

GEMINI HOME ENVIRONMENT MEASURE

The Home Environment Interview (HEI) is a comprehensive parental-report measure of the obesogenic home environment. The Home Environment Interview (HEI) measurement tool aims to quantify aspects of the environment within the home hypothesised to play an important role in shaping children's weight related behaviours. The HEI is administered as a computer-assisted telephone interview by trained researchers and takes around 30 minutes to complete. The HEI assesses three main domains within the home: 1) the food environment, 2) the physical activity environment, and 3) the media environment.

HEI development:

Version 1 – For parents with pre-school aged children.

The HEI was originally developed in 2009-12. It was adapted from the Healthy Home Survey (HHS), a US measure designed to assess a range of physical and social aspects of the home food, activity, and media environments. Unlike the HHS, the HEI is designed for use in the UK, and includes additional scales assessing parental support of physical activity, parental TV viewing, and neighbourhood satisfaction.

The creation of the overall HEI composite scores was guided by feedback from an expert panel of child obesity researchers ($n = 28$). Only constructs generally agreed to be relevant to weight trajectories were included in the home environment composite score. The variables included in the composite score are outlined in the supporting document ("Home Environment Composite Score.docx"). The composite score comprises 32 variables that assess the three domains; the home food environment (21 variables), the home activity environment (6 variables), and the home media environment (5 variables). The identified variables are standardised using Z-scores and the standardised scores are summed to create total scores for each of the three domains. These three domain scores are then combined to create an overall home environment composite score.

A sample of 44 mothers completed a second telephone interview 7-19 days after the initial interview to examine test-retest reliability of the measure. Test-retest reliability of the home environment composites were acceptable to high: food (0.71; 0.52-0.83), activity (0.83; 0.72-0.91), media (0.92; 0.85-0.95), overall (0.92; 0.86-0.96) (Schrempft et al., 2015).

In addition, a sample of mothers ($n=15$) were visited at home 7 to 24 days after initial interview and provided with a novel wearable camera called SenseCam, which was worn by

participants for four consecutive days (including one weekend day) during waking hours whilst at home. SenseCam images were compared to responses provided during the HEI. Validity was good or excellent (ICC or kappa ≥ 0.60) for fresh fruit and vegetable availability, fresh vegetable variety, display of food and drink (except sweet snacks), family meals, child eating lunch or dinner while watching TV, garden and play equipment, the number of TVs and DVD players, and media equipment in the child's bedroom. Validity was poor (ICC or kappa < 0.40) for tinned and frozen vegetable availability and variety, and sweet snack availability (Stephanie Schrempft, van Jaarsveld, & Fisher, 2017).

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