**Determinant Factors Associated with HbA1c in Patients
with Type 2 Diabetes Mellitus: Fiber and Carbohydrate
Intake, and Physical Activity**

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ABSTRACT

Type 2 diabetes mellitus (T2DM) is a disease resulting from decreased insulin sensitivity due to damage to the insulin-producing pancreatic cells. T2DM can be caused by inadequate management, particularly insufficient physical activity and poor dietary habits, especially low fiber intake and high carbohydrate consumption. This study aimed to determine the relationship between fiber intake, carbohydrate consumption, and physical activity with HbA1c levels in T2DM patients in the working area of Sumbersari Public Health Center, Jember Regency. This research employed a quantitative analytic design. The study involved 79 participants selected through incidental (accidental) sampling. Data collection utilized subject identity questionnaires, Semi-Quantitative Food Frequency Questionnaires (SQ-FFQ), the International Physical Activity Questionnaire (IPAQ), and direct observation. Bivariate analysis was conducted using the chi-square test, while multivariate analysis employed multiple logistic regression.The bivariate analysis results indicated significant associations between fiber intake (p = 0.042), carbohydrate consumption (p = 0.002), and physical activity (p = 0.000) with HbA1c levels. The multivariate analysis revealed that carbohydrate consumption had the most dominant influence on HbA1c levels (p = 0.008; Odds Ratio = 11.27). In conclusion, carbohydrate consumption is the strongest risk factor, with individuals consuming high amounts of carbohydrates being 11 times more likely to have uncontrolled HbA1c levels.

Keywords: *Fiber, Carbohydrates, Physical Activity, HbA1c Levels, Type 2 Diabetes Mellitus*