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Short communication

Palatability & acceptability of pediatric liquid medicines for gastroesophageal reflux (disease) - GER(D): A literature review

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Introduction

Medicines in liquid form are preferred in infants, especially under 2 years, due to flexible dose adjustment (Pokharkar et al., 2022). A study by Gvozdeva and Staynova (2025) also found liquids to be the most preferred oral dosage form (68.3%), particularly among children aged 1–6 years. Besides the suitable dosage form, palatability is also a crucial factor for pediatric acceptability of medicines. Namely, over 80% of pediatric Healthcare Practitioners (HCPs) reported that bitter-tasting medicines negatively impact adherence resulting in poor therapeutic outcomes, and increased cost to both the health care system and households as well (El-Sahn et al., 2025). Similarly, a study by Peña et al. (2024), showed that over half of prescribers (57.7%, 49/71) report changing a medication due to poor palatability. The research focuses particularly on examining the palatability and acceptability of pediatric liquid medicines for Gastroesophageal Reflux (Disease) - GER(D) and the common flavor selection for this group of medicines.

Research methods

A structured literature review, using PMC PubMed Central database was conducted, with applied keywords: (pediatric OR pediatrics) AND (acceptability OR adherence OR palatability) AND (age-appropriate formulations OR child-friendly formulations). Publications from 2020-2026 along with studies available through the "similar articles" function were analyzed. Review of flavors used in 19 marketed products for GER(D) conducted using publicly accessible regulatory data from Public Assessment Reports (PARs), Summary of Product Characteristics (SMPCs), Prescribing Information (PI), retrieved from EMA, FDA and national regulatory agency databases.

Discussion

A palatable drug product is one in which unpleasant sensory attributes have been minimized or eliminated, meaning it is not excessively bitter, has a smooth mouthfeel, and lacks any noticeable unpleasant odors (Clapham et al., 2023). Certain flavors are linked to specific therapeutic uses, for instance, lemon and orange are commonly associated with vitamin products, while mint is often linked to gastrointestinal treatments (Gvozdeva and Staynova, 2025). GER(D) as a condition itself produces "burning sensation" and in addition PPIs which are the core treatment for GER(D) (36.2% of HCPs prescribing them for uncomplicated recurrent regurgitation in infants younger than 1 year, followed by H2Ras, with 16.6%) have extremely

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bitter taste (Cuzzolin et al., 2023). In such cases, when the APIs have bitter taste, menthol is the commonly used flavor, since it provides a cooling effect with activation of the TRPM8 receptors in the mouth, thus reducing perception of bitterness (Lohare et al., 2024; Shete et al., 2024). The already marketed products in EU and USA confirm indeed that mint/menthol flavors predominate (31,58% out of 19 analyzed products: PPIs, H2RAs, alginates, prokinetics) or combination with mint (15,79%) in this group of medicines, followed by fruit-based flavors (21,05%). That menthol is the most suitable choice is further reinforced by the EMA recommendations, highlighting that pediatric medicinal products should not be formulated to be excessively sweet or highly attractive (candy-like or strawberry), as this may increase the risk of accidental poisoning (European Medicines Agency, 2013). Moreover, a recent randomized, single-blind sensory evaluation study conducted by Ranmal et al. (2026) aimed to compare not only flavor choice in multiple commercially available pediatric oral liquid formulations for GERD in the UK, but rather overall acceptability/palatability score. Multiple sensory attributes were analyzed such as taste, aftertaste, mouth feel and texture, especially relevant when comparing different pharmaceutical dosage forms such as solutions and suspensions. The outcome of this study was that the menthol-flavored 10-mg/15-mL omeprazole oral solution (developed by: Alkaloid), received the highest overall acceptability and the lowest taste aversiveness rating, further supporting the data and conclusion regarding mint as most suitable flavor for pediatric gastrointestinal products.

Conclusion

This research underscores that palatability is one of the most important attributes directly influencing pediatric acceptability, highlighting the importance of choosing the right flavor. Evidence shows that menthol/mint flavors predominate in pediatric liquid medicines for GER(D) and are an appropriate flavor choice, due to their cooling sensation and demonstrated acceptability among pediatric patients.

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