

The potential impact of oral nicotine pouches on public health: A scoping review.

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Introduction

- Oral nicotine pouches (ONPs), mainly produced by major combustible tobacco manufacturers, have become widely available in the US and other countries.
- ONPs do not contain tobacco leaf and are often marketed as “tobacco-free”.
- They come in a variety of nicotine strengths and flavors and attract mixed populations.
- Their public health impact depends on the extent to which they replace or supplement the use of other, more harmful tobacco products, or contribute to the initiation of ONPs among tobacco-naïve populations.
- The scoping review provides a summary of the literature on ONPs and explores their potential impact on public health.

Methods

- The search for empirical studies examining outcome domains (Figure 1) was conducted in PubMed (MEDLINE), Web of Science, and Embase databases through January 10, 2024.
- We adhered to the guidelines for the Preferred Reporting Items for Scoping Reviews (PRISMA-ScR).
- Included peer-reviewed empirical studies published in English.

Figure 1. Outcome domains included in the review.

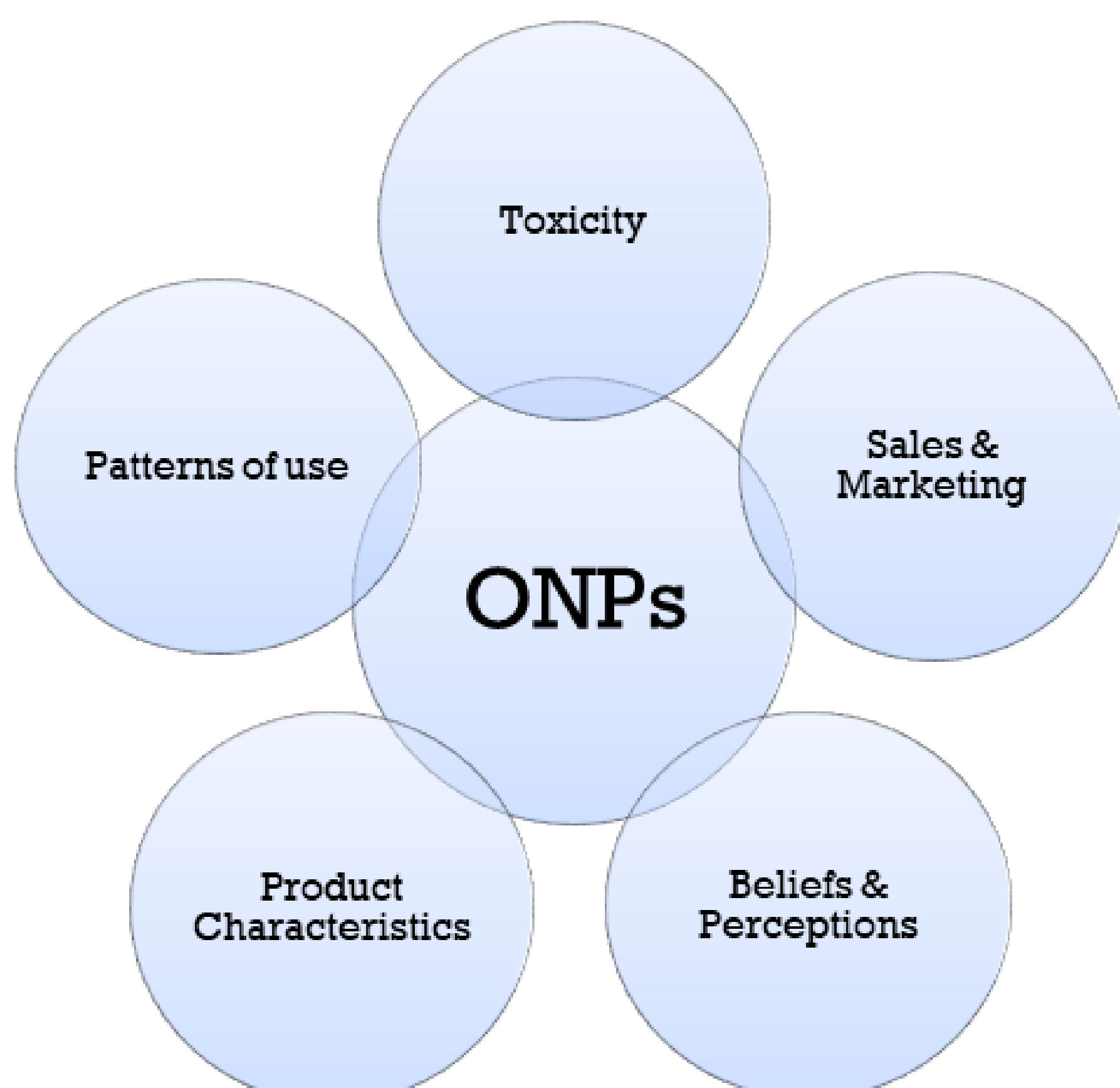
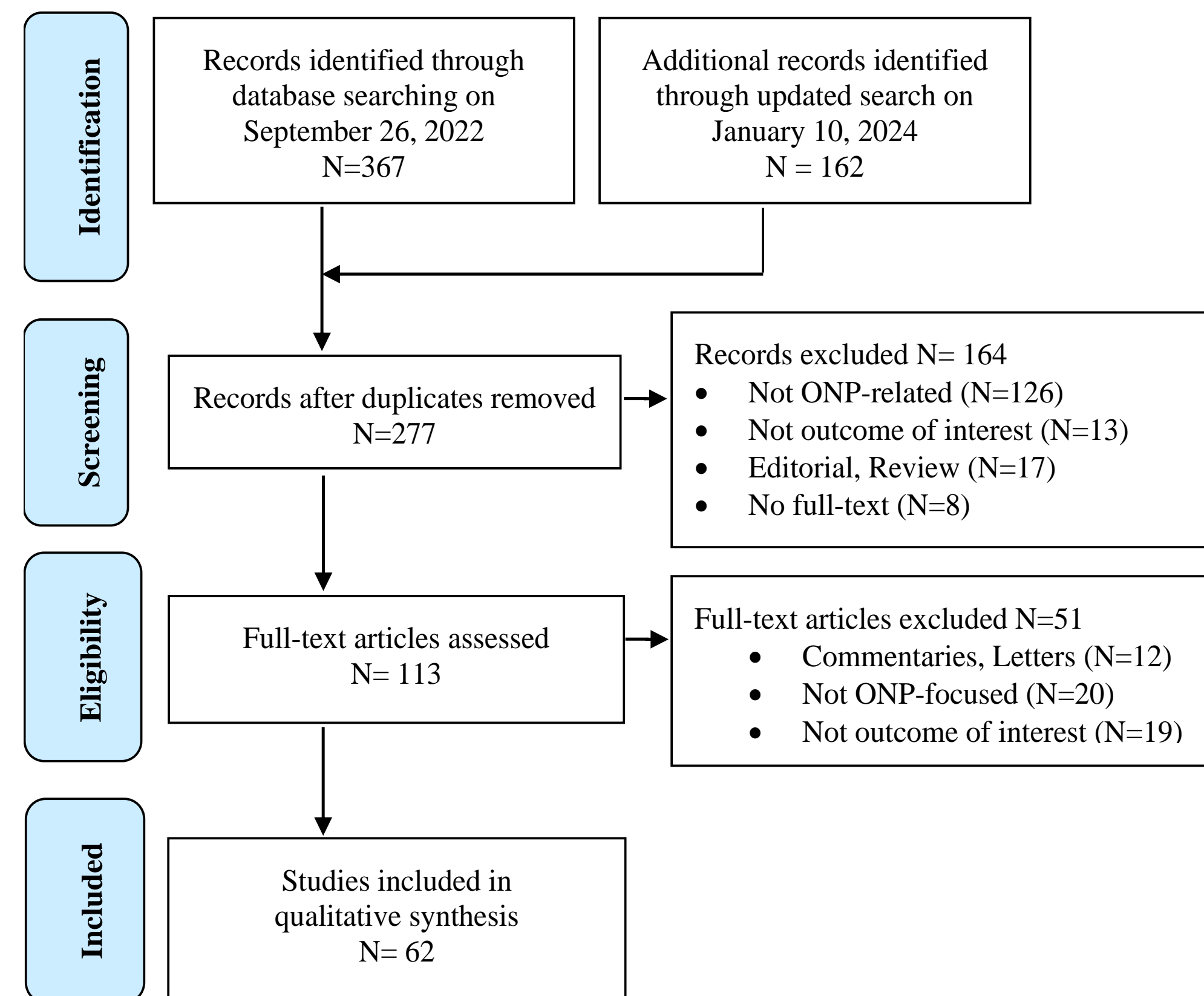


Figure 2. PRISMA Flow diagram of the study selection process.



Source: <http://www.prisma-statement.org/>

Results

- Sixty-two studies were included (Figure 2); seventeen were funded by industry.
- Current ONP use in adults remained low ($\leq 3\%$) and was limited to populations with a history of tobacco use. Between 20-47% were aware of ONPs and 17-43% were interested in using them.
- Current ONP use among US youth through 2023 is estimated to be low ($\leq 1.5\%$).
- Between 35-42% of adolescents and young adults were aware of ONPs, and 9%-21% of tobacco-naïve youth were susceptible to trying them.
- Higher ONP use observed in males, young adults, those ages 18-44, current smokeless tobacco (SLT), cigarette and e-cigarette users.
- ONPs contain fewer (potentially) harmful compounds and at lower levels than cigarettes and SLT, except formaldehyde, comparable to or higher than SLT.
- Short-term in vitro toxicology studies, funded predominantly by industry, suggest substantially less ONP cytotoxicity than cigarettes.
- Evidence on the cytotoxicity of ONPs relative to SLT is mixed.
- Pharmacokinetic studies by industry suggest that higher nicotine strength ONPs (≥ 8 mg) may deliver comparable or higher nicotine than conventional SLTs and cigarettes.

Conclusion

- Based in part on the evidence from industry-funded studies, ONPs appear to be less toxic than cigarettes and may deliver comparable nicotine to smokers, providing a potentially less harmful alternative to cigarettes.
- More studies are needed to determine the harm of ONPs relative to SLTs.
- The use of ONPs in both youth and adults remains relatively low, with higher use by younger adults, males, and current tobacco users.
- Rather than, or in addition to, increased cessation from more harmful products, industry marketing may encourage the initiation of ONPs by youth and situational and dual-use by youth and adults.
- Key data are mainly available from industry-funded studies. Data from independent research is critically needed.
- Future studies should assess the awareness of, susceptibility to, and initiation of ONPs in a population with no history of tobacco/nicotine use.

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