



# Association of Inflammatory Potential of Diet With Smoking, Alcohol, and Opium: A Cross-Sectional Study on Fasa Adult Cohort Study

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## ABSTRACT

**Introduction:** Previous studies suggested that substance abuse has a two-way association with diet. It has been seen that addiction to alcohol, smoking, or opium had a significant relation to energy intake, appetite, and consumption of micronutrients. The present study aimed to investigate the association of the inflammatory potential of diet with substance abuse among the population of adults in Fasa.

**Methods and Materials:** The present cross-sectional study included the participants of the Fasa Adult Cohort Study (n=10138). The remaining population was included in the final analysis after excluding the participants with missing data, pregnancy, or outlier data. The studied population was categorized based on active smoking, opium, and alcohol consumption. Also, the participants were divided into three levels of addiction: 1. No substance abuse 2. One substance abuse 3. two or three substance abuse. Dietary Inflammatory Index (DII) developed by Shivappa et al. in 2014 measured the inflammatory potential of diet. The continuous and categorized variables were reported as mean  $\pm$  standard deviation and frequency (percent). The mean of DII was compared among different studied groups using ANCOVA to investigate the unadjusted and adjusted differences.

**Results:** The study population's mean age (n = 10030) was 48.6 $\pm$ 9.6 years, including 4,523 men (45.1%). While the frequency of smoking and opium consumption was 19.2% and 20.9%, only 204 participants had a history of alcohol consumption (2.0%). Also, the mean score of DII was -0.27  $\pm$  2.07. While opium abusers (-0.51  $\pm$  1.87 vs. -0.21  $\pm$  2.12, p-value 0.001) had and the smokers (-0.58  $\pm$  1.89 vs. -0.19  $\pm$  2.11, p-value 0.001) lower DII, the alcohol abusers had no significant difference compared with non-abusers (-0.27  $\pm$  1.91 vs. -0.27  $\pm$  2.08; p = 0.968). Also, the participants with two or more substance abuse (-0.66  $\pm$  1.86) had a lower mean of DII compared with both one substance abuser (-0.30  $\pm$  1.88; p = 0.001) or non-abusers (-0.19  $\pm$  2.14; p = 0.001). This comparison remained significant after adjusting for age, gender, educational status, and socioeconomic status (p = 0.001). The estimated mean  $\pm$  SE was -0.71  $\pm$  0.06 in two or three substance abusers, -0.39  $\pm$  0.06 in one substance abusers, and -0.17 $\pm$ 0.03 in non-abusers.

**Conclusion and Discussion:** Our findings showed that abusing cigarettes, alcohol, or opium had a significant association with lower consumption of pro-inflammatory nutrients. Interestingly, the results were independent of the sociodemographic features of the studied population. Therefore, further studies are required to investigate the cause-effect association between substance abuse and the inflammatory potential of diet.

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