



Association between dietary patterns and depressive symptoms among middle-aged adults in China in 2016–2017



Cui-Jiang Wang^a, Tong-Fang Yang^b, Guang-Sheng Wang^c, Yuan-Yuan Zhao^d, Li-Jun Yang^c, Bin-Na Bi^{e,*}

^a Division of Foot and Ankle Surgery, Linyi People's Hospital, Lanshan district, Linyi 276000, Shandong, China

^b Department of General Surgery, Affiliated Hospital of Shandong Medical Technical College, Lanshan district, 276000 Linyi, Shandong, China

^c Department of Neurology, Jinan Sixth People's Hospital, Zhangqiu district, Jinan 250200, Shandong, China

^d Department of Endocrinology, Zhangqiu District Traditional Chinese Medicine Hospital, Zhangqiu district, Jinan 250200, Shandong, China

^e Department of Traumatology, North Medical Area, Linyi People's Hospital, Lanshan district, Linyi 276000, Shandong, China

ARTICLE INFO

Keywords:

Dietary patterns
Depressive symptoms
Middle-aged Chinese
Factor analysis
Nutritional epidemiology

ABSTRACT

The purpose of this study was to explore the associations of dietary patterns with depressive symptoms in middle-aged Chinese adults. The cross-sectional study participants were 1360 Chinese adults (45–59 years, 659 males and 701 females) who participated in a Health Survey at the time of periodic checkup. Dietary intakes were assessed via a semi-quantitative food frequency questionnaire (FFQ). Binary logistic regression analysis was used to estimate odds ratio (OR) and 95% confidence interval (CI) for depressive symptoms according to quartiles of each dietary pattern score. Four major dietary patterns were identified by factor analysis: traditional Chinese, Western, grains-vegetables and high-salt patterns. After controlling for potential confounders, participants in the highest quartile of the Western pattern scores had greater odds of depressive symptoms than those in the lowest quartile. In contrast, participants in the highest quartile of the grains-vegetables pattern had lower odds of depressive symptoms than those in the lowest quartile. Nevertheless, no significant associations were observed between the traditional Chinese and high-salt patterns and the risk of depressive symptoms, even after adjusting for potential confounders. The findings indicate that the Western pattern is associated with an increased risk, and the grains-vegetables pattern is associated with a reduced risk of depressive symptoms.

1. Introduction

Depression is the fourth cause of disability in the world in 2000, and will be the second leading cause of disease burden in 2020 (Lin et al., 2010). It affects approximately 350 million people of all ages with more women affected than men (World Health Organization, 2012). In China, the incidence of depression in elderly people ranged from 4% to 26.5%, and it has become a substantial burden (Gao et al., 2009). Recent a meta-analysis of dietary patterns and depression demonstrated that diet was related to inflammation, oxidative stress and brain plasticity and function, which are involved in the development of depression (Li et al., 2017).

As a modifiable factor, diet has received much attention and been considered as an important factor for the prevention depression (Chan et al., 2014). Many epidemiological studies have examined the associations of depression with specific nutrients and foods such as folate,

vitamin C, and n-3 polyunsaturated fatty acids (Murakami et al., 2008; Lucas et al., 2011; Appleton et al., 2007). However, in reality, people do not eat isolated nutrients but consume meals containing many combinations of different foods and nutrients (Li et al., 2017). Consequently, dietary pattern analysis has emerged in nutritional epidemiology as an alternative approach for examining the relationship between diet and chronic diseases, and it considers the combined effects of foods and potentially facilitate nutritional recommendations on eating practices such as healthy food choice for preventive disease (Shu et al., 2015).

Lately, there has been a great attention towards the associations between dietary patterns and the risk of depression (Chocano-Bedoya et al., 2013; Akbaraly et al., 2009; Kim et al., 2015; Gougeon et al., 2015). However, few studies have examined these associations in a Chinese population. To date, only two studies have reported the associations of dietary patterns with the risk of depression in Chinese adults (Chan et al., 2014; Xia et al., 2016) and one study evaluated this

Abbreviations: OR, Odds ratio; CI, Confidence interval; FFQ, Food frequency questionnaire; KMO, Kaiser-Meyer-Olkin; CES-D, Center for Epidemiologic Studies Depression Scale; BMI, Body mass index; WC, Waist circumference

* Corresponding author.

E-mail address: bibinna790@126.com (B.-N. Bi).

<https://doi.org/10.1016/j.psychres.2017.11.052>

Received 7 September 2017; Received in revised form 12 November 2017; Accepted 17 November 2017

Available online 21 November 2017

0165-1781/ © 2017 Elsevier B.V. All rights reserved.

Table 1
Food grouping used in the dietary pattern analysis.

Food groups	Food items
Refined grains	Rice, porridge, noodles, instant noodles, steamed bun, wonton, white breads, dumplings, toasted bread
Whole grains	Corn, sorghum, millet, oats
Tubers	Sweet potato, potato, taro
Fresh vegetables	Wild vegetables, green vegetable, spinach, green peppers, tomato Chinese cabbage, radish, cucumber, eggplant
Mushrooms	Mushroom, shiitakes, enoki
Fresh fruit	Apple, peach, apricots, cherries, grapes, bananas, cantaloupe, oranges, watermelon, grapefruit, kiwi, strawberries and et al.
Pickled vegetables	Salted vegetables, Chinese sauerkraut
Red meat	Pork, mutton, lamb, beef
Poultry and organs	Chicken, duck, goose, liver, animal blood
Processed meat	Ham and sausage, sauced pork, roast duck
Freshwater fish and shrimp	Fish, shrimp
Eggs	Duck eggs, chicken eggs
Seafood	Sea fish and shrimp, crab, squid, shellfish
Bacon and salted fish	Salted meat and duck, salted fish
Salted and preserved eggs	Salted duck and chicken eggs, preserved eggs
Dairy products	Milk, yogurt, cheese
Soya bean and its products	Tofu, dried bean curd, soy milk
Miscellaneous bean	Mung beans, red beans, hemp beans
Fats	Lard, butter
Vegetable oil	Soybean oil, tea oil, rapeseed oil, olive oil
Fast foods	Hamburger, fried dough sticks and twists, fried cakes, pizza
Nuts	Walnut, peanuts, almonds, melon seeds
Snacks	Sachima, potato chips, shrimp roll, popcorn, crackers
Desserts	Chocolate, cookies, cake, pie, brownies, pastries, ice cream
Honey	Honey, hydromel
Wine	White wine, red wine, beer, grape wine
Soft drinks	Coca-cola, sprite, fruit and vegetable drink, fruits juice
Coffee	Coffee
Tea	Tea, scented tea, wong Lo Kat

association in Chinese adolescents (Weng et al., 2012). Besides, in the scientific report about depression by the 2015 Dietary Guidelines Advisory Committee, there is limited evidence suggesting that dietary patterns are associated with the risk of depression (Dietary Guidelines Advisory Committee, 2015). Furthermore, to our knowledge, no previous epidemiological studies of dietary patterns and depression have been conducted in a middle-aged population in China. Therefore, the objective of the present study was to identify the major dietary patterns and to explore their associations with depressive symptoms in middle-aged Chinese adults.

2. Subjects and methods

2.1. Study population

During May 2016 to June 2017, this cross-sectional study was carried-out to collect the data in a representative sample of Chinese adults aged 45–59 y selected by a stratified cluster random-sampling method. The study sample of the present study was from Linyi, Shandong Province, China. A total of 1457 eligible participants (713 male and 744 female) who received health examination at the Medical Center for Physical Examination, Linyi People's Hospital were recruited. After exclusion of 46 participants with a history of cancer ($n = 20$), cardiovascular disease ($n = 15$), and chronic kidney disease ($n = 11$), 1411 participants were included for the analysis of dietary patterns. Of the remaining 1411, we excluded 33 participants who had the missing or incomplete dietary information in their questionnaires. Besides, we further excluded 18 participants with missing information for any of the variables used in the main analysis. Finally, 1360 participants remained for the analysis of the association between dietary patterns and depression. Written informed consent was obtained from all participants, and the protocol was approved by the Institutional Review and Ethics Committee of Linyi People's Hospital.

2.2. Assessment of anthropometric measurements

Standing height and body weight were measured without shoes and in light clothes to the nearest 0.1 cm and 0.1 kg, respectively. Body mass index (BMI, kg/m^2) was calculated as weight in kilograms divided by height in meters squared. Waist circumference (WC) was measured halfway between the lowest rib and the superior border of the iliac crest with an inelastic measuring tape at the end of normal expiration to the nearest 1 mm (Esmailzadeh et al., 2007). All measurements were performed by trained nurses to use standardized procedures.

2.3. Assessment of dietary intake

Dietary intake of 85 food items was assessed by a trained dietician using a validated, semi-quantitative food frequency questionnaire (FFQ) designed to assess average food intake over the previous year. This FFQ included foods that frequently consumed by a middle-aged Chinese. For each food item, subjects were asked to report their average frequency of consumption over the past year and the estimated portion size, using local weight units (1 Liang = 50 g) or natural units (cups). Moreover, the frequency of each food item was classified as follows: never or occasionally, 1–3 times/month, 1–2 times/week, 3–4 times/week, 5–6 times/week, 1 time/day, 2 times/day, and 3 times/day. Then, the selected frequency category for each food item was converted to a daily intake and used in the further analysis.

2.4. Identification of dietary patterns

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity were used to evaluate the adequacy of correlation matrices with the data. The food items listed in the FFQ were grouped into 29 predefined food groups based on similarities in food type and nutrient contents (Table 1). Factor analysis (principal component) was used to derive the major dietary patterns. The factors were rotated using orthogonal transformation (varimax rotation) to achieve uncorrelated factors and greater interpretability. In

Download English Version:

<https://daneshyari.com/en/article/6811836>

Download Persian Version:

<https://daneshyari.com/article/6811836>

[Daneshyari.com](https://daneshyari.com)