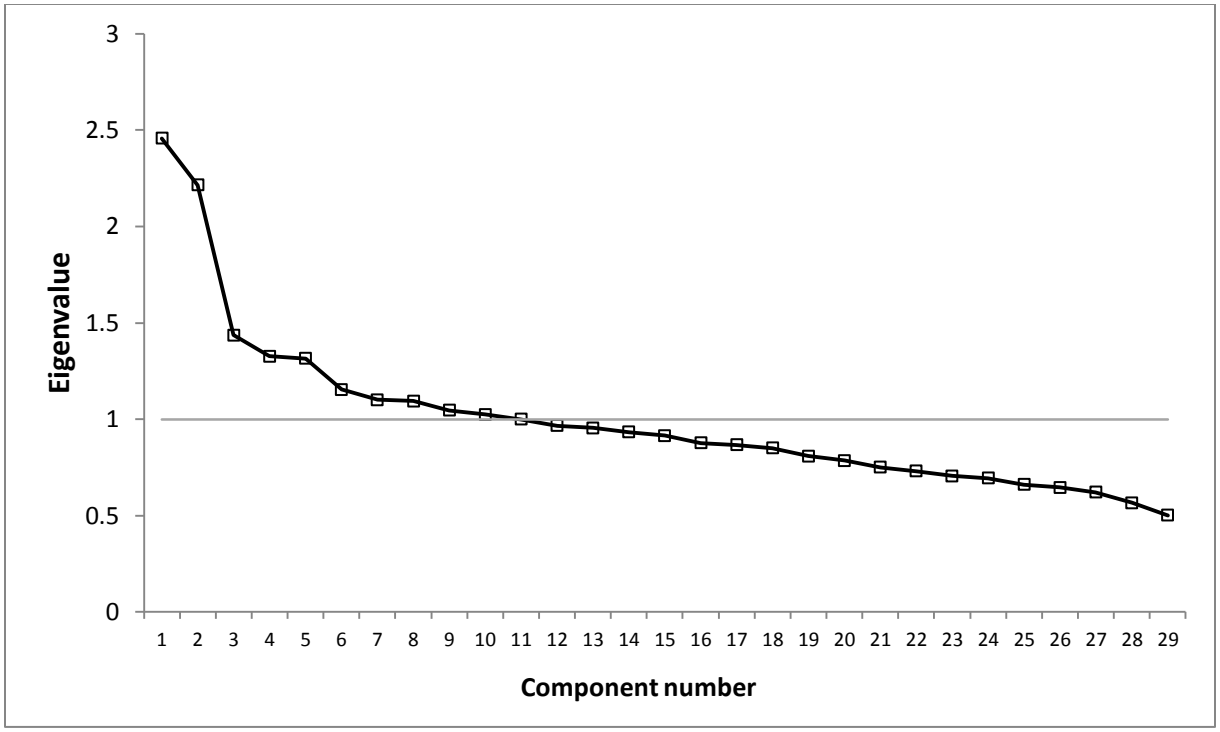
Supplemental table 1. Examples of food items for each food group included and not included in dietary pattern analysis.

Food groups included in dietary pattern analysis	
Rice	White and brown rice
Wheat noodles	Wheat noodles
Wheat flour	Wheat flour
Wheat buns and breads	Bun, butter bread, salty bread
Cakes, cookies and pastries	Cookies, mooncake, fruit cake, chocolate cake, fruit pie
Deep-fried wheat	Deep-fried dough stick, deep-fried cake with red bean paste and sugar, deep-fried sweet sesame seed ball
Corn and coarse grain	Corn, corn grits, corn flour, barley, oats, foxtail millet, sorghum
Starchy roots and tubers	Potato, yam, taro, lotus root, water chestnut, cassava, sweet potato
Fresh legumes	Soybean sprouts, peas with pod, mung bean sprouts
Dried legumes	Soybean flour, dried beans, beans flour, roasted broad bean
Legume products	Tofu, tofu products, red/mung bean paste
Nuts and sedes	Sesame, sunflower, watermelon seeds, lotus seeds, peanuts, walnuts, almonds, hazelnuts, pine-nuts, pistachios, cashew nuts
Starchy roots products and tubers products	Potato starch, lotus root starch, potato flour, corn starch, starch
Fresh vegetables, non-leafy	Cauliflower, tomatoes, cucumber, zucchini, mushrooms
Fresh vegetables, leafy	Spinach, ‘bok choy’, cabbage
Pickled, salted or canned vegetables	Canned tomato sauce, preserved vegetables, vegetables in soy sauce
Dried vegetables	Dried radish, dried bamboo shoot, dried lily
Fruits	Fresh and canned (no added sugar) fruits
Low-fat red meat	Low-fat beef, low-fat lamb, donkey, rabbit
High-fat red meat	High-fat beef, high-fat lamb
Low-fat pork	Pork tenderloin pork, pork tendons
High-fat pork	Pork belly, leg, rib chop
Organ meats	Liver, kidney, large intestine, blood
Poultry and game	Chicken, duck, goose
Eggs and egg products	Whole eggs, yolk, white, preserved eggs
Fish and seafood	Fresh- and salt-water fish, dried fish, shellfish
Soy milk	Sweetened and un-sweetened soy milk
Cow milk	Cow milk, goat milk, skim milk, flavored milk
Instant noodles and frozen dumplings	Instant noodles, frozen dumplings
Food groups not included in dietary pattern analysis*	
Deep-fried rice and	Deep-fried rice flour doughnut, deep-fried soybean, deep-fried

legumes	broad bean
Dried fruit	Dates, dried longan, raisins
Preserved fruit with added sugar	Dried and canned fruit with added sugar
Seaweed	Fresh or dried seaweed
Processed meats	Sausages, ham, luncheon meat, dried meat, smoked meat
Dairy products	Cheese, yogurt
Sweetened dairy products	Ice cream
Western-style fast-food	Fried chicken, sandwich, hamburger, hotdog, pizza
Salty snacks	Corn crisps, onion rings, potato chips,
Ready-to-eat cereals/porridge	Instant multigrain porridge, corn flakes, instant oatmeal
Calorically-sweetened beverages	Fruit or flavored drinks, fruit juice, soft drinks
Low-caloric beverages	Tea, bottled water
Candy, sugar and other high-sugar foods	Jelly, jam, chocolate, honey, sugar, candies
Alcoholic beverages	Liquors, wine, vodka, cocktails, whiskey, beer

*Not included because they had ≤5% of consumers, except for alcoholic beverages that was not included because it was mostly consumed by males.

Supplemental figure 1. Scree-plot of eigenvalues from Principal Component Analysis



Supplemental table 2. Factor loadings and explained variation of dietary pattern obtained from Reduced Rank Regression performed on the original intake variables

Food groups	Factor loadings[a]
Rice	-0.43
Wheat noodles	—
Wheat flour	0.43
Wheat buns, breads	0.46
Cakes, cookies and pastries	—
Deep-fried wheat	0.29
Corn and coarse grain	0.35
Fresh legumes	—
Fruits	—
High-fat pork	—
Organ meats	—
Poultry and game	—
Eggs and eggs products	—
Fish and seafood	—
Soy milk	0.21
Cow milk	—
Instant noodles and frozen dumplings	—
Explained variation in food groups, %	6.38
Explained variation in responses,%	
HbA1c	5.45
HOMA-IR	0.29
Fasting glucose	1.04

[a]Factor loadings < |0.20| not shown. The following food groups had factor loadings < |0.20| in all patterns and are not shown in the table: starchy roots and tubers; starchy root and tuber products; dried legumes; legume products; nuts and seeds; fresh vegetables; nonleafy fresh vegetables; leafy, pickled, salted, or canned vegetables; dried vegetables; high-fat red meat; low-fat pork; processed meats.

Supplemental table 3. Association between dietary pattern score from Reduced Rank Regression performed on the original intake variables and HbA1c, HOMA-IR, fasting glucose and diabetes (HbA1c ≥6.5%).

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Dietary pattern score (1 SD increase)
			HbA_{1c}, % change (95% CI)[a]		
Unadjusted model	0	2.00 (1.00, 3.02)	4.44 (3.37, 5.52)	8.08 (6.95, 9.22)	3.06 (2.68, 3.44)
Adjusted model 1	0	1.51 (0.56, 2.47)	2.40 (1.39, 3.42)	3.59 (2.49, 4.69)	1.45 (1.07, 1.84)
Adjusted model 2	0	1.44 (0.51, 2.37)	2.31 (1.33, 3.30)	3.20 (2.13, 4.28)	1.31 (0.93, 1.69)
			HOMA-IR, % change (95% CI)a		
Unadjusted model	0	3.63 (-2.70, 10.39)	9.23 (2.61, 16.27)	20.34 (12.88, 28.30)	7.76 (5.42, 10.14)
Adjusted model 1	0	3.15 (-3.00, 9.70)	5.44 (-1.18, 12.51)	12.71 (4.53, 21.53)	4.95 (2.22, 7.75)
Adjusted model 2	0	2.44 (-3.47, 8.72)	4.58 (-1.76, 11.33)	8.82 (1.18, 17.03)	3.55 (0.95, 6.23)
			Fasting glucose, % change (95% CI)[a]		
Unadjusted model	0	0.19 (-1.29, 1.69)	1.55 (0.01, 3.11)	4.62 (2.99, 6.29)	2.04 (1.48, 2.61)
Adjusted model 1	0	-0.12 (-1.58, 1.37)	0.73 (-0.83, 2.32)	2.87 (1.08, 4.68)	1.47 (0.83, 2.10)
Adjusted model 2	0	-0.23 (-1.66, 1.22)	0.59 (-0.93, 2.14)	2.27 (0.52, 4.04)	1.24 (0.62, 1.87)
			Diabetes prevalence (%)		
	2.97	4.36	6.39	9.00	
			Odds ratio (95% Cl)		
Unadjusted model	1	1.49 (0.94, 2.35)	2.23 (1.46, 3.43)	3.24 (2.15, 4.87)	1.56 (1.38, 1.77)
Adjusted model 1	1	1.35 (0.83, 2.19)	1.60 (1.00, 2.55)	1.74 (1.09, 2.78)	1.25 (1.08, 1.44)
Adjusted model 2	1	1.35 (0.83, 2.20)	1.54 (0.96, 2.47)	1.54 (0.96, 2.48)	1.20 (1.03, 1.39)

[a]Regression performed with logarithms of HbA1c, HOMA-IR and fating glucose; therefore coefficents are interpreted as % change
Model 1: adjusted by gender, smoking, alcohol, education, region, age, income, urbancity index, physical activity; Model 2: adjusted by variables in Model 1 plus BMI

Supplemental table 4. Percent change in fasting glucose to quartiles of dietary pattern score and linear dietary pattern score increase (1 SD)

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Dietary pattern score (1 SD increase)
			Fasting glucose, % change (95% CI)[a]		
PCA, modern high-wheat					
Unadjusted model	0	1.37 (-0.22, 2.98)	2.74 (1.18, 4.33)	3.81 (2.24, 5.39)	1.16 (0.61, 1.71)
Adjusted model 1	0	0.80 (-0.80, 2.41)	1.56 (-0.09, 3.24)	1.60 (-0.30, 3.54)	0.21 (-0.48, 0.91)
Adjusted model 2	0	0.43 (-1.13, 2.01)	1.20 (-0.42, 2.84)	1.19 (-0.66, 3.07)	0.30 (-0.10, 0.71)
PCA, traditional southern					
Unadjusted model	0	-0.90 (-2.52, 0.74)	-3.50 (-4.99, -1.99)	-1.68 (-3.25, -0.09)	-0.72 (-1.31, -0.13)
Adjusted model 1	0	-0.22 (-1.88, 1.48)	-2.87 (-4.58, -1.13)	-1.52 (-3.33, 0.32)	-0.62 (-1.32, 0.09)
Adjusted model 2	0	0.12 (-1.51, 1.78)	-2.31 (-3.99, -0.60)	-1.02 (-2.81, 0.81)	-0.51 (-1.20, 0.18)
RRR[b]					
Unadjusted model	0	1.82 (0.38, 3.28)	2.65 (1.08, 4.24)	3.77 (2.23, 5.34)	1.45 (0.90, 1.99)
Adjusted model 1	0	2.20 (0.75, 3.68)	2.76 (1.21, 4.33)	3.59 (2.08, 5.13)	1.44 (0.90, 1.98)
Adjusted model 2	0	1.88 (0.45, 3.33)	2.34 (0.84, 3.87)	3.08 (1.60, 4.57)	1.24 (0.71, 1.76)

[a]Regression was performed with logarithms of fasting glucose, therefore coefficients are interpreted as % change.
[b]Performed on residuals estimated for each food group with a multiple regression including geographic region, urbanicity, income, and education.
Model 1 adjusted by gender, smoking, alcohol, education, region, age, income, urbanicity index, physical activity; model 2 adjusted by variables in model 1 plus BMI.

Supplemental table 5. Means or Percents for Baseline Characteristics of Participants Included in the Analysis and Excluded

	Included		Excluded	
	n	Mean or percent	n	Mean or percent
Age (years), mean ± SD	4316	46.8 ± 10.5	3542	41.0 ± 12.4
Region, %				
South	1922	44.5	1603	45.3
Central	1445	33.5	1181	33.3
North	949	22.0	758	21.4
Male, %	1967	45.6	1829	51.6
BMI (kg/m^2), mean ± SD	4316	23.3 ± 3.2	2891	22.9 ± 3.2
Highest level of education attained, %				
None	898	20.8	437	12.7
Primary school	897	20.8	531	15.4
≥Lower middle school	2521	58.4	2487	72.0
Income,[a] %				
Low	1448	33.6	1193	35.6
Medium	1442	33.4	1036	31.0
High	1426	33.0	1118	33.4
Urbancity,[a] %				
Low	1468	33.3	917	25.9
Medium	1425	33.7	1081	30.5
High	1423	33.0	1544	43.6
Currently smoking, %				
Female	70	3.0	35	2.1
Male	1141	58.0	992	55.8
Alcohol intake ≥3 times/week, %				
Female	47	2.0	13	0.8
Male	616	31.3	446	25.8
Physical activity,[a] %				
Low	1440	33.2	1434	41.2
Medium	1435	33.3	1246	35.8
High	1441	33.5	797	22.9
Score for PCA, modern high wheat[b]				
Group 1 (lowest)	1079	25.0	827	24.9
Group 2	1078	25.0	790	23.8
Group 3	1079	25.0	839	25.3
Group 4 (highest)	1080	25.0	861	26.0
Score for PCA, traditional Southern[b]				
Group 1 (lowest)	1077	25.0	795	24.0

Group 2	1081	25.0	824	24.8
Group 3	1081	25.0	902	27.2
Group 4 (highest)	1077	25.0	796	24.0
Score for RRR[b,c]				
Group 1 (lowest)	1079	25.0	765	25.0
Group 2	1078	25.0	715	23.4
Group 3	1080	25.0	753	24.6
Group 4 (highest)	1079	25.0	828	27

PCA, Principal Component Analysis; RRR, Reduced Rank Regression.
[a]Cutoff points for low, medium and high based on tertiles of included sample
[b]Cutoff points for groups based on quartiles among included sample.
[c]Performed on residuals estimated for each food group with a multiple regression including geographical region, urbanicity, income and education.

Supplemental table 6. Association between individual food groups and HbA1c, HOMA-IR, fasting glucose and diabetes (HbA1c ≥6.5%).

	HbA1c	HOMA-IR	Glucose	Diabetes (HbA1c ≥6.5%)
		% change (95% CI)[a]		Odds Ratio (95% CI)
Consumption vs. nonconsumption				
Rice[b]	-0.46 (-1.24, 0.33)	**-4.93 (-9.50, -0.12)**	**-1.39 (-2.63, -0.13)**	0.95 (0.69, 1.31)
Wheat noodles	**1.11 (0.40, 1.83)**	-0.01 (-4.41, 4.59)	0.73 (-0.40, 1.86)	1.15 (0.87, 1.53)
Wheat flour	0.84 (-0.05, 1.73)	2.55 (-3.29, 8.74)	-0.38 (-1.77, 1.02)	1.03 (0.73, 1.46)
Wheat buns, breads	**1.34 (0.52, 2.16)**	3.38 (-1.86, 8.89)	**2.03 (0.72, 3.37)**	1.21 (0.88, 1.67)
Cakes, cookies and pastries	-0.12 (-1.48, 1.26)	-1.18 (-8.70, 6.96)	0.03 (-2.06, 2.17)	0.98 (0.61, 1.56)
Deep-fried wheat	0.47 (-0.59, 1.54)	3.98 (-3.31, 11.82)	0.47 (-1.23, 2.21)	1.34 (0.88, 2.05)
Corn and coarse grain	-0.35 (-1.27, 0.58)	3.35 (-2.28, 9.31)	0.54 (-0.87, 1.98)	0.83 (0.59, 1.15)
Fresh legumes	-0.33 (-1.07, 0.42)	-4.18 (-8.50, 0.36)	**-1.35 (-2.47, -0.23)**	0.86 (0.65, 1.15)
Fruits	0.04 (-0.82, 0.90)	-0.42 (-5.68, 5.13)	-1.36 (-2.72, 0.02)	1.03 (0.73, 1.45)
High-fat pork	-0.45 (-1.24, 0.34)	**5.52 (0.40, 10.90)**	1.24 (-0.03, 2.53)	1.03 (0.76, 1.40)
Organ meats	1.10 (-0.17, 2.39)	3.42 (-3.81, 11.18)	0.95 (-1.04, 2.98)	0.81 (0.46, 1.43)
Poultry and game	**-0.96 (-1.86, -0.05)**	**-6.80 (-12.17, -1.10)**	-0.98 (-2.39, 0.45)	0.80 (0.52, 1.23)
Eggs and eggs products	-0.60 (-1.36, 0.17)	**-5.41 (-9.82, -0.79)**	-0.77 (-1.97, 0.44)	0.76 (0.56, 1.01)
Fish and seafood	-0.63 (-1.39, 0.14)	-2.32 (-7.20, 2.82)	-0.03 (-1.24, 1.19)	0.95 (0.69, 1.30)
Soy milk	0.73 (-0.68, 2.16)	**-9.29 (-16.71, -1.22)**	-0.62 (-2.80, 1.61)	1.07 (0.64, 1.77)
Cow milk	**-1.33 (-2.43, -0.22)**	-5.60 (-13.47, 2.98)	**-2.08 (-4.06, -0.06)**	0.53 (0.30, 0.94)
Instant noodles and frozen dumplings	0.57 (-0.43, 1.58)	-2.05 (-8.32, 4.66)	0.91 (-0.63, 2.47)	1.03 (0.68, 1.56)

[a]Regression performed with logarithms of HbA1c, HOMA-IR and fasting glucose, therefore coefficients are interpreted as % change.
[b]Coefficients are for intake above median vs. intake below median, instead of consumption vs. nonconsumption as in all other food groups.
Model adjusted by all other food groups in the table, gender, smoking, alcohol, education, region, age, income, urbanicity index and physical activity