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Validity of a self-administered food frequency questionnaire (FFQ) and its generalizability to the estimation of dietary folate intake in Japan

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Abstract

Background

In an epidemiological study, it is essential to test the validity of the food frequency questionnaire (FFQ) for its ability to estimate dietary intake. The objectives of our study were to 1) validate a FFQ for estimating folate intake, and to identify the foods that contribute to inter-individual variation of folate intake in the Japanese population.

Methods

Validity of the FFQ was evaluated using 28-day weighed dietary records (DRs) as gold standard in the two groups independently. In the group for which the FFQ was developed, validity was evaluated by Spearman's correlation coefficients (CCs), and linear regression analysis was used to identify foods with large inter-individual variation. The cumulative mean intake of these foods was compared with total intake estimated by the DR. The external validity of the FFQ and intake from foods on the same list were evaluated in the other group to verify generalizability. Subjects were a subsample from the Japan Public Health Center-based prospective Study who volunteered to participate in the FFQ validation study.

Results

CCs for the internal validity of the FFQ were 0.49 for men and 0.29 and women, while CCs for external validity were 0.33 for men and 0.42 for women. CCs for cumulative folate intake from 33 foods selected by regression analysis were also applicable to an external population.

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Conclusion

Our FFQ was valid for and generalizable to the estimation of folate intake. Foods identified as predictors of inter-individual variation in folate intake were also generalizable in Japanese populations. The FFQ with 138 foods was valid for the estimation of folate intake, while that with 33 foods might be useful for estimating inter-individual variation and ranking of individual folate intake.