# Inflammatory Dietary Pattern Predicts Dyslipidemia and Anemia in Middle-aged and Older Taiwanese Adults with Declined Kidney Function: A Cross-Sectional Population Study from 2008 to 2010

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**Table S1.** Characteristics of the study participants across genders ($n$ = 41,128) [a].

| | Total ($n$ = **41,128**) | Males ($n$ = 21,376) | Females ($n$ = 19,752) | $p$ [b] |
|---|---|---|---|---|
| Age (years) | 52.6 ± 9.9 | 51.9 ± 0.1 | 53.3 ± 0.1 | <0.001 |
| Smoking, current | 6717 (17.0) | 6086 (28.5) | 631 (3.2) | <0.001 |
| Alcohol drinking, yes | 6420 (17.0) | 5405 (25.3) | 1015 (5.1) | <0.001 |
| Physical inactivity | 24726 (60.1) | 12554 (58.7) | 12172 (61.6) | <0.001 |
| Sleep duration | | | | <0.001 |
| <6 hours/day | 10575 (25.7) | 4828 (22.6) | 5747 (29.1) | |
| >7 hours/day | 9707 (23.6) | 5325 (24.9) | 4382 (22.2) | |
| Family income | | | | <0.001 |
| <800,000 NTD | 16891 (41.1) | 7395 (34.6) | 9496 (48.1) | |
| >1.61 M NTD | 6481 (15.8) | 4036 (18.9) | 2445 (12.4) | |
| Education | | | | <0.001 |
| < high school | 10215 (24.8) | 3583 (16.8) | 6632 (33.6) | |
| > high school | 12697 (30.9) | 8150 (38.1) | 4547 (23.0) | |
| Marital status, married | 32286 (78.5) | 18412 (86.1) | 13874 (70.2) | <0.001 |
| Cardiovascular disease [c] | 2489 (6.1) | 1298 (6.1) | 1191 (6.0) | 0.86 |
| Diabetes [d] | 3974 (9.7) | 2356 (11.0) | 1618 (8.2) | <0.001 |
| Hypertension [e] | 11779 (28.6) | 6762 (31.6) | 5017 (25.4) | <0.001 |
| Dyslipidemia | 12909 (32.0) | 7967 (37.3) | 4942 (25.0) | <0.001 |
| Anemia | 3232 (7.9) | 684 (3.2) | 2548 (12.9) | <0.001 |
| BMI (kg/m²) | 24.0 ± 3.3 | 24.7 ± 3.1 | 23.2 ± 3.4 | <0.001 |
| SBP (mmHg) | 122.5 ± 18.2 | 124.7 ± 16.7 | 120.1 ± 19.4 | <0.001 |
| DBP (mmHg) | 73.8 ± 11.8 | 76.9 ± 11.2 | 70.6 ± 11.5 | <0.001 |
| Inflammatory markers | | | | |
| Leukocytes (×10³/μL) | 5.9 ± 1.7 | 6.1 ± 1.6 | 5.6 ± 1.7 | <0.001 |
| Neutrophils (×10³/μL) | 3.3 ± 1.3 | 3.4 ± 1.2 | 3.2 ± 1.4 | <0.001 |
| Lymphocytes (×10³/μL) | 1.9 ± 0.6 | 2.0 ± 0.6 | 1.8 ± 0.6 | <0.001 |
| N/L ratio | 1.8 ± 0.9 | 1.9 ± 0.9 | 1.8 ± 0.9 | <0.001 |
| CRP (nmol/L) | 22.5 ± 47.9 | 22.8 ± 46.9 | 21.6 ± 47.9 | <0.001 |

| | Blood sugar and lipids | | | |
|---|---|---|---|---|
| FBG (mmol/L) | 5.9 ± 1.3 | 6.0 ± 1.3 | 5.8 ± 1.3 | <0.001 |
| TG (mmol/L) | 1.4 ± 1.1 | 1.5 ± 0.8 | 1.2 ± 0.7 | <0.001 |
| TC (mmol/L) | 5.3 ± 0.9 | 5.2 ± 0.9 | 5.3 ± 0.9 | <0.001 |
| HDL-C (mmol/L) | 1.5 ± 0.4 | 1.4 ± 0.3 | 1.7 ± 0.4 | <0.001 |
| LDL-C (mmol/L) | 3.1 ± 0.8 | 3.2 ± 0.8 | 3.1 ± 0.8 | <0.001 |
| TC/HDL-C ratio | 3.6 ± 0.9 | 4.0 ± 0.9 | 3.3 ± 0.8 | <0.001 |
| | Anemic biomarkers | | | |
| RBC (×10$^6$/μL) | 4.7 ± 0.5 | 5.0 ± 0.5 | 4.5 ± 0.4 | <0.001 |
| Hemoglobin (g/dL) | 14.2 ± 1.5 | 15.1 ± 1.1 | 13.1 ± 1.2 | <0.001 |
| Hematocrit (%) | 42.2 ± 4.3 | 44.9 ± 3.2 | 39.2 ± 3.2 | <0.001 |
| MCV (fL) | 88.7 ± 6.6 | 89.4 ± 6.2 | 88.0 ± 7.0 | <0.001 |
| MCH (pg) | 29.9 ± 2.6 | 30.1 ± 2.5 | 29.6 ± 2.8 | <0.001 |
| MCHC (g/dL) | 33.6 ± 0.8 | 33.7 ± 0.7 | 33.6 ± 0.8 | <0.001 |
| RDW (%) | 13.9 ± 1.3 | 14.0 ± 1.1 | 13.9 ± 1.5 | <0.001 |
| Iron (μg/dL) | 93.1 ± 35.3 | 101.9 ± 35.3 | 84.3 ± 33.0 | <0.001 |
| | Kidney function biomarkers | | | |
| BUN (mmol/L) | 5.2 ± 1.5 | 5.4 ± 1.5 | 5.0 ± 1.5 | <0.001 |
| CRE (μmol/L) | 89.5 ± 22.2 | 101.0 ± 20.8 | 77.4 ± 18.7 | <0.001 |
| eGFR (mL/min/1.73 m$^2$) | 73.7 ± 9.9 | 73.7 ± 9.8 | 74.1 ± 9.9 | <0.001 |
| Proteinuria | | | | <0.001 |
| +1 | 39311 (95.6) | 20260 (94.8) | 19051 (96.5) | |
| +2 | 1041 (2.5) | 641 (3.0) | 400 (2.0) | |
| ≥+3 | 776 (1.9) | 475 (2.2) | 301 (1.5) | |

NTD: new Taiwan dollar, BMI: body mass index, SBP: systolic blood pressure, DBP: diastolic blood pressure, N/L, neutrophil-to-lymphocyte; CRP: C-reactive protein, FBG: fasting blood glucose, TG: triglycerides, TC: total cholesterol, HDL-C: high-density lipoprotein cholesterol, LDL-C: low-density lipoprotein cholesterol, TC/HDL-C: total cholesterol-to-high-density lipoprotein cholesterol, RBC: red blood cells, MCV: mean corpuscular volume, MCH: mean corpuscular hemoglobin, MCHC: mean corpuscular hemoglobin concentration, RDW: red blood cell distribution width, BUN: blood urea nitrogen, CRE: creatinine, eGFR: estimated glomerular filtration rate. [a] continuous data are presented as mean ± SD and categorical data are presented as number (percentage). [b] $p$-values were analyzed using Mann-Whitney U test for continuous variables and chi-square test for categorical variables. [c] cardiovascular disease: having a history of cardiovascular disease or use of cardiovascular drug. [d] diabetes: having a history of diabetes, use of hypoglycemic drug or FBG ≥7.0 mmol/L (126 mg/dL). [e] hypertension: having a history of hypertension, use of hypertension drug, systolic pressure ≥140 mmHg or diastolic pressure ≥90 mmHg.

**Table S2.** Multivariate logistic regression analysis of dietary pattern scores across quartiles with proteinuria severity.

| Dietary Pattern Scores | Model 1 [a] | | Model 2 [b] | |
|---|---|---|---|---|
| | OR (95% CI) | $p$ | OR (95%CI) | $p$ |
| | Males | | | |

| | | | | |
|---|---|---|---|---|
| Q1 (ref) | 1 | | 1 | |
| Q2 (mild) | 1.26 (1.04, 1.51) | 0.02 | 1.23 (0.97, 1.56) | 0.09 |
| Q3 (moderate) | 1.20 (1.00, 1.45) | 0.05 | 1.27 (1.01, 161) | 0.044 |
| Q4 (high) | 1.47 (1.23, 1.76) | <0.001 | 1.44 (1.14, 1.83) | 0.002 |
| Females | | | | |
| Q1 (ref) | 1 | | 1 | |
| Q2 (mild) | 1.12 (0.91, 1.38) | 0.29 | 1.06 (0.81, 1.39) | 0.69 |
| Q3 (moderate) | 1.32 (1.07, 1.63) | 0.009 | 1.30 (0.99, 1.71) | 0.06 |
| Q4 (high) | 1.31 (1.04, 1.65) | 0.02 | 1.30 (0.97, 1.75) | 0.08 |

[a] model 1 adjusted for age and BMI. [b] model 2 adjusted for model 1 variables, smoking, alcohol drinking, physical activity, sleep duration, family income, education, marital status, cardiovascular disease, diabetes, and hypertension. Proteinuria severity was analyzed as a dummy variable with +1 served as a reference.

**Table S3.** Multivariate linear regression analysis of N/L ratio with kidney function biomarkers.

| Dependent Variables | Model 1 [a] | | Model 2 [b] | |
|---|---|---|---|---|
| | β (95% CI) | *p* | β (95%CI) | *p* |
| *Males* | | | | |
| CRP (nmol/L) | 10.17 (9.40, 10.93) | <0.001 | 9.98 (9.08, 10.88) | <0.001 |
| BUN (mmol/L) | 0.05 (0.03, 0.07) | <0.001 | 0.04 (0.01, 0.06) | 0.003 |
| CRE (μmol/L) | 1.11 (0.81, 1.41) | <0.001 | 0.96 (0.62, 1.30) | <0.001 |
| eGFR (mL/min/1.73 m²) | -0.36 (-0.50, -0.22) | <0.001 | -0.31 (-0.47, -0.16) | <0.001 |
| *Females* | | | | |
| CRP (nmol/L) | 13.14 (12.35, 13.94) | <0.001 | 12.20 (11.33, 13.08) | <0.001 |
| BUN (mmol/L) | 0.01 (-0.02, 0.03) | 0.506 | 0.00 (-0.02, 0.03) | 0.816 |
| CRE (μmol/L) | 1.14 (0.85, 1.43) | <0.001 | 1.03 (0.70, 1.37) | <0.001 |
| eGFR (mL/min/1.73 m²) | -0.30 (-0.45, -0.16) | <0.001 | -0.20 (-0.37, -0.02) | 0.028 |

CRP: C-reactive protein, BUN: blood urea nitrogen, CRE: creatinine, eGFR: estimated glomerular filtration rate. [a] model 1 adjusted for age and BMI. [b] model 2 adjusted for model 1 variables, smoking, alcohol drinking, physical activity, sleep duration, family income, education, marital status, cardiovascular disease, diabetes, and hypertension.

**Table S4.** Intake frequency of the food groups by different genders ($n$ = 41,128) [a].

| Food Groups | Males ($n$ = 21,376) | Females ($n$ = 19,752) | $p$ |
|---|---|---|---|
| Bread [b] | 1601 (7.5) | 1605 (8.1) | 0.017 |
| Whole grains [b] | 3323 (15.5) | 2961 (15.0) | 0.12 |
| Beans/legumes [b] | 1901 (8.9) | 1888 (9.6) | 0.02 |
| Seafood [b] | 2192 (10.3) | 1862 (9.4) | 0.005 |
| Eggs [b] | 2098 (9.8) | 987 (5.0) | <0.001 |
| Meat [b] | 5724 (26.8) | 3644 (18.4) | <0.001 |
| Organ meats [b] | 86 (0.4) | 44 (0.2) | 0.002 |
| Dairy products [b] | 476 (2.2) | 612 (3.1) | <0.001 |
| Deep fried foods [b] | 677 (3.2) | 590 (3.0) | 0.30 |
| Fried rice/flour products [b] | 733 (3.4) | 690 (3.5) | 0.73 |
| Instant noodles [b] | 30 (0.1) | 14 (0.1) | 0.035 |
| Preserved/processed foods [b] | 155 (0.7) | 118 (0.6) | 0.12 |
| Dipping sauce [b] | 616 (2.9) | 417 (2.1) | <0.001 |
| Jam/honey [b] | 602 (2.8) | 524 (2.7) | 0.32 |
| Rice/flour products [c] | 1393 (6.5) | 392 (2.0) | <0.001 |
| Fruits [c] | 535 (2.5) | 571 (2.9) | <0.001 |
| Root crops [d] | 453 (2.1) | 561 (2.8) | <0.001 |
| Dark-colored vegetables [e] | 1207 (5.6) | 1548 (7.8) | <0.001 |
| Light-colored vegetables [e] | 1519 (7.1) | 1651 (8.4) | 0.016 |
| Fried vegetables/salad dressing [e] | 494 (2.3) | 638 (3.2) | <0.001 |
| Milk [f] | 2317 (10.8) | 2574 (13.0) | <0.001 |
| Sugary drinks [f] | 3535 (16.5) | 2705 (13.7) | <0.001 |

[a] Data are expressed as number (percentage). The number of the participants was shown for those who consumed the food group at least the 4th high intake frequency in 5 different frequency options in the food frequency questionnaire. [b] consumed ≥1 serving/day. [c] consumed ≥3 servings/day. [d] consumed ≥½ bowl/day. [e] consumed ≥1½ bowls/day. [f] consumed ≥1 cup/day.
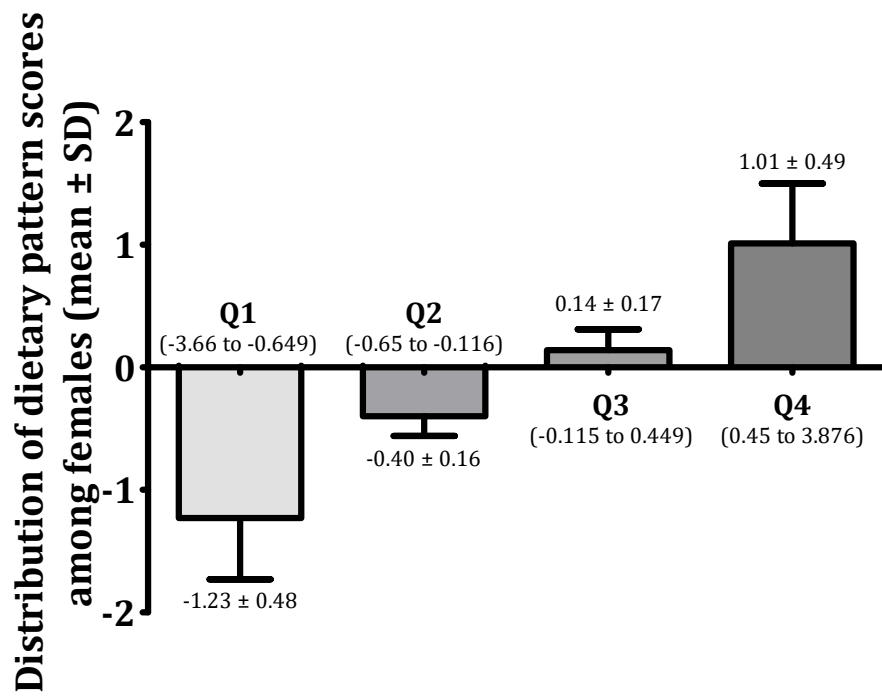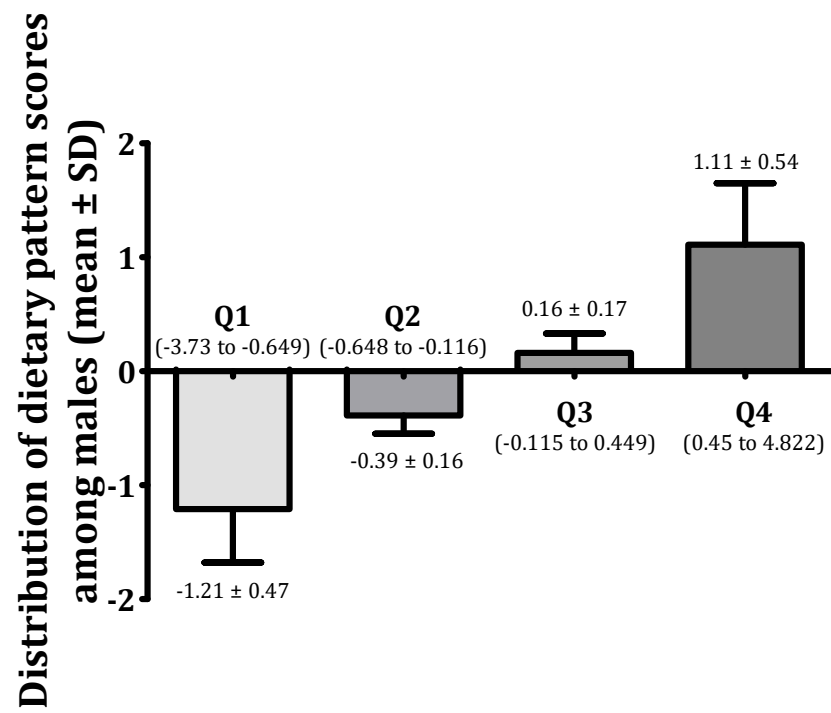
**Figure S1.** Distribution of dietary pattern scores among males and females.