Systematic review of health education interventions to reduce smoking harms among people who use cannabis

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BACKGROUND

Cannabis is widely used globally, with 219 million cannabis users in 2023 (UNODC, 2023). The most common ways to consume cannabis involve smoking it, for instance in joints and waterpipes. **Smoking cannabis introduces various health risks**, including respiratory symptoms, chronic bronchitis, and disrupted immunoregulation (Khoj et al., 2024).

It is common that people who use cannabis also use tobacco, sometimes consuming both substances together. This 'co-use' may lead to heightened health risks and addictive potential, as tobacco smoking is uniquely harmful and remains a leading cause of preventable death and illness worldwide (USDHHS, 2014).

To limit smoking-related harms among people who use cannabis, it is crucial to consider effective interventions such as **health education interventions**, which are scalable and cost-effective. It is also important the efficacy of such interventions among vulnerable populations, such as individuals with mental health conditions, who exhibit higher rates of both tobacco and cannabis use.

METHODS

We conducted a **systematic review** following PRISMA guidelines, registered on PROSPERO [CRD42024512945]. Eligible studies were required to:

- **Assess health education interventions** (as defined by WHO: "designed to help people improve their health by increasing knowledge, influencing motivation, and improving health literacy", WHO 2021) which targeted cannabis use (primarily or as part of a polysubstance intervention)
- **Record smoking behaviour as an outcome** (cannabis consumption through all combustible routes of administration and/or consumption of combustible tobacco among people who use cannabis)
- Be **peer-reviewed** and using **quantitative methodology**

Figure 2. PRISMA Flow Diagram

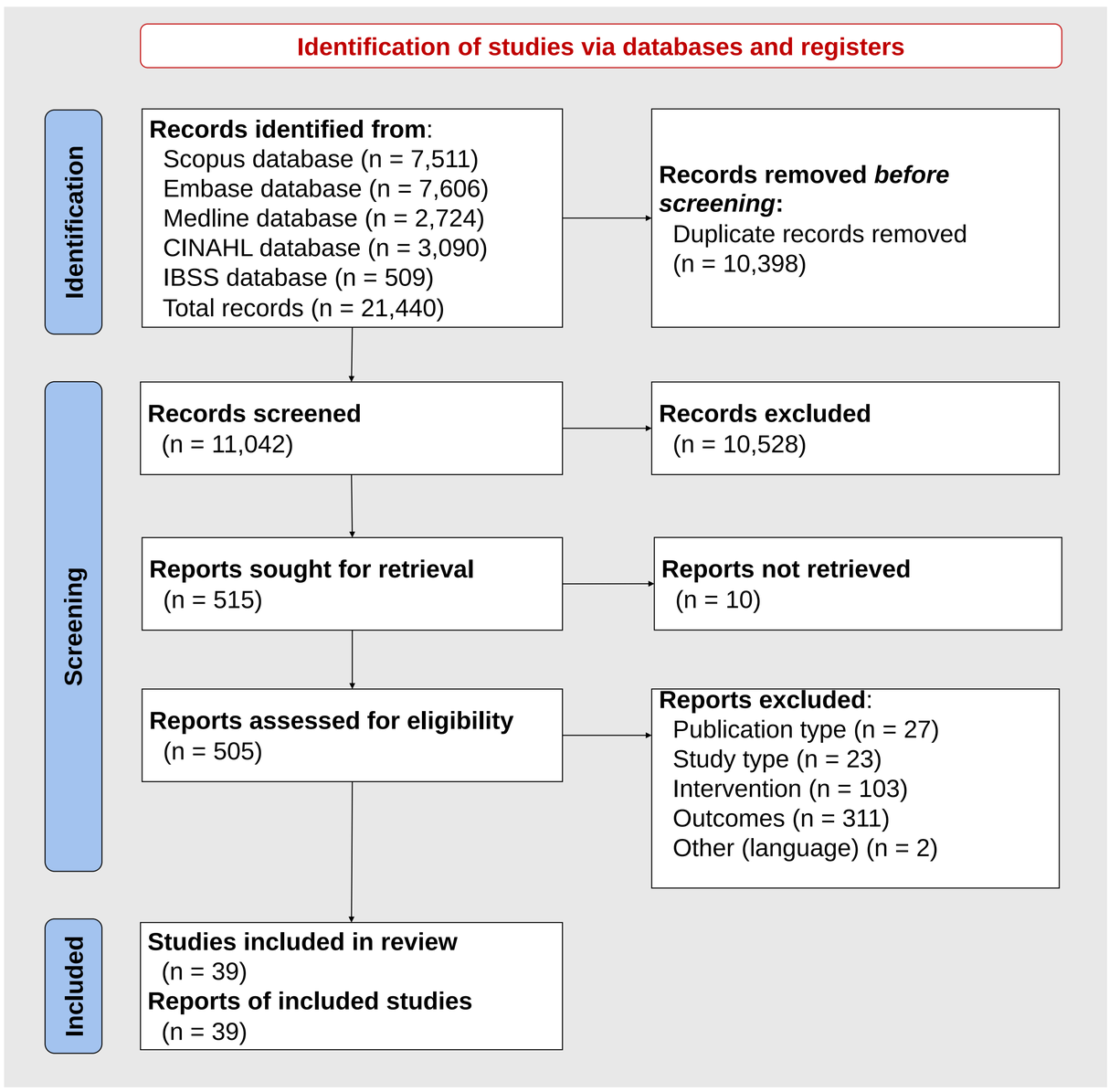
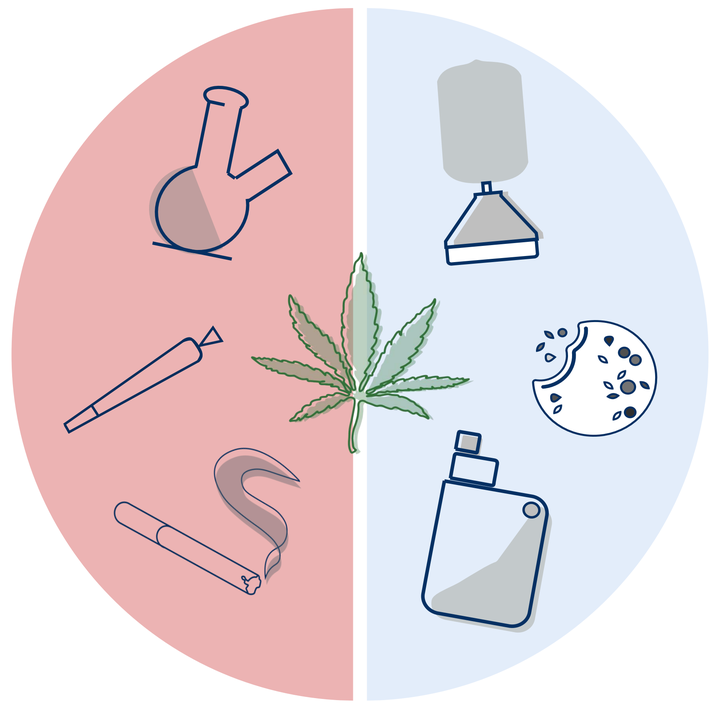


Figure 1. Cannabis use and smoking-related harms



Smoking and waterpipes (left) involve combustion; modes of consumption which do not involve combustion like e-cigarettes, dry herb vapourisers, and edible products (right) may reduce some health risks associated with cannabis use, as would avoiding co-use with tobacco.

RESULTS

Screening is summarised in the PRISMA diagram presented in **Figure 2**. At title-and-abstract, 20% of reports were screened at least twice; 40% of full-texts were second-screened. Inconsistent cases (n=90) were resolved though discussion between screeners, following which, 39 studies were included. Data has been extracted but the review is not yet completed: 6 of the 39 studies require discussion and risk-of-bias assessments remain to be conducted. The **findings below concern the 33 currently analysed studies:**

- **17** assessed **substance use prevention programmes**, **13 brief motivational interventions**, 4 brief personalised feedback, 4 other interventions (ad campaigns, social media, other psychoeducation)*
- **19 targeted adolescents**, 8 young adults, 3 adults*
- **Almost all only measured cannabis smoking/ joints consumed**, with only 1 measuring co-use and 1 measuring cannabis vaping

Overall, **18 of the 33 studies found a desirable effect of the assessed health education intervention on cannabis smoking**, with a further 5 finding partial effects (e.g., only short-term or among subsamples).*

** Interventions/studies may fall into more than one category*

CONCLUSION

While efficacy findings are promising, interventions are heterogeneous and few feature content specific to cannabis smoking or the co-use of cannabis with tobacco. Importantly, many studies did not meet inclusion criteria for this review because they did not specify how cannabis was consumed (i.e., smoked, vaped, other).

This highlights the importance of considering cannabis smoking-related harms both in the content of interventions, and in measuring cannabis-related outcomes when evaluating them.

Acknowledgements. Matilda Nottage is funded by the Economic & Social Research Council (ESRC) through the London Interdisciplinary Social Science Doctoral Training Partnership (LISS DTP; UKRI grant ES/P000703/1). The authors have no competing interests to declare.