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The development and relative validity of a food frequency questionnaire for the assessment of dietary iron intakes in women of childbearing age

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Iron (Fe) deficiency states are the most common nutritional deficiencies in developed countries⁽¹⁾ and women of childbearing age are at particular risk because of the effects of menstruation and pregnancy⁽²⁾. The National Diet and Nutrition Survey (2004), reported mean intakes for total Fe in all women (19–64 years) as 10.0 mg/d which is 82% of the RNI⁽³⁾. There are very few validated nutritional screening instruments available in the UK, which can be used to estimate Fe intake to indicate nutritional risk. The aim of this research was to develop and determine the relative validity of an FFQ for assessing Fe intakes in a population of women of childbearing age.

Thirty women of childbearing age between 19 and 45 years were recruited for the study. All women who volunteered were included once they met the age criteria. An Fe-specific checklist was developed by including foods that contributed at least 3% total Fe to the diet using data from the most recently published National Diet and Nutrition Survey⁽³⁾. The final version of the FFQ contained 74 food items and took approximately 10 to 15 min to complete. Participants were required to complete the FFQ based on their dietary intake over the previous 14 d. This was followed by the completion of a 12-d diet record which was used as the reference method of dietary analysis. The level of agreement between the two methods of dietary assessment for Fe intakes were analysed using the Bland–Altman method.

The Bland–Altman analysis demonstrated a relatively good agreement between the two methods at group level (mean difference = 2.06 mg (95% CI –4.85 mg, +8.97 mg)). The large limits of agreement indicated that there was poor agreement between the two methods at the individual level. Positive correlations were observed ($r = 0.44$) at $P < 0.05$.

Initial validation of the FFQ indicates that this tool could be successfully used for researching Fe intakes in groups of women of childbearing age in the United Kingdom. It is, however, not acceptable for use in determining absolute intakes in individuals and consequently should not replace the diet record in a clinical setting. An important observation is that participants tended to over estimate their Fe intakes using the FFQ compared to diet record.

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2. Patterson AJ, Brown WJ, Roberts DCK & Seldon MR (2001) Dietary treatment of iron deficiency in women of childbearing age. *AJCN* **74**, 650–656.
3. Henderson L, Gregory J & Swan G (2003). *The National Diet and Nutrition Survey: Adults aged 19–64 years*. London: HMSO.