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ASSOCIATION BETWEEN HABITUAL MSG CONSUMPTION AND COMPULSIVE EATING BEHAVIORS IN UNIVERSITY STUDENTS: A CROSS-SECTIONAL STUDY

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Abstract

Background: Monosodium glutamate (MSG) is a widely used flavor enhancer in processed foods that increases palatability and may influence eating behaviors. Although considered safe from a toxicological standpoint, its potential association with compulsive eating patterns remains unclear. University students are particularly vulnerable to irregular dietary habits and increased consumption of ultra-processed foods.

Objectives: This study aimed to determine whether higher MSG intake is associated with increased food addiction and binge-eating severity among university students. It also examined the relationship between MSG consumption and food addiction symptom counts, assessed the presence of a dose–response effect, and evaluated these associations after adjusting for key confounders such as age, gender, body mass index, perceived stress, and academic year.

Methods: A cross-sectional study was conducted among 555 Palestinian university students aged 18–30 years. MSG intake was assessed using a composite dietary exposure scale and categorized into tertiles (low, moderate, high). Food addiction was measured using the Yale Food Addiction Scale (YFAS), binge-eating severity using the Binge Eating Scale (BES), and perceived stress using the Perceived Stress Scale-4 (PSS-4). Logistic regression models were used to examine the association between MSG intake and food addiction diagnosis, while linear regression models evaluated associations with binge-eating severity and YFAS symptom counts. All models were adjusted for age, gender, body mass index (BMI), perceived stress, and academic year.

Results: Food addiction was identified in 24.7% of participants. The prevalence increased across MSG intake tertiles, rising from 15.7% in the low tertile to 33.0% in the high tertile ($p < 0.001$). In adjusted logistic regression analyses, participants in the high MSG tertile had significantly higher odds of food



addiction compared with those in the low tertile (adjusted OR = 2.75, 95% CI: 1.63–4.65, $p < 0.001$). Higher MSG intake was also associated with greater binge-eating severity ($\beta = 1.25$, $p < 0.001$) and higher YFAS symptom counts, indicating a dose–response relationship. BMI and perceived stress were independently associated with both outcomes. The adjusted logistic model demonstrated acceptable discrimination (AUC = 0.71).

Conclusions: Higher MSG intake is associated with increased food addiction symptoms and greater binge-eating severity among university students. These findings suggest that frequent exposure to flavor-enhanced foods may contribute to reward-driven eating behaviors in young adults.

Keywords: Monosodium glutamate, Food addiction, Binge eating, University students' lifestyle, Dietary additives, Eating behavior.