

The Relationship Between Sugar-Sweetened Beverage Consumption and Physical Activity with Random Blood Glucose Levels among Patients with Type 2 Diabetes Mellitus at Tapen Public Health Center, Bondowoso Regency

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ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a metabolic disease characterized by hyperglycemia resulting from impaired insulin secretion, insulin action, or both. However, people living in the working area of Tapen Public Health Center still have the habit of consuming sugar-sweetened beverages and engage in varying levels of physical activity. This study aimed to analyze the relationship between sugar-sweetened beverage consumption and physical activity with random blood glucose levels among patients with Type 2 Diabetes Mellitus at Tapen Public Health Center, Bondowoso Regency. This study employed a cross-sectional design involving 79 respondents selected using proportional random sampling. Data on sugar-sweetened beverage consumption were collected using the Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ), physical activity was assessed using the Global Physical Activity Questionnaire (GPAQ), and random blood glucose levels were measured using a glucometer. Data were analyzed using the Spearman correlation test. The results showed a significant relationship between sugar-sweetened beverage consumption and random blood glucose levels ($p = 0.000$; $r = 0.838$), indicating a very strong positive correlation. A significant relationship was also found between physical activity and random blood glucose levels ($p = 0.006$; $r = -0.307$), indicating a weak negative correlation. It can be concluded that higher sugar-sweetened beverage consumption is associated with higher random blood glucose levels, whereas higher levels of physical activity tend to lower random blood glucose levels.

Keywords: Type 2 Diabetes Mellitus, sugar-sweetened beverages, physical activity, random blood glucose.