

Association of dietary patterns derived by reduced rank regression with colorectal cancer risk and mortality

P3-D15

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Adherence to a dietary pattern characterized by a higher intake of dietary fat oil, dark green vegetables, and other vegetables and a lower intake of sugar, beer, wine, and liquor could potentially reduce the risk of colorectal cancer

BACKGROUND

- Unhealthy dietary patterns contribute to an increased risk of colorectal cancer (CRC).
- Limited prior studies have used reduced rank regression (RRR) to assess dietary patterns associated with CRC risk.
- We aimed to identify dietary patterns derived by RRR and assess their associations with CRC risk and mortality.

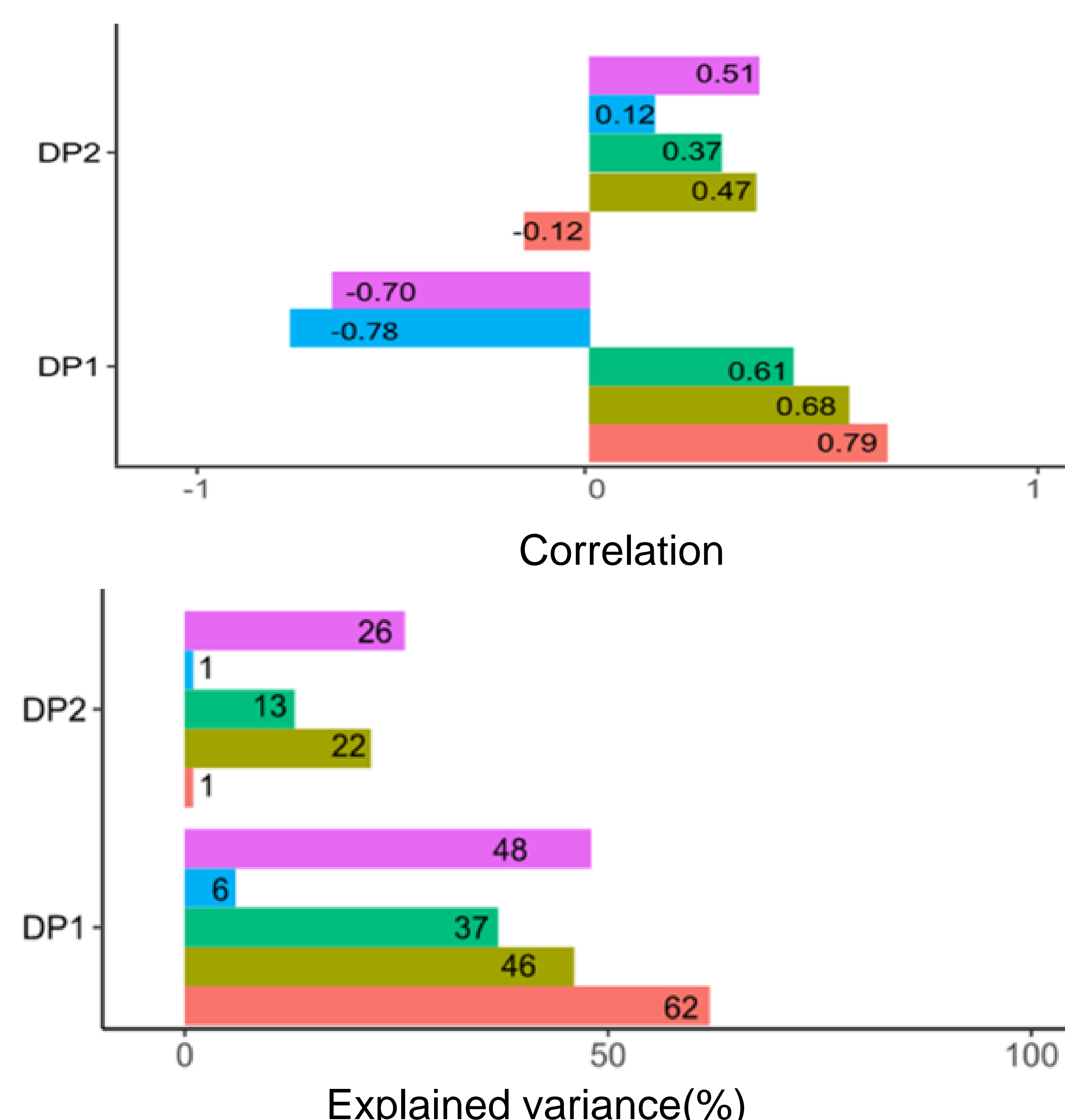
METHODS

- The multicentre Prostate, Lung, Colorectal, and Ovarian Cancer Screening (PLCO) trial data was used.
- The amount and food items consumed by the study participants over the past 12 months were assessed using a Dietary History Questionnaire.
- Based on MyPyramid food classification, 29 food groups with two additional groups created for alcohol were used to construct dietary patterns.
- RRR was used to derive dietary patterns.
- Intake of fibre, folate, the percentage of energy from carbohydrates, saturated and unsaturated fatty acids were used as response variables.
- Cox models and competing risk survival regression, with age as the time scale, were used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for CRC risk and mortality, respectively.
- Multiple imputation was used to impute missing values at baseline.

RESULTS

- A total of 97, 561 individuals were included in the analyses
- A total of 1, 044 CRC cases and 499 CRC mortalities were identified during the follow-up period
- Two dietary patterns were identified
- Dietary pattern II (DP2) was highly correlated with the percentage of energy from unsaturated fatty acid intake, fibre and folate density

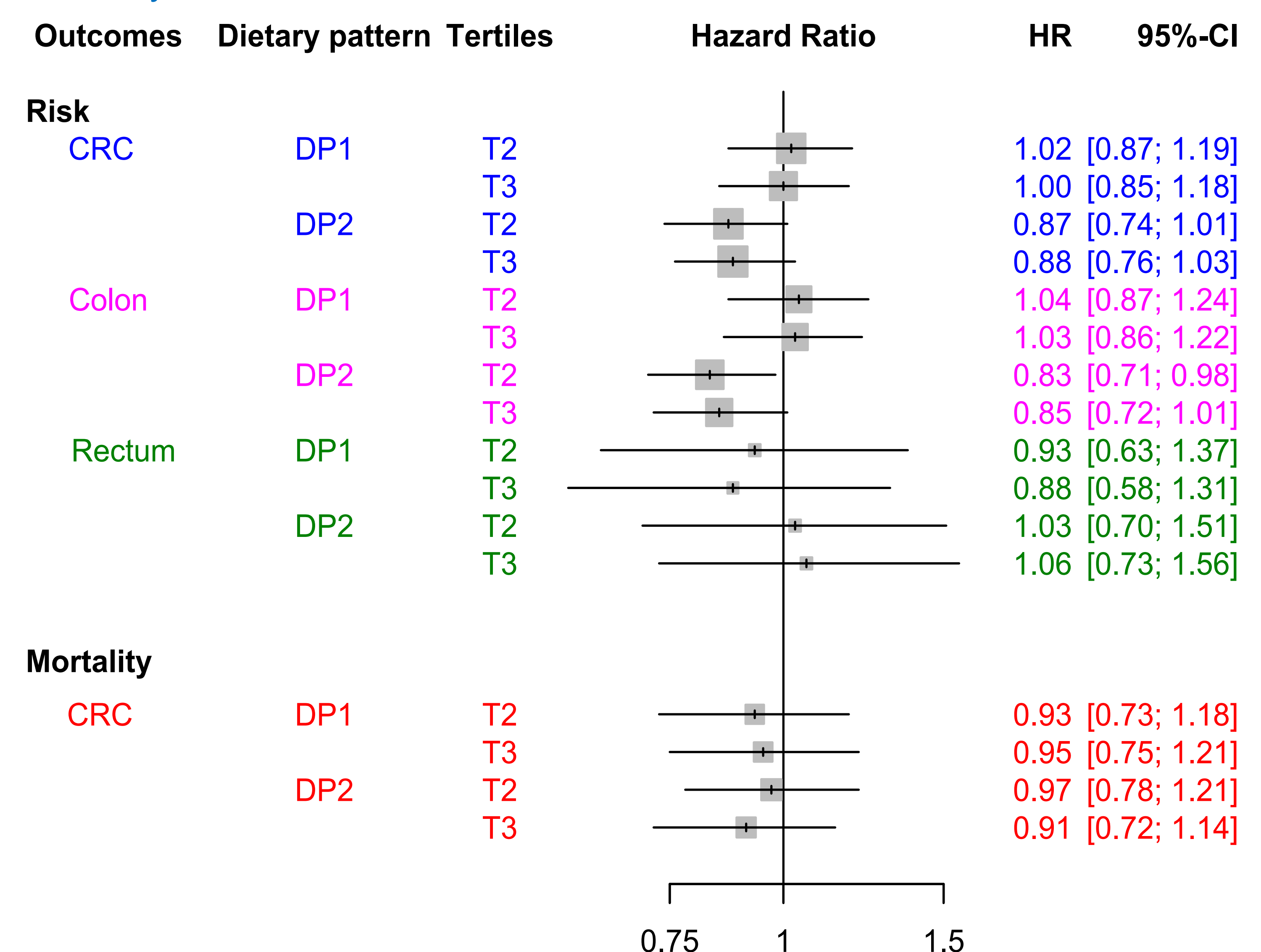
Figure 1: Correlation and explained variance between dietary patterns and response variables



RESULTS CONTINUED

- DP1 was characterized by a higher intake of milk, citrus fruit, other fruit, non-wholegrain, wholegrain, sugar, and dark green vegetables.
- DP2 was characterized by a higher intake of dietary fat oil, dark green vegetables, and other vegetables, and a lower intake of sugar, beer, wine, and liquor.
- Dietary patterns and CRC risk and mortality**
- In comparison to the first tertile of DP2, those in the second (HR=0.87; 95%CI: 0.74, 1.01) and third (HR=0.88; 95%CI: 0.76, 1.03) tertiles had lower CRC risk.

Figure 2: Association between dietary patterns and CRC risk and mortality



The model was adjusted for age, sex, race, marital status, educational status, occupational status, smoking status, family history of cancer other than CRC, family history of CRC, colon comorbidities, diverticulitis, liver comorbidities, colorectal polyps, and physical activity, BMI, diabetes, hypertension, aspirin use, and total energy intake

CONCLUSIONS

- High fibre, folate, and unsaturated fatty acid patterns showed an inverse association with the risk of CRC.
- Adherence High fibre, folate, and unsaturated fatty acid patterns characterized by a higher intake of dietary fat oil, dark green vegetables, and other vegetables, and a lower intake of sugar, beer, wine, and liquor could potentially reduce the risk of CRC.
- The findings hold significance for public health, highlighting the need to promote nutrition education and counselling, particularly for individuals at risk of developing CRC due to unhealthy dietary habits.
- However, future studies incorporating repeated measurement of dietary intake, encompassing diverse age groups, and using the same intermediate response variables are needed to confirm these findings.

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Response variables

Carbohydrate (%Energy) Folate density(g/d) Unsaturated fat(% Energy)
Fibre density(g/d) Saturated fat(% Energy)