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The Healthy Eating Index-2010 Is a Valid and Reliable Measure of Diet Quality According to the 2010 Dietary Guidelines for Americans FREE

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Abstract

The Healthy Eating Index (HEI), a measure of diet quality, was updated to reflect the 2010 Dietary Guidelines for Americans and the accompanying USDA Food Patterns. To assess the validity and reliability of the HEI-2010, exemplary menus were scored and 2 24-h dietary recalls from individuals aged ≥ 2 y from the 2003–2004 NHANES were used to estimate multivariate usual intake distributions and assess whether the HEI-2010 1) has a distribution wide enough to detect meaningful differences in diet quality among individuals, 2) distinguishes between groups with known differences in diet quality by using *t* tests, 3) measures diet quality independently of energy intake by using Pearson correlation coefficients, 4) has >1 underlying dimension by using principal components analysis (PCA), and 5) is internally consistent by calculating Cronbach's coefficient α . HEI-2010 scores were at or near the maximum levels for the exemplary menus. The distribution of scores among the population was wide (5th percentile = 31.7; 95th percentile = 70.4). As predicted, men's diet quality (mean HEI-2010 total score = 49.8) was poorer than women's (52.7), younger adults' diet quality (45.4) was poorer than older adults' (56.1), and smokers' diet quality (45.7) was poorer than nonsmokers' (53.3) ($P < 0.01$). Low correlations with energy were observed for HEI-2010 total and component scores ($|r| \leq 0.21$). Cronbach's coefficient α was 0.68, supporting the reliability of the HEI-2010 total score as an indicator of overall diet quality. Nonetheless, PCA indicated multiple underlying dimensions, highlighting the fact that the component scores are equally as important as the total. A comparable reevaluation of the HEI-2005 yielded similar results. This study supports

the validity and the reliability of both versions of the HEI.

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