

Conclusion

Targeted, context-specific interventions were associated with improvements in asthma outcomes among socioeconomically disadvantaged and minority ethnic populations, however, current evidence is limited by uncontrolled studies. Robust controlled studies are needed to confirm causality and inform equitable asthma service delivery.

Introduction

- Asthma outcomes are disproportionately worse among socioeconomically disadvantaged and minority ethnic adults (1)
- In 2019, asthma affected over 260 million people globally (2)
- Structural, social and healthcare barriers limit access to optimal asthma care
- It remains unclear whether targeted interventions improve outcomes in these populations

Aim

To assess whether **targeted interventions** delivered to individuals of low socioeconomic status background and/or ethnic minority groups are associated with **improvements in asthma outcomes** such as emergency department (ED) attendances and asthma-related hospitalisations.

Results

- Nine quasi-experimental pre-post studies across four countries (see QR code in references for OSIS table)
- Meta analysis indicated a similar pattern of effects across studies, but evidence is limited by small, uncontrolled studies
- Consistent improvements in asthma control measured by the Asthma Control Test were observed across studies measuring ACT

ED attendances
Pooled RR = 0.67 95% CI 0.53–0.86

Hospitalisations
Pooled RR = 0.64 95% CI 0.46–0.90

Future Directions

- Randomised or controlled designs needed to strengthen causal inference
- More focus on interventions addressing structural barriers alongside education
- Embed targeted asthma support in routine clinical care

Methods

- Systematic review of quasi-experimental studies
- Searches were conducted in 2023, and updated in 2024 and 2025 using Ovid MEDLINE, Ovid Embase and Web of Science
- Search terms: asthma combined with key words relating to socioeconomic disadvantage and ethnicity/race
- Studies published between 1998 – September 2025 were eligible for inclusion
- Risk of bias assessed using ROBINS-I
- Random effects meta-analysis used for available pre-post data; remaining outcomes synthesized narratively

Study Selection

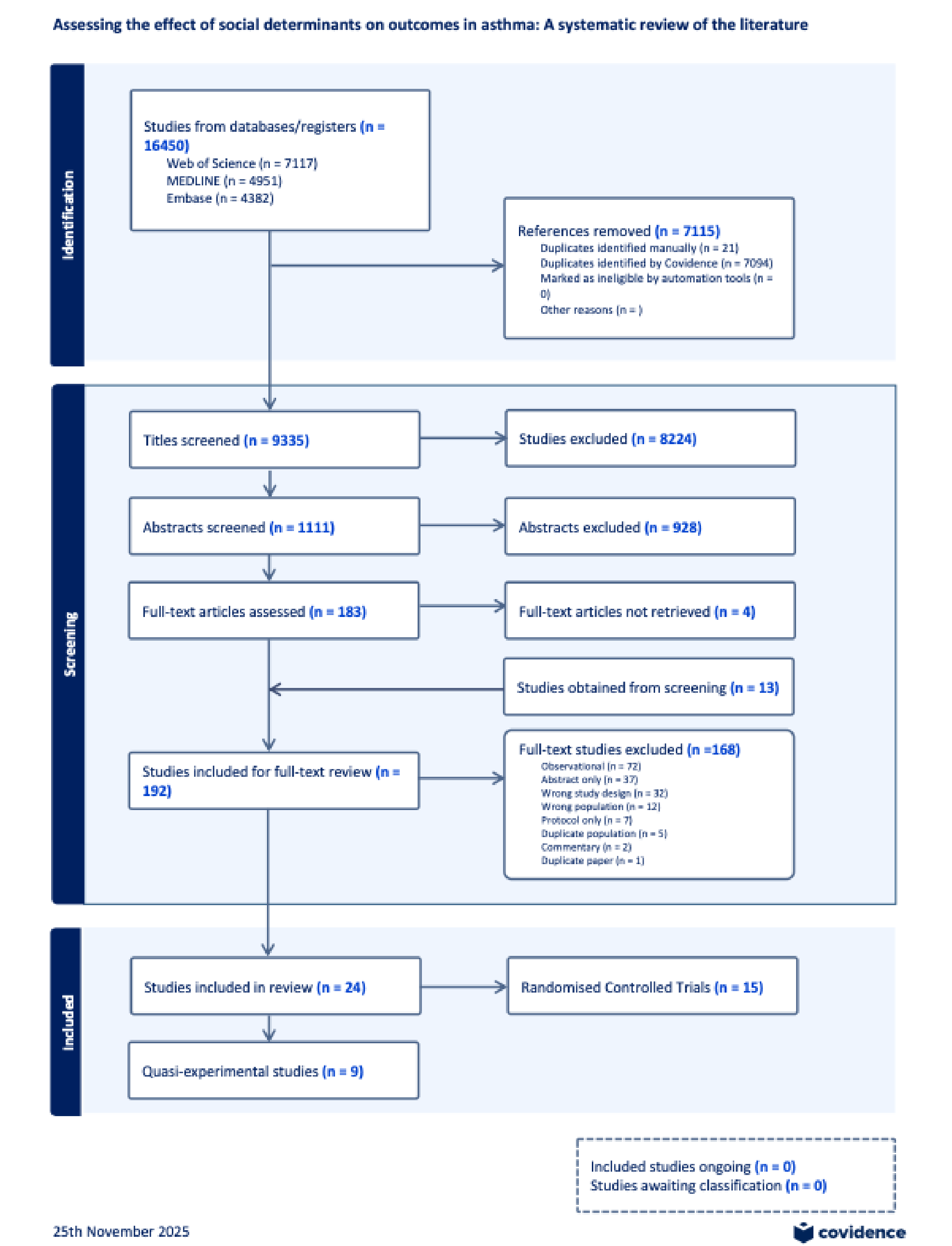


Figure 1. PRISMA flowchart diagram outlining the study search and selection process with numbers and reasoning at each step of the systematic review.

Forest Plots

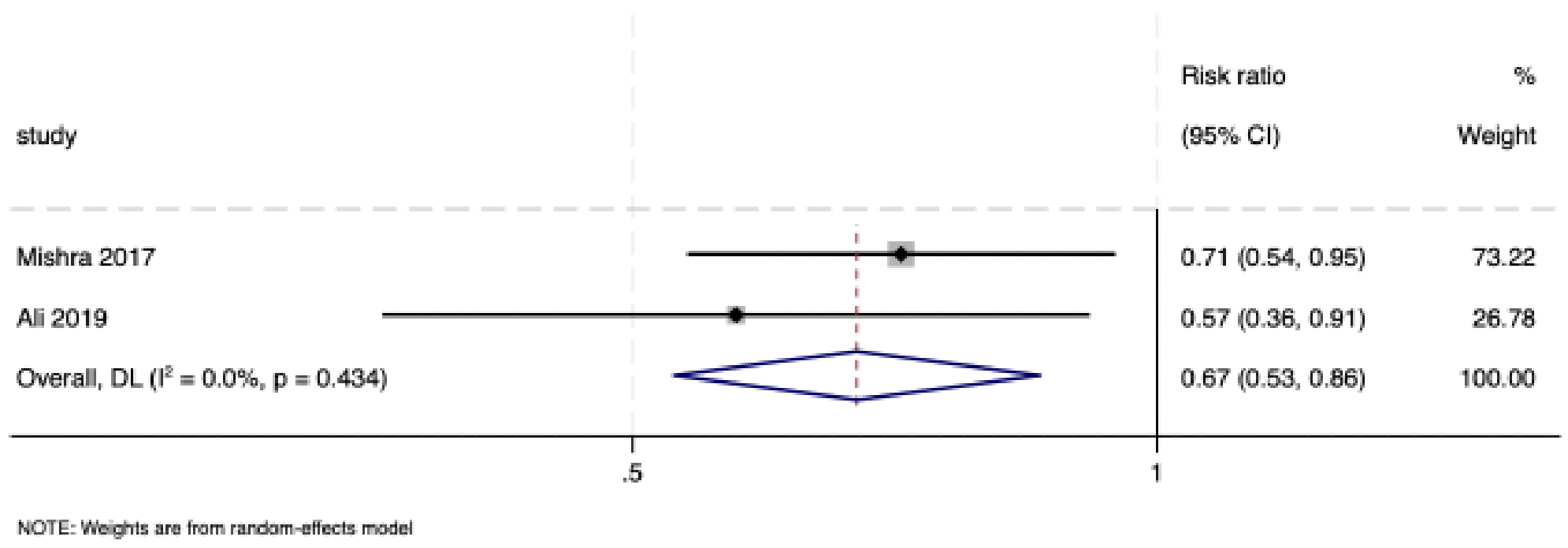


Figure 2. Forest plot of ED attendances before and after intervention. Random-effects Mantel-Haenszel model; RR < 1 favours reduced ED attendance after intervention. Two studies included.

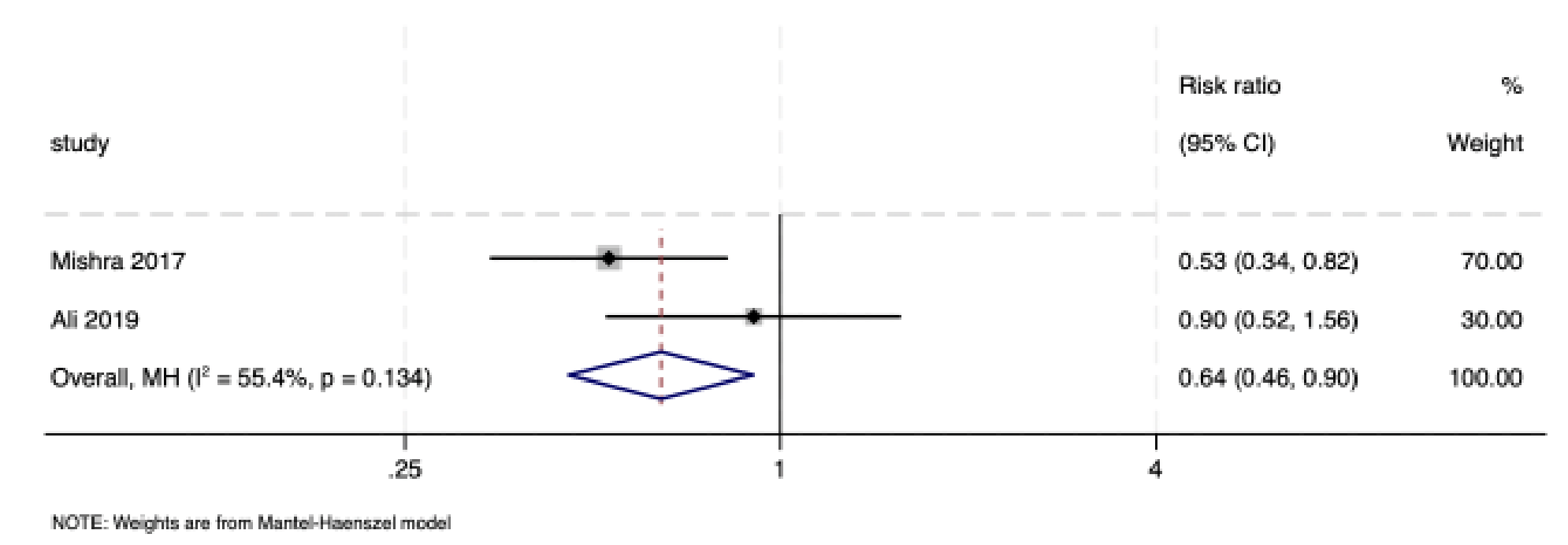


Figure 3. Forest plot of hospitalisations before and after intervention. Random-effects Mantel-Haenszel model; RR < 1 favours reduced hospitalisation after intervention. Two studies included.

Key Points of Interest

- Education-focused interventions were associated with improved asthma control; reductions in healthcare use were more evident in multi-component approaches
- Improvements were observed despite single-arm pre-post designs, suggesting that some drivers of excess asthma burden in underserved populations may be modifiable
- Variation in outcome measures and follow-up limited direct comparison between studies, highlighting the need for more standardised reporting

References & OSIS Table

- Forno E, Celedon JC. Asthma and ethnic minorities: socioeconomic status and beyond. Curr Opin Allergy Clin Immunol. 2009;9(2):154-60.
- Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet. 2020;396(10258):1204-22.

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No conflicts of interest declared.



Scan for OSIS summary table