

A systematic review of the cost-effectiveness of personalized interventions with a nutrition component in adults

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Background

Despite the well-known link between dietary patterns and diseases, nutrition interventions often have a poor individual-level effectiveness.

Personalization of nutrition interventions may be more effective in changing behavior and thereby improve both their effectiveness and cost-effectiveness.

Aim

To investigate the methodology and findings of health economic evaluations (HEE) of interventions with a personalized nutrition component in adults.

Methods

We performed a systematic search (March 2019) in five databases.

Inclusion criteria:

- Full HEE
- Personalized nutrition component
- Adults
- English language
- No limits regarding year of publication

Exclusion criteria:

- Hospital nutrition
- Severe undernutrition

The CHEERS checklist was used to assess the quality of the HEEs.

Results

1792 publications were found → 215 selected for full-text screening → 49 HEEs were included (figure 1).

- **Design:** most HEEs are based on clinical trials; only a few HEEs used modelling.
- **Study population:** >50% overweight, diabetes, IGT; <50% various patient populations (figure 2).
- **Personalized nutrition concept:** large majority based their interventions on psychological aspects (figure 3).
- **Outcome:** approximately 30% of the studies used quality-adjusted life-years (QALY), while 47% used only other outcomes such as life-years gained, weight and nutritional improvement; 23% used both QALY and other outcomes.
- **Conclusion according to the authors:** (>70%) concluded that their intervention was cost-effective.
- **Quality:** heterogeneity in the cost-effectiveness results across different subgroups and patient populations were mostly overlooked (statement 21) → 11 studies reported it appropriately (figure 4). Furthermore, most of the studies with a main focus on HEE had a higher quality according to the CHEERS checklist.

Figure 1: PRISMA flow diagram

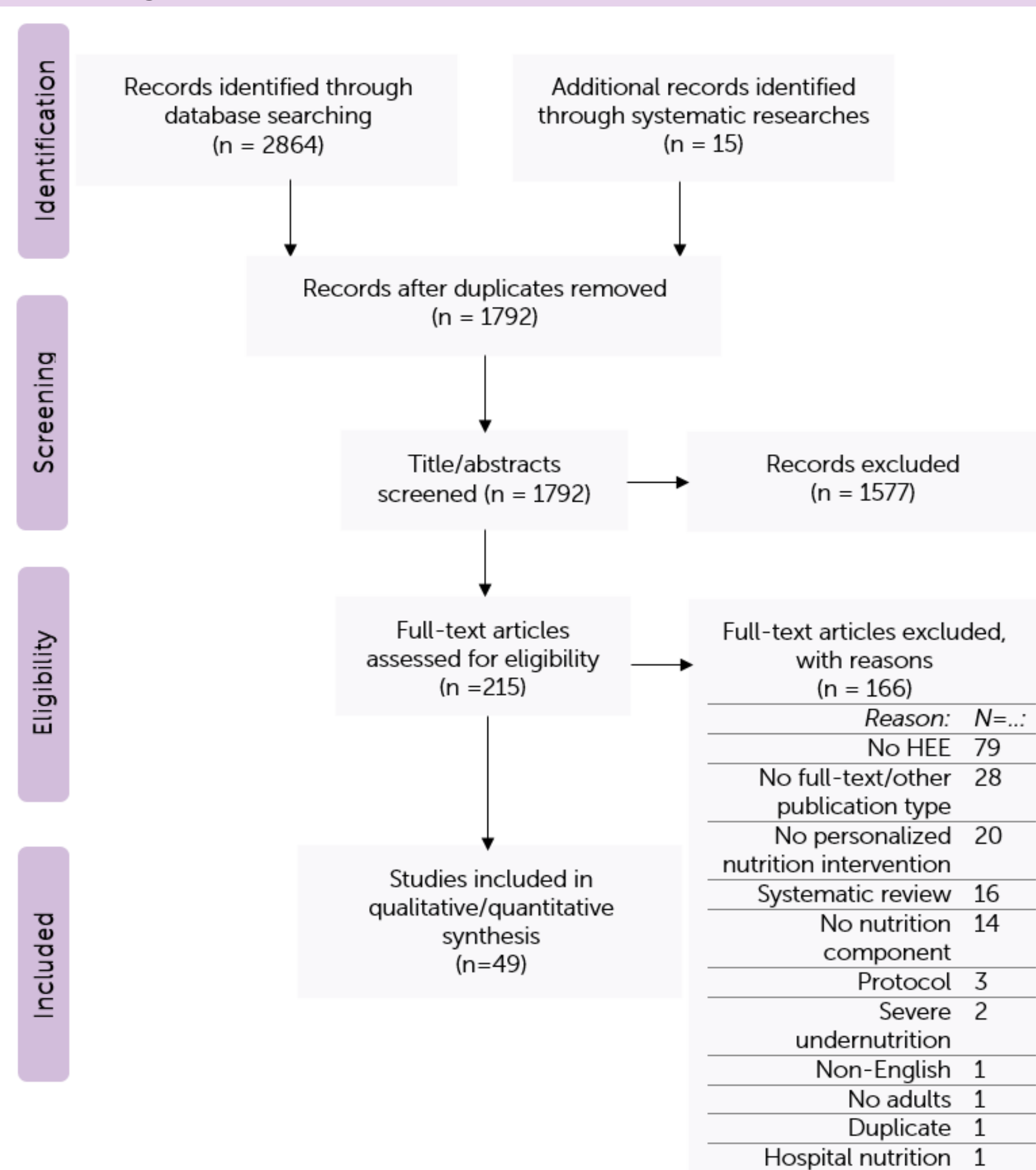


Figure 2: Study population in HEEs

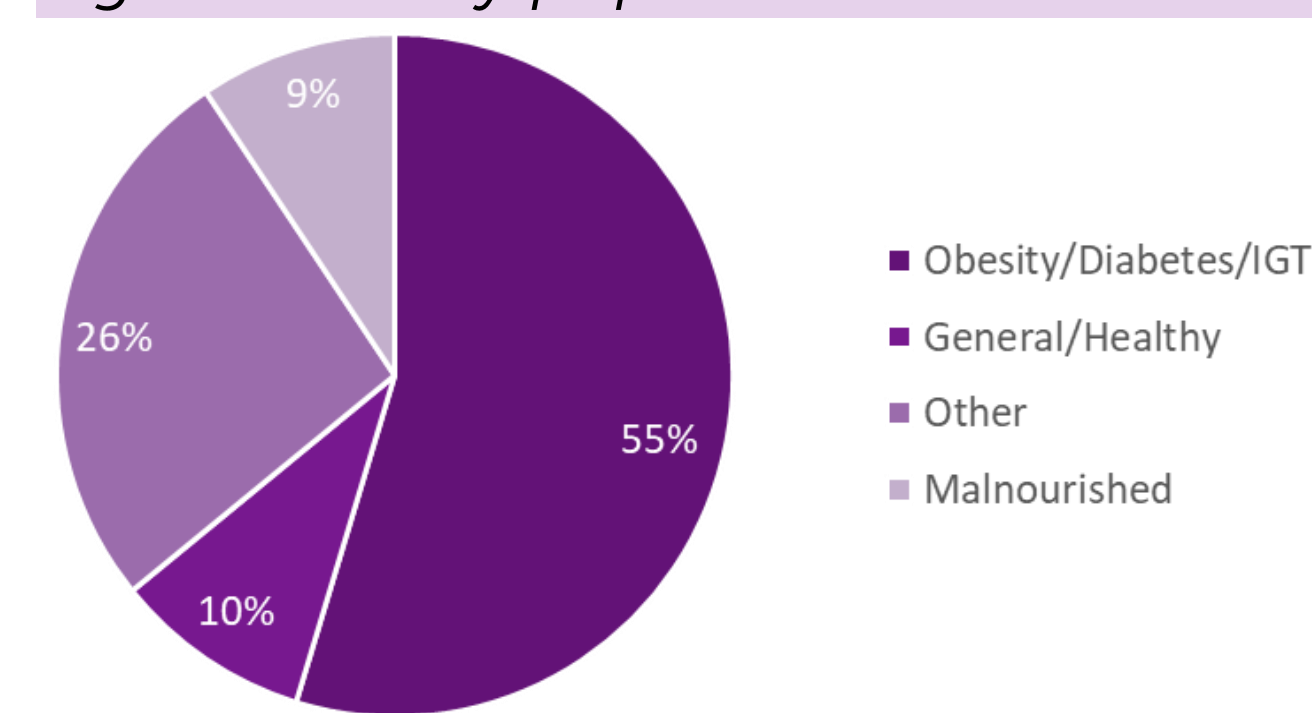


Figure 3: Personalized nutrition concepts in HEEs

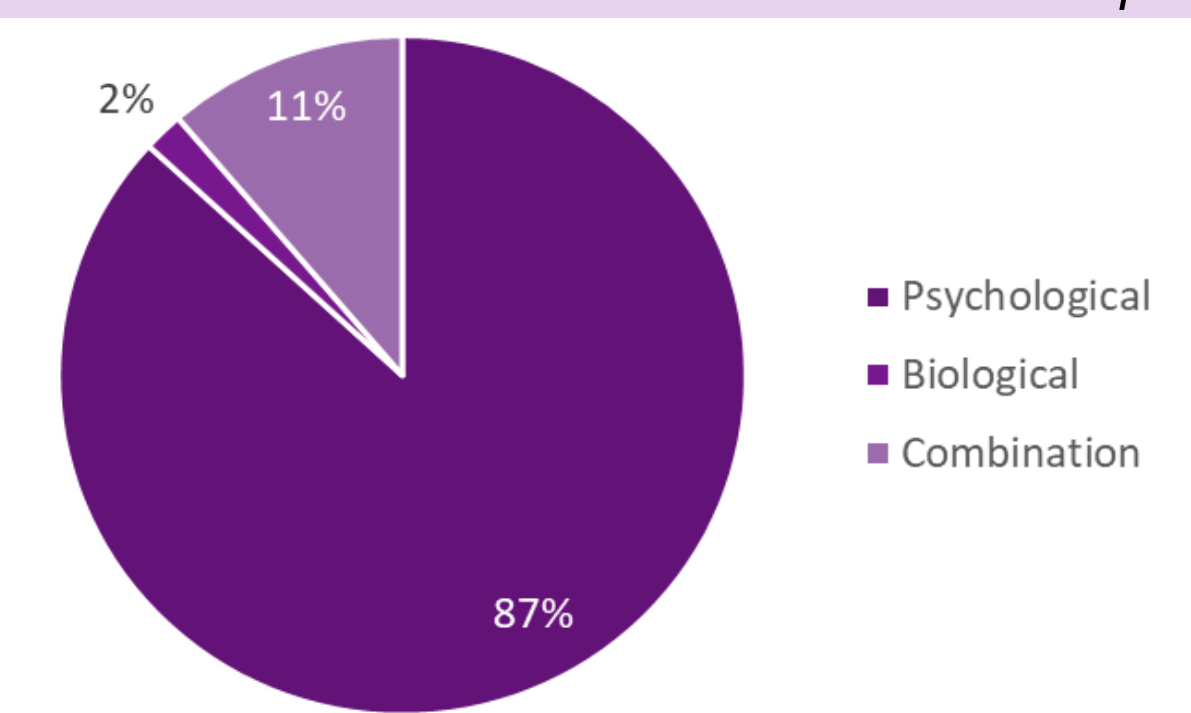
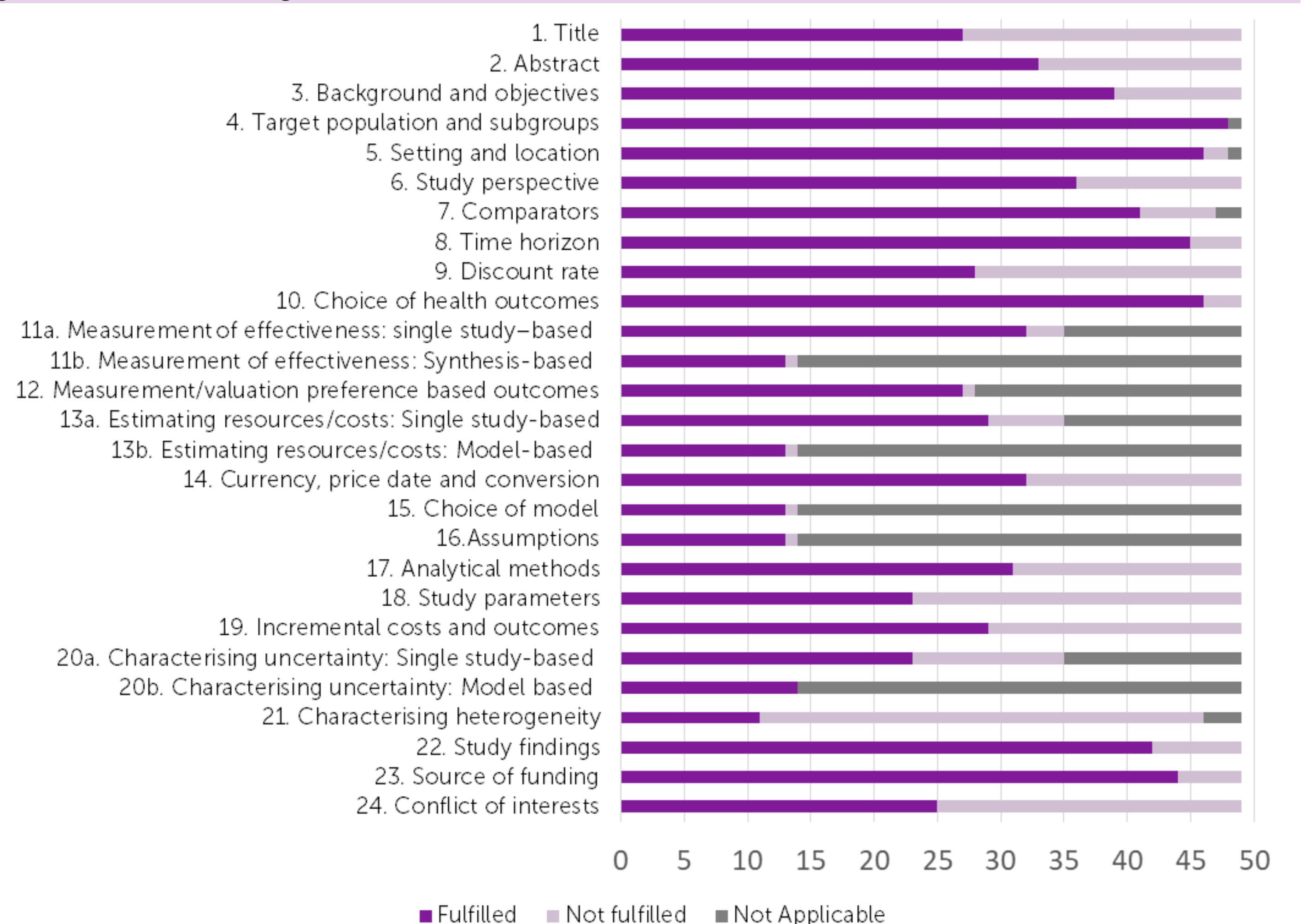


Figure 4: Results using the CHEERS checklist



Conclusions

Interventions with personalized nutrition components often tend to be cost-effective.

Wide variation exists in how personalized nutrition is defined and what type of personalized interventions is investigated in HEEs.

Very few HEEs have examined personalized interventions that utilize a combination of psychological concepts and biological concepts (such as nutrigenomics) relating to patient heterogeneity.



More information?

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