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Association of fructose consumption with manifestations of Functional Gastrointestinal Disorders (FGIDs): The Hellenic National Nutrition and Health Survey (HNNHS)

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Background: The study aimed to assess the prevalence of Functional Gastrointestinal Disorders (FGIDs) and Irritable Bowel Syndrome (IBS) among adults and to determine their association with fructose consumption.

Methods: Data from the Hellenic National Nutrition and Health Survey (HNNHS) were included (3798 adults; 58.9% females). Information regarding FGID symptomatology was assessed using validated questionnaires and ROME III association criteria, in a sample of the population. Fructose intake was estimated using 24 hour recalls and MedDiet score to assess adherence to the Mediterranean diet. Multiple logistic regression analysis by tertile of fructose consumption was used to examine associations. Predicted probabilities of IBS were derived and post hoc analysis for MedDiet score and added sugar intake were performed, by area.

Results: The prevalence of FGID symptomatology was 20.2% and 8.2% had IBS specifically (representing 40.2% of total FGID). The odds of FGID significantly increased by 28% (95% CI:1.03-1.6) and IBS by 49% (95% CI:1.08-2.05) in individuals with higher fructose intake (3rd tertile compared to 1st). When area of residence was accounted for, individuals residing in the Greek islands had a significantly lower probability of FGID and IBS compared to those residing in Mainland and the main Metropolitan areas. Islanders were also found to have a higher MedDiet score and lower added sugar intake, compared to the main metropolitan area.

Conclusion: FGID and IBS symptomatology was most prominent among individuals with higher fructose consumption, although this was most prominent in areas with a lower Mediterranean diet adherence, suggesting that fructose dietary source and not total fructose may be contributing to FGID.

Keywords: Gastrointestinal disorders, IBS, ROME III, Fructose consumption, Mediterranean diet.