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#### BA2025-1015

##### Unveiling mechanisms linking dietary patterns to 10-year cardiovascular risk in multi-ethnic Asian T2D patients

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**Background:** Global Dietary Guidelines emphasize dietary pattern (DP) over nutrient-based approaches for cardiovascular disease (CVD) prevention in T2D patients [1]. To maximize effectiveness, promoting dietary patterns should be aligned to sociocultural contexts [2]. However, DP research of underrepresented populations, particularly Asians, remains limited.

**Aim:** To identify DPs associated with 10-year CVD risk in Malaysian T2D patients and explore the mechanisms behind the association.

**Method:** This cross-sectional screening study involved 186 clinically diagnosed T2D patients recruited from the Rice Intervention in Chronic Health (RICH) clinical trial. Cardiometabolic parameters, including adiposity, glycemic, insulin, and inflammatory markers, blood pressure and lipid profiles, were assessed. The 10-year CVD risk was evaluated using the validated T2D-specific UKPDS Cardiac Risk Engine. DPs were identified using 3-day diet records through Reduced Rank Regression (RRR). Univariate General Linear Model examined the association between tertiles of DP and 10-year CVD risk, controlling for age, gender, and ethnicity. Path analysis examined the mediating effects of cardiometabolic markers on the DP-CVD relationship.

**Results:** One DP, named the "ReGrReTS" pattern, was identified through RRR. This pattern was characterized by high consumption of Refined Grain, Red Meat, Tea & Coffee, Sugar Sweetened Beverages and Rice Dishes, alongside low intake of Wholegrain Cereals and Dairy Products. Increased adherence to the ReGrReTS pattern showed a significant linear trend with the 10-year CVD risk (6.3% in T1 → 10.7% in T2 → 11.3% in T3,  $P_{trend} = 0.001$ ). Glycemic markers ( $SIE = 0.034$ ,  $p = 0.005$ ), waist-to-hip ratio ( $SIE = 0.066$ ,  $p = 0.010$ ), and triglyceride ( $SIE = 0.049$ ,  $p = 0.037$ ) significantly mediated the relationship between the 'ReGrReTS' pattern and 10-year CVD risk.

**Conclusion:** The DP approach, which accounts for food-food interactions, offers valuable insights into how real-world eating patterns impact long-term CVD risk in multi-ethnic Asian T2D patients, highlighting the potential for dietary modifications to reduce CVD risk.

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#### BA2025-1032

##### The 3Cs: Calories, Carbs & Clock – Which matters most for glycemic control in T2D in the era of time-restricted eating?

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**Background:** Time-restricted eating (TRE), that limits food consumption to a specific eating window, has gained attention as a potential dietary approach for improving glycemic control in T2D patients [1]. However, its effectiveness compared to conventional dietary approaches focusing on calorie (kcal) and carbohydrate (carbs) remains uncertain.

**Aim:** To determine whether TRE has a greater influence on glycemic control in T2D patients compared to conventional dietary approaches focusing on 'kcal' and 'carbs'.

**Method:** This cross-sectional screening study involved 177 clinically diagnosed T2D patients from the Rice Intervention in Chronic Health (RICH) clinical trial. Dietary kcal and carbs intakes were assessed using 3-day diet records (3DDR). Additionally, eating habits, including eating window, calorie midpoint (time achieving 50% of kcal intake), and meal skipping behaviour, were also evaluated from 3DDRs. TRE was defined as an eating window of 8–10 h [2], while those eating outside this window was considered as non-TRE. Subsequently, TRE participants were further

classified into early TRE (eTRE) and late TRE (lTRE) based on mean value of calorie midpoint. Glycemic control was assessed using HbA1c. General linear model examined associations between HbA1c with kcal, carbs and TRE groups, controlling for age, gender and ethnicity.

**Results:** TRE was significantly associated with HbA1c ( $p = 0.037$ ) whilst kcal and carbs were not ( $p > 0.05$ ). Only about 19 % of participants fulfilled TRE category, who exhibited significant lower HbA1c than non-TRE participants ( $6.9 \pm 0.4 \%$  vs  $7.8 \pm 0.2 \%$ ,  $p = 0.037$ ). Amongst TRE participants ( $n = 34$ ), eTRE ( $n = 24$ ), who consumed  $\geq 50$  % of kcal before 2:30 pm, showed clinically significant lower HbA1c ( $6.8 \pm 0.4 \%$  vs  $7.5 \pm 0.5 \%$ ,  $p = 0.327$ ) than lTRE ( $n = 10$ ). Notably, TRE participants who skipped breakfast ( $n = 12$ ) had clinically significant higher HbA1c ( $7.6 \pm 0.5 \%$  vs  $6.5 \pm 0.4 \%$ ,  $p = 0.069$ ).

**Conclusion:** TRE demonstrates a stronger influence on glycemic control in T2D patients than kcal and carbs. The potential harmful effects of late TRE and skipping breakfast warrant further investigation.

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#### BA2025-1067

##### Association between homebound status and glycemic control among community-dwelling older adults with diabetes

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**Background:** Homebound older adults have high rates of depression, decline in cognitive and physical function, high rates of comorbidities, and increased mortality. Despite the reduced ability of homebound older adults with diabetes (DM) to effectively implement required self-care behaviors, upon which adequate glycemic control rests, no study has examined the association between homebound status and glycemic control.

**Aim:** We aimed to examine the association between homebound status and glycemic control (defined as HbA1c  $\geq 8$  %) among community-dwelling older adults with DM.

**Method:** This is a cross-sectional study of 1,534 participants with self-reported DM in the 2017 National Health and Aging Trends Survey of a nationally representative sample of Medicare beneficiaries (aged  $\geq 65$ ). We defined homebound as those who never or rarely left home in the past month and semi-homebound as those who had difficulty, needed help leaving home, or left

home with assistance. Data was collected through in-person interviews, with a response rate of 91.8 %. Dried bloodspot assays were used for HbA1c. Logistic regression was used to assess associated factors.  $P < 0.05$  is considered statistically significant.

**Results:** A total of 1534 (30 %) community-dwelling older adults had DM. Participants were primarily White (73 %) and female (54 %), and 30 % were homebound or semi-homebound. Only 11% of participants had a HbA1c of  $\geq 8$  %; of those, 30 % were homebound and semi-homebound individuals. Homebound status was not associated with HbA1c level  $\geq 8$  %. After adjusting for age and sex, only increased weight (OR = 1.01,  $p = 0.04$ ), having hypertension (OR = 0.44,  $p = 0.01$ ), and having cancer (OR = 0.17,  $p = 0.01$ ) were independent predictors of HbA1c  $\geq 8$  %.

**Conclusion:** Our study revealed no association between homebound status and glycemic control among community-dwelling older adults with diabetes. Interventions targeting weight management may improve glycemic control in this population. Future studies should target a more diverse population that includes non-Medicare beneficiaries.

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#### BA2025-1090

##### Feasibility and acceptance of red pigmented rice as a sustainable staple for T2D patients: insights from the RICH study

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**Background:** Global diabetes guidelines emphasize whole grains to improve cardiometabolic health. However, substituting traditional staple like white rice with wholegrain rice, poses challenges related to feasibility and acceptance.

**Aim:** To evaluate the feasibility and acceptance of substituting white rice with a Malaysian low glycemic index, anthocyanin-rich, red pigmented rice (UKMRC9) in T2D patients.

**Method:** This mixed-method study embedded focus group discussion (FGD) within the experimental design of the Rice Intervention in Chronic Health (RICH) study. The feasibility of UKMRC9 substitution was evaluated by comparing trial attrition rate (Chi-square test) and average intake of each rice type throughout the intervention (Student's t test). Validated 9-point hedonic scale measured consumer acceptance. Paired-t test compared short-term consumer acceptance after 2-week consumption. Generalized estimating equations examined the temporal changes in consumer acceptance. Subsequently, FGDs explored facilitators and barriers to sustained UKMRC9 consumption.

**Results:** Attrition rate (23.5% vs 28.0%,  $p = 0.607$ ) and average rice intakes (49.4 g vs 56.4 g,  $p = 0.072$ ) were similar between each rice type. However, UKMRC9 received significant lower overall lik-