Introduction

Cocoa has been recognized as a valuable source of polyphenols12, however epidemiological studies have shown a lower contribution of cocoa products34. These results could be due to the fact that the most commonly used Food Frequency Questionnaires (FFQ) poorly distinguishes cocoa and chocolate products, and then its contribution may be underestimated. In spite there are several studies concerning polyphenol consumption, data do not point out cocoa and chocolate products as relevant sources which could be due to the scarce distinction between cocoa and chocolate products34. Additionally there is no known data about cocoa consumption within students who are potential high consumers.

Material and Methods

Sample

A group of 50 university students (Table 1) has been recruited from several health science graduation and post-graduation programmes in the Faculty of Pharmacy at the University of Barcelona. The study was previously approved by the Ethical Committee of the University of Barcelona and has been conducted according to the guidelines laid down in the Declaration of Helsinki. Written informed consent from all students was obtained after the objectives and procedures have been presented.

Procedure

Students have filled an specifically designed FFQ (Figure 1) based on ENCO-200532, a 24 Hours Dietary recall and a validated questionnaire used as a standard, the EFSA. Gathering consumption data on specific consumer groups of energy drinks – Adults 18-65.

Data management and Statistical analysis

The frequency of consumption obtained from C-FFQ and EFSA-Q has been converted to times daily. Data from both questionnaires have been compared as well as with 24HDR.

The agreement between C-FFQ with EFSA-Q and 24HDR has been evaluated with Band Altman analysis. Spearman correlations test has also been conducted as well as the Wilcoxon test. The participants were classified in quintiles and proportions of subjects classified in the same, adjacent or graverly classified have been defined. Results were considered statistically significant at a two-tailed α level of 0.05. Statistical analysis was performed using PASW Statistics version 18.

Results

Table 1 – Sample demographic characteristics. Data are presented as average ± standard deviation as well as range.

Table 2 – Consumption frequency of a portion times/day of coffee and tea estimated by C-FFQ, EFSA-Q and 24HDR (mean values and standard deviations).

Table 3 – Correlations between the consumption chocolate-derived products (times/day) from the C-FFQ with that obtained from the EFSA-Q and 24HDR.

Table 4 – Classification of individuals regarding their consumption frequency for each of the foods considered of interest in the C-FFQ in three categories: high consumers, low consumers and non-consumers.

Conclusions

In the present study, we assessed the validity of a 20-item FFQ designed for the precise evaluation of cocoa and chocolate products consumption (C-FFQ) through comparison with an EFSA-validated FFQ (EFSA-Q) and to a 24-hours dietary recall (24HDR). The results obtained show that this FFQ obtains provide precise data of frequency consumption for total and particular common cocoa products. Moreover, distribution of participants according to their consumption frequency by these three methods is quite similar as reflected by a low misclassification among methods.

Bibliography