

Enhancing Migraine Preference Research: Recommendations from a Systematic Review of Preference Studies

Natasha Ramachandran,¹ Harrison Clarke,² Divya Mohan,³ Jaein Seo²

¹Thermo Fisher Scientific, London, UK; ²Thermo Fisher Scientific, Waltham, MA, USA; ³Patient-Centered Outcomes, Open Health, London, UK

Background

- Migraine management includes acute, preventive, or combined treatments; however, care is often suboptimal due to undertreatment, which presents substantial public health challenges.
- The varying severity, frequency, and characteristics of migraine complicate treatment optimization, requiring individualized plans based on patient preferences.
- Preference studies aim to inform shared decision-making, improve adherence, and guide patient-centered treatment development. However, variations in design, attribute selection, and analysis limit comparability and application. Despite this, no systematic synthesis exists.
- This systematic review synthesized current evidence on treatment preferences in migraine and highlighted valued treatment attributes and methodological patterns.

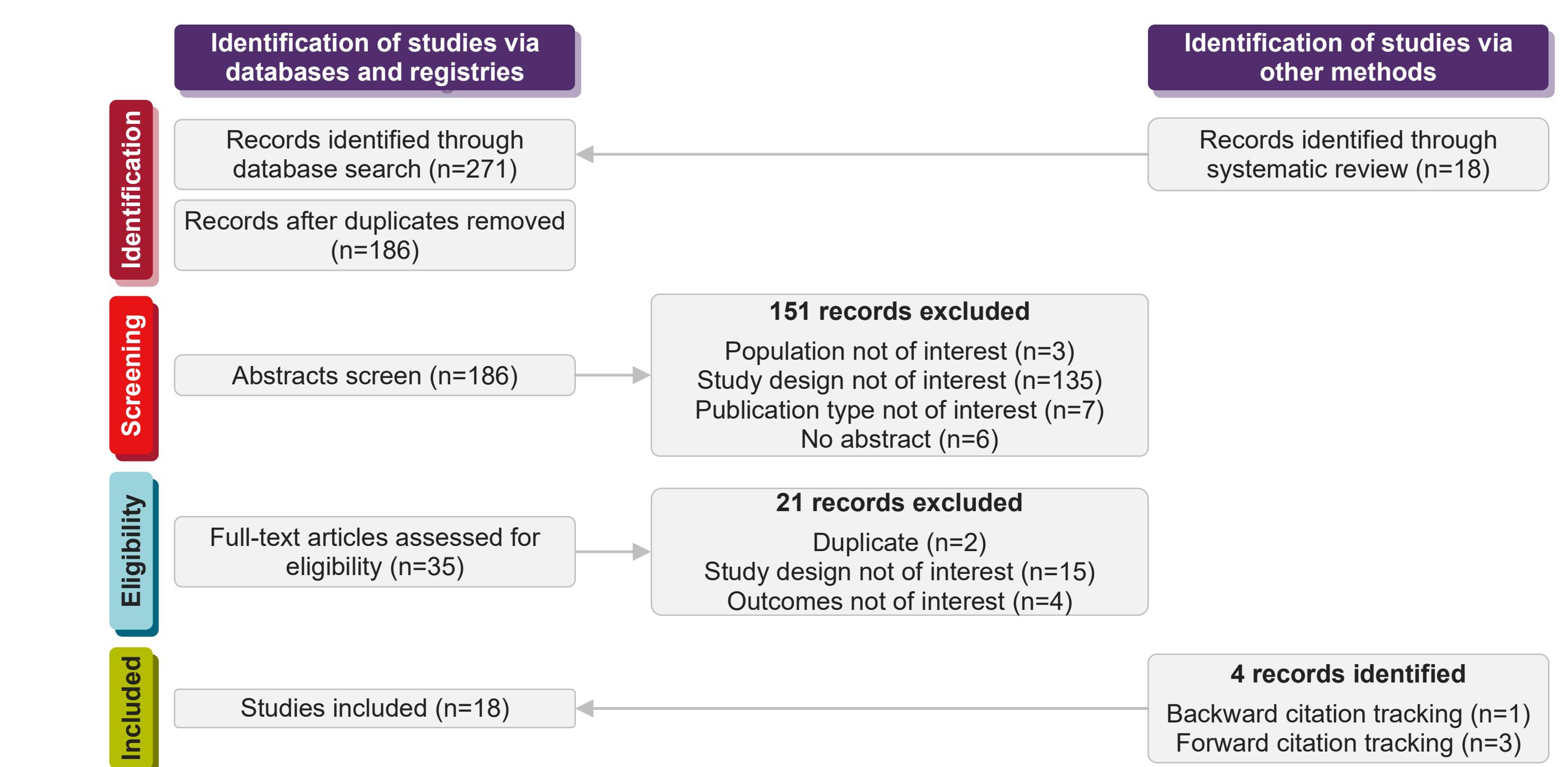
Objective

- To examine how preference studies are designed and reported in the context of migraine treatment, with the aim of informing the design and conduct of future studies.

Results

- Two-hundred and seventy-one studies were identified from the literature search and screened. Eighteen studies were deemed eligible and included in the review (Figure 1).

Figure 1. PRISMA diagram



Backward citation tracking was conducted to identify articles cited by the review papers, and forward citation tracking was conducted by looking at papers that were cited by the review papers to identify any missing publications.

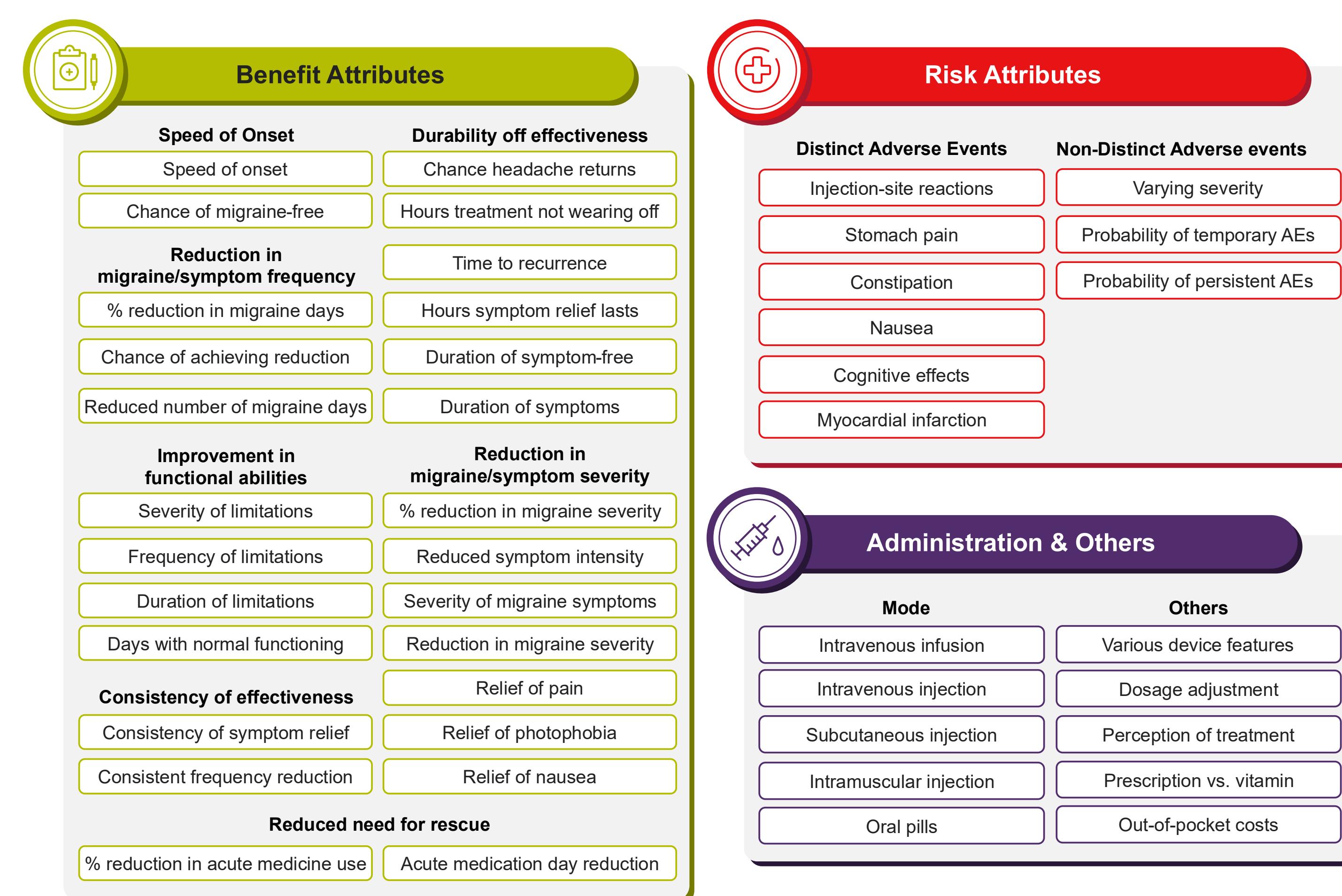
Study Characteristics

- Studies focused on preventive treatments (n=12), acute treatments (n=1) or both (n=2).
- Stated preference methods comprised discrete choice experiment (n=12), conjoint analysis (n=1), CVM (n=3), thresholding (n=1), and time trade-off (n=1).
- 17 studies derived preferences from patients; two also included clinicians (n=1) or general population (n=1).

Analytical Approaches

- The most common analysis model was mixed logit model (n=7), followed by descriptive (n=5), latent class logit model (n=3), interacted mixed logit (n=3), multinomial logit (n=2), and Hierarchical Bayes (n=2).
- Eleven studies reported preference heterogeneity by treatment experience (n=3), migraine burden (n=2), and educational attainment (n=1), suggesting the need for adequate sample size.
- The most frequent outcomes were marginal utility (n=10) and relative importance of attributes (n=10), followed by willingness-to-pay (n=5) and predicted choice/share (n=4).

Figure 2. Conceptual map of identified attributes



Abbreviation: AE = adverse event

Methods

- Embase, MEDLINE, and the Cochrane Library were searched for relevant preference studies on migraine treatments; studies must have employed stated-preference methods.
- Two researchers independently screened studies, and disagreements regarding the inclusion or exclusion of studies were resolved through discussion between them; any remaining discrepancies were adjudicated by a third researcher.
- Extracted information included study characteristics, analytical approaches, methods for attribute development, choice task design, and attribute framing.
- Frequencies were calculated by study for study characteristics, analytic approaches, attribute development methods, and choice task design, and by attribute for attribute framing.
- To compare the importance of attribute concepts, rankings or quantitative importance measures (e.g., marginal utilities) were extracted from studies including at least two distinct attribute concepts, excluding contingent valuation methods (CVM) studies. Explicit rankings were used directly; otherwise, attributes were ranked within each study based on the magnitude of reported values.
- Benefit attributes were grouped at the concept level (e.g., speed of onset, durability of effectiveness), while others were synthesized at the sub-concept level (e.g., injection-site reaction, nausea). Average ranks across studies overall indicated overall perceived importance (i.e., the most important attribute ranked=1).

Methods for Attribute Development

- Five studies (all pre-2019) did not specify a method.
- Three used a single approach—literature review (n=2) or expert consultation (n=1). Ten studies used multi-method designs combining literature review with expert consultations (n=3), patient interviews or focus groups (n=3), or both (n=4).

Attribute Framing

- The average number of attributes per study was 4.9, ranging from 2–17.
- Benefit attributes included duration of relief (n=7), reduction in migraine frequency (n=8), speed of onset (n=5), reduction in migraine severity or pain (n=5), impacts on physical activities (n=5), and use of acute migraine treatments (n=1). Risk attributes included side effects categorized by reversibility (n=3) and severity (n=2), and various specific side effects such as constipation injection site reaction (n=3). Other attributes included mode (n=5), frequency (n=5) and location (n=2) of administration, monthly cost (n=2), type of administrator (n=1), specific device features (n=1). This is summarised with Figure 2.

Choice Task Design

- Most of attributes were presented using categorical formats, including benefits (n=15), risks (n=8), and administration attributes (n=23). Among benefit attributes, percentage (n=10) and duration (n=11) formats were also common, while ratio (n=4) and frequency (n=3) were used less frequently.
- Illustrations (n=9), icon arrays (n=7), calendars (n=5), and bar charts (n=3) were the most frequently used visual aids among all attributes. However, most attributes did not use any visual aids (n=31) (Figure 3).

Attribute Ranking

- The analysis showed that benefit concepts were generally deemed most important by respondents (Figure 4). Durability of effectiveness (1.8) and consistency of effectiveness (average ranking = 2.0) were top priorities.
- For risk sub-concepts, average rankings ranged from 3.5 for gastrointestinal effects to 5.0 for injection site reactions. Mode and frequency of administration (3.0) were more influential than several risk sub-concepts, while administration setting received the lowest average rank (5.5).

Figure 3. Presentation of Attributes

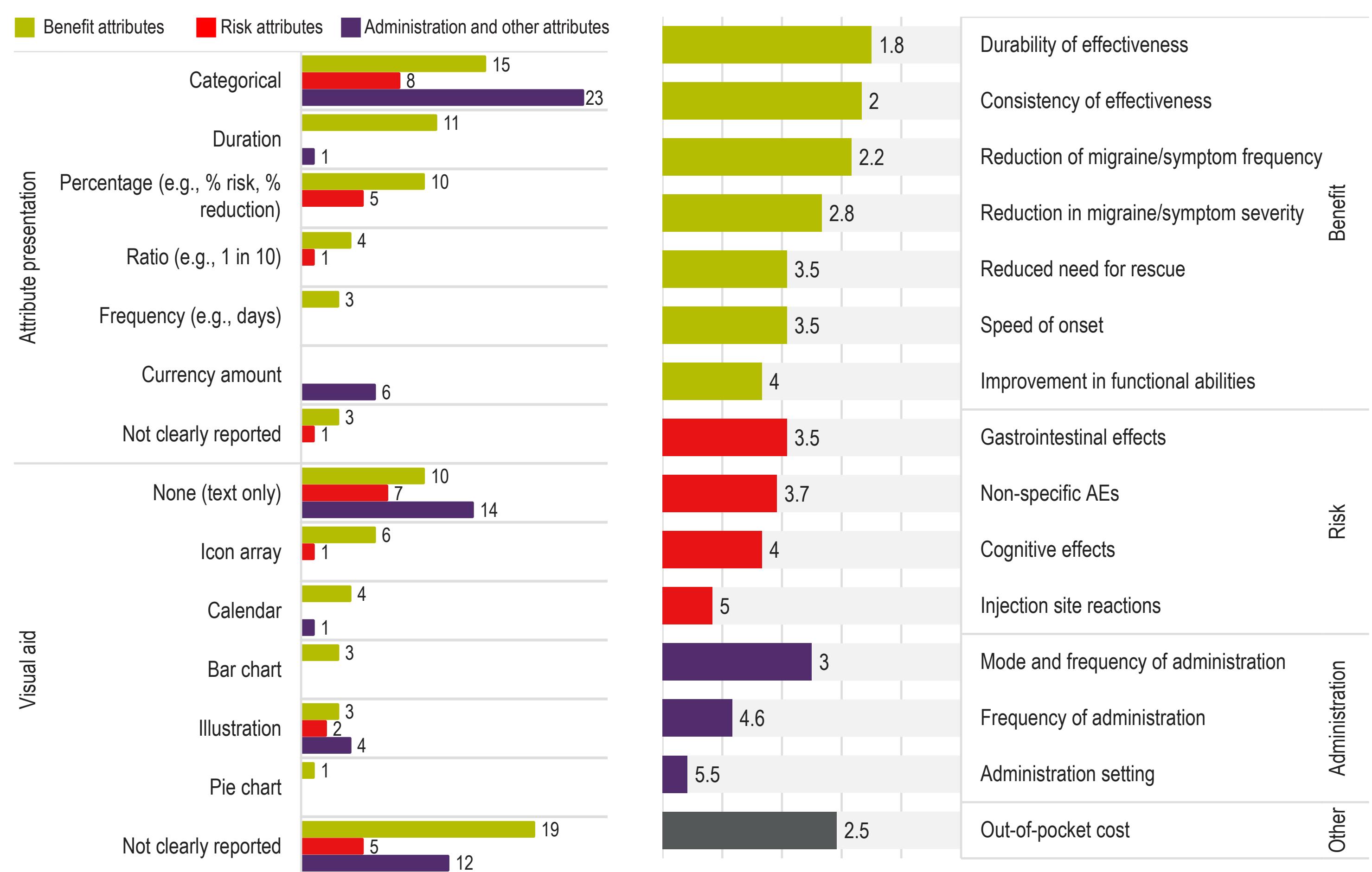
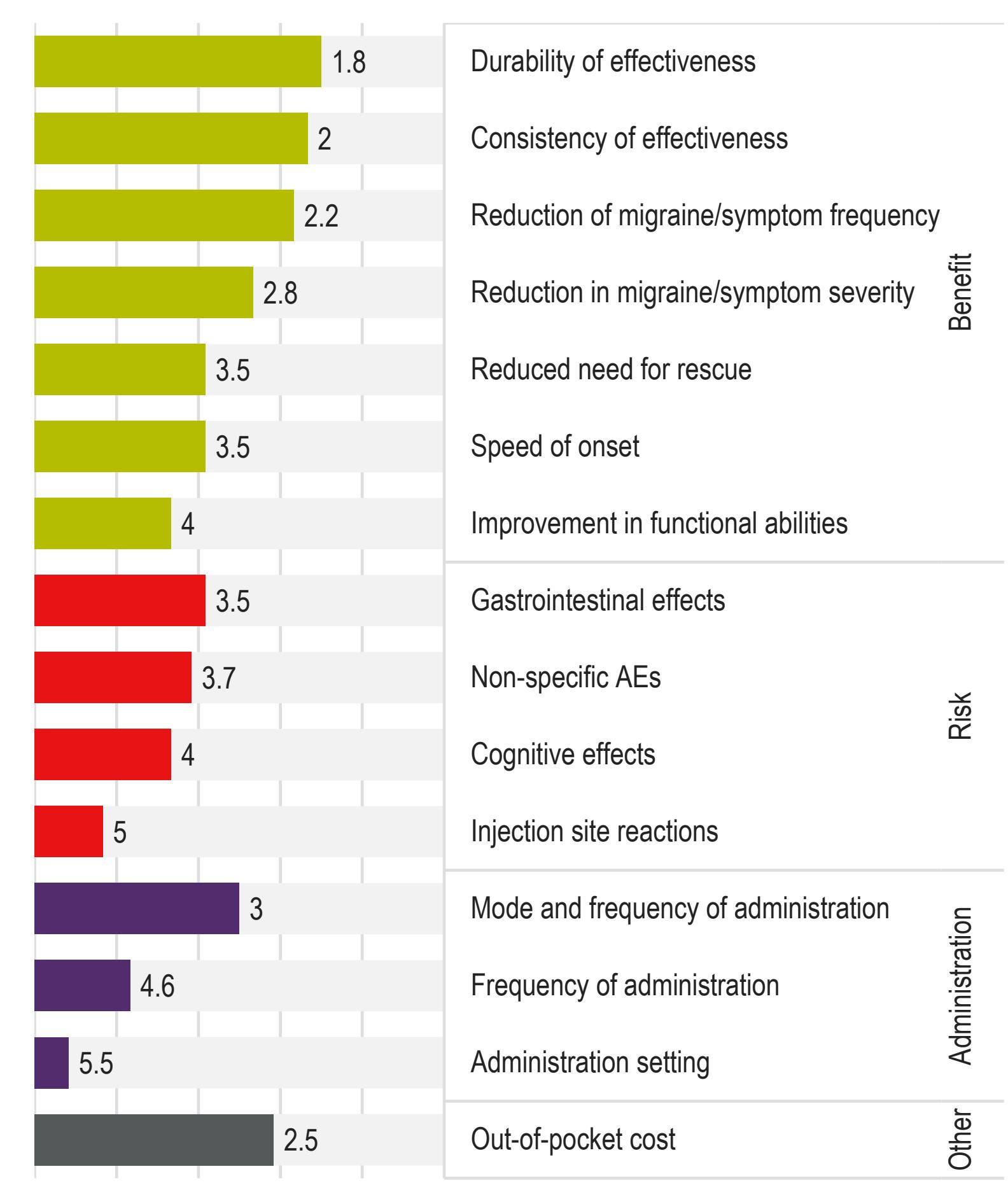


Figure 4. Average Attribute Ranking



Conclusions

- This systematic review highlights substantial variation in the design and reporting of migraine treatment preference studies. The lack of standardized methods for attribute development, framing and presentation limits comparability across studies.
- Future studies adopting transparent, best-practice methods for attribute development, framing, and analysis can strengthen the application of patient preference evidence in migraine research.

Disclosures

NR, HC, and JS are employees of PPD™ Evidera™ Patient-Centered Research, Thermo Fisher Scientific. DM is an employee of Open Health. This poster was funded by Thermo Fisher Scientific. Editorial and graphic design support was provided by Caroline Cole and Kawthar Nakayima of Thermo Fisher Scientific.

Please scan this QR code with your smartphone camera or app to review the published manuscript.

Information obtained through digital download are for personal use only and may not be reproduced without permission from ISPOR EU or the authors of this poster.

