

Dietary Patterns in Relation to Prediabetes: Results from a Kurdish Population-Based Study

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ABSTRACT

Introduction: Pre-diabetes is a warning of Type 2 diabetes in which the blood glucose level is above the normal level but lower than the cut-off for diagnosing diabetes, which increases the risk of developing type 2 diabetes compared to people with normal blood glucose. Dietary modifications can prevent the progression of prediabetes to diabetes. Therefore, this study aimed to investigate the dietary patterns concerning prediabetes.

Methods and Materials: This cross-sectional study used data from the Ravansar non-communicable diseases cohort study, which focuses on a Kurdish population aged 35 to 65 years in Ravansar, Kermanshah Province, Western Iran. Body mass index was computed by weight (kg) divided by the square of height (m²). A trained nutritionist measured waist circumference (WC) with non-stretched and flexible tape in a standing position at the level of the iliac crest. Prediabetes was diagnosed based on the American Diabetes Association guidelines, fasting blood sugar between 100 and 125 mg/dl. Dietary patterns were extracted by principal component analysis using a validated semi-quantitative food frequency questionnaire. We identified three dietary patterns: a plant-based diet, a high-protein diet, and an energy-dense diet. Binary logistic regression in crude and adjusted (adjusting for age and gender) odds ratios (ORs) and 95% confidence intervals (CI) was used to determine the association using SPSS 20 (IBM Corp, Chicago, IL, USA).

Results: A total of 5,954 participants were included in this study with a mean age of 45.8 ± 7.82 years. The prevalence of prediabetes in this population was 13.1% (n = 782). The mean body mass index (BMI) and WC among participants with prediabetes were significantly higher than those of healthy participants ($p = 0.0001$). In contrast, physical activity in these participants was significantly lower than that of healthy participants ($p = 0.0001$). We observed that higher adherence to an energy-dense diet was significantly associated with increased odds of prediabetes in the crude (OR: 1.14; CI 95%: 1.04-1.25) and adjusted (OR: 1.13; CI 95%: 1.02-1.24) model. However, the findings did not show any association between following plant-based and high-protein diets and prediabetes in both models.

Conclusion and Discussion: Our findings reflected that pre-diabetes participants had more BMI, WC, and less physical activity than healthy participants. They also followed an energy-dense diet. Therefore, the dietary recommendations for these individuals should include a low-calorie, nutrient-dense diet along with effective weight management strategies.

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