

Supplementary Table SI. Association of Serum lutein/zeaxanthin and migraine risk after excluding the missing data

Variable	n.total	crude.OR_95CI	crude.P_value	adj.OR_95CI	adj.P_value	adj.OR_95CI	adj.P_value	adj.OR_95CI	adj.P_value
Q1 (<18.58)	1749	1(Ref)		1(Ref)		1(Ref)		1(Ref)	
Q2 (18.58-25.37)	1748	0.64 (0.54~0.75)	<0.001	0.68 (0.58~0.81)	<0.001	0.71 (0.6~0.84)	<0.001	0.71 (0.6~0.84)	<0.001
Q3 (25.39-34.98)	1750	0.61 (0.52~0.72)	<0.001	0.72 (0.61~0.86)	<0.001	0.76 (0.64~0.9)	0.002	0.77 (0.64~0.92)	0.004
Q4 (>34.98)	1751	0.51 (0.43~0.61)	<0.001	0.68 (0.57~0.81)	<0.001	0.74 (0.61~0.89)	0.001	0.74 (0.61~0.91)	0.003
Trend.test			<0.001		<0.001		0.002		0.007

Q, quartiles; OR, odds ratio; CI, confidence interval; Ref: reference.

Model 1 was adjusted for sociodemographic variables (age, sex, marital status, body mass index, race/ethnicity, education level, family income).

Model 2 was adjusted for Model 1, activity level, alcohol, smoking status, hypertension, diabetes.

Model 3 was adjusted for Model 2, serum C-reactive protein , total cholesterol , Vitamin D, vitamin E, dietary energy intake, dietary protein intake, dietary carbohydrate intake, and dietary fiber intake

Supplementary Table SII. Association of Serum lutein/zeaxanthin and migraine risk after excluding analgesic user

Variable	n.total	crude.OR_95CI	crude.P_value	adj.OR_95CI	adj.P_value	adj.OR_95CI	adj.P_value	adj.OR_95CI	adj.P_value
Q1 (<18.60)	1687	1(Ref)		1(Ref)		1(Ref)		1(Ref)	
Q2 (18.60-25.51)	1719	0.79 (0.68~0.93)	0.005	0.83 (0.7~0.98)	0.03	0.86 (0.72~1.01)	0.072	0.85 (0.72~1.01)	0.063
Q3 (25.53-34.98)	1695	0.69 (0.58~0.81)	<0.001	0.77 (0.65~0.92)	0.004	0.81 (0.68~0.97)	0.02	0.81 (0.67~0.97)	0.023
Q4 (>34.98)	1711	0.58 (0.49~0.69)	<0.001	0.72 (0.6~0.87)	0.001	0.78 (0.65~0.95)	0.011	0.77 (0.63~0.94)	0.01
Trend.test			<0.001		<0.001		0.008		0.009

Q, quartiles; OR, odds ratio; CI, confidence interval; Ref: reference.

Model 1 was adjusted for sociodemographic variables (age, sex, marital status, body mass index, race/ethnicity, education level, family income).

Model 2 was adjusted for Model 1, activity level, alcohol, smoking status, hypertension, diabetes.

Model 3 was adjusted for Model 2, serum C-reactive protein , total cholesterol , Vitamin D, vitamin E, dietary energy intake, dietary protein intake, dietary carbohydrate intake, and dietary fiber intake

Supplementary Table SIII. Association of Serum lutein/zeaxanthin and migraine after further adjusted for dietary Lutein/zeaxanthin.

Variable	n.total	n.event_%	crude.OR_95CI	crude.P_value	adj.OR_95CI	adj.P_value
Q1 (<18.50)	2148	559 (26)	1(Ref)		1(Ref)	
Q2 (18.50-25.44)	2179	437 (20.1)	0.71 (0.62~0.82)	<0.001	0.79 (0.68~0.92)	0.002
Q3 (25.46-34.98)	2166	408 (18.8)	0.66 (0.57~0.76)	<0.001	0.81 (0.69~0.95)	0.008
Q4 (>34.98)	2166	330 (15.2)	0.51 (0.44~0.59)	<0.001	0.71 (0.59~0.85)	<0.001
Trend.test				<0.001		0.001

Q, quartiles; OR, odds ratio; CI, confidence interval; Ref: reference.adjusted for sociodemographic variables (age, sex, marital status, body mass index, race/ethnicity, education level, family income).activity level, alcohol, smoking status, hypertension, diabetes,serum C-reactive protein , total cholesterol , Vitamin D, vitamin E, dietary energy intake, dietary protein intake, dietary carbohydrate intake, dietary fiber intake and dietary Lutein/zeaxanthin.

Supplementary Table SIV. Association of Serum lutein/zeaxanthin and migraine after further adjusted for other biomarkers

Variable	n.total	n.event_%	crude.OR_95CI	crude.P_value	adj.OR_95CI	adj.P_value
Q1 (<18.50)	2148	559 (26)	1(Ref)		1(Ref)	
Q2 (18.50-25.44)	2179	437 (20.1)	0.71 (0.62~0.82)	<0.001	0.79 (0.68~0.92)	0.002
Q3 (25.46-34.98)	2166	408 (18.8)	0.66 (0.57~0.76)	<0.001	0.81 (0.69~0.95)	0.009
Q4 (>34.98)	2166	330 (15.2)	0.51 (0.44~0.59)	<0.001	0.71 (0.59~0.85)	<0.001
Trend.test				<0.001		0.001

Q, quartiles; OR, odds ratio; CI, confidence interval; Ref: reference.adjusted for age, sex, marital status, body mass index, race/ethnicity, education level, family income, activity level, alcohol, smoking status, hypertension, diabetes, serum C-reactive protein , total cholesterol, Vitamin D, vitamin E, dietary energy intake, dietary protein intake, dietary carbohydrate intake, dietary fiber intake , dietary lutein/zeaxanthin , dietary niacin, dietary calcium, dietary magnesium, dietary iron and dietary zinc.