

Use of the Stunkard figural stimuli scale to predict risk of diabetes and early breast development.

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Background: The Stunkard Figural Stimuli were originally developed as a psychological tool for body image assessment. In 2001, CM Bulik established BMI norms for each silhouette in a population-based study (n=16, 728 females). Stunkard figures could provide a tool to characterize family history of obesity (FOB), useful in risk prediction for conditions such as Diabetes Mellitus Type II (DMII) or early breast development (which increases risk of breast cancer).

Specific Aims: To validate that a self-selected Stunkard figure correlates well with the BMI calculated from height and weight and the observer-selected Stunkard figure; to determine if the known associations between 1) high BMI and family history of Diabetes Mellitus II; 2) higher BMI in young girls and higher BMI in adult female relatives; and 3) timing of breast development onset and BMI; can be detected when Stunkard figures are used;

Methods: Data were collected via questionnaire from campus women (height, weight, and Stunkard figure for self) and Growing Up Female mothers (height, weight and Stunkard figure for self, mother [M] and maternal grandmother [MGM]). For the validation study (N=32), the respondent also had a Stunkard figure selected for them by observer. For the other analyses, data of GUF mothers was used in analyses with their family medical history and daughter's Tanner breast stage at the second year exam.

Results: In validation, agreement between calculated BMI and both self-selected and observer-selected Stunkard was excellent ($p < 0.0001$). For persons with BMI ≥ 30 (obese) both self-selected and observer-selected Stunkard figures were about one level lower than that represented by the person's calculated BMI (-4.4 kg/m² for self-selected, -3.54 kg/m² for observer selected).

When Stunkard figures are used to characterize BMI in either mother [M] or both mother and maternal grandmother [MGM], FOB is a good predictor of family history of DM II (OR= 1.15 and 1.34) but did not predict timing of breast development (OR=0.93).

Conclusions and Significance: Findings of this pilot study support the need for a larger population study to explore the efficacy of use of Stunkard figures as a measure of family history of obesity, with actual measurements of maternal and paternal grandmothers' BMI.