher levels of trauma** [7]
- Would have expected **mental health** to be associated with **variation** → many different measures/cut-offs, wide variation across studies
- Gaps in literature → only **1 study of train drivers, none for journalists**
- However, **low quality** studies, and studies which used the **AUDIT C**, obtained **higher prevalence** estimates.
- Studies often used **different cut-offs** for the AUDIT and AUDIT C, reducing the reliability of comparisons