

The Relationship between the Frequency of High Glycemic Index Food Consumption, Physical Activity, and Nutritional Status with Blood Glucose Levels among T2DM Patients at Kaliwates General Hospital, Jember

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ABSTRACT

Type 2 Diabetes Mellitus (T2DM) ranked as the fourth most common disease among outpatients at Kaliwates General Hospital, Jember, in 2025, with 1,012 patients. Blood glucose control is influenced by several factors, including the frequency of high-glycemic-index food consumption, physical activity, and nutritional status. This study aimed to analyze the relationship between these factors and random blood glucose (RBG) levels among patients with T2DM. This quantitative analytic observational study used a cross-sectional design. A total of 59 patients were selected using purposive sampling. Data on the frequency of high-glycemic-index food consumption were collected using a Food Frequency Questionnaire (FFQ), physical activity was assessed using the Baecke Physical Activity Questionnaire, nutritional status was determined using Body Mass Index (BMI), and RBG levels were measured using a Family Dr glucometer. Data were analyzed using Spearman's rank correlation test. The results showed no significant relationship between the frequency of high-glycemic-index food consumption and RBG levels ($p = 0.16$; $r = 0.311$), while physical activity was significantly associated with RBG levels ($p = 0.000$; $r = -1.000$). No significant relationship was found between nutritional status and RBG levels ($p = 0.119$; $r = 0.205$). In conclusion, the frequency of high-glycemic-index food consumption and nutritional status were not associated with RBG levels, whereas physical activity showed a very strong negative correlation with RBG levels. Regular physical activity may help control random blood glucose levels.

Keywords: *high glycemic index, physical activity, nutritional status, blood glucose levels, type 2 diabetes mellitus*