Author’s response to reviews

Title: Association between egg consumption and elevated fasting glucose prevalence in relation to dietary patterns in selected group of Polish adults

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Author’s response to reviews:

Dear Editors of Nutrition Journal,

We thank Reviewers for the constructive comments on our manuscript. The manuscript has been revised strictly according to the Reviewers’ comments. All new changes are highlighted in blue.

Answers to Reviewer #1:

1. The added limitation line 292-294 should be phrased as a limitation i.e. Another limitation of our study is the underreporting of habitual food intake especially in men. Although this is a common bias found in nutritional studies, it should be considered when interpreting the results… or something along those lines.

Response: Limitation section was revised according to the Reviewer’s comment.

Answers to Reviewer #2:

1. The Authors should put in table 1 for each food item (mentioned in the FFQ) the corresponding question number, so readers can fully understand the aggregation of food items, and repeat all analysis.
Response: Table 1 was revised, and missing information was included. On reflection, we used the name “processed red/mixed meat” instead of “processed meat” to precisely illustrate the composition of this food group.

2. The aggregation of food items into food groups is poorly thought out, e.g. raw vegetables. There are many foods associated with raw vegetables in FFQ - are they included? The category "vegetables" consists of cooked vegetables, tomato sauce, canned corn/peas, but does not consist of raw vegetables. Why?

Response: We thank Reviewer for this extremely valuable comment. Raw vegetables were included in the vegetables group, but they were not listed in table. We corrected the table and assured that all food products from the FFQ were rightly listed.

3. The aggregation of food items into food groups should be done again. When will be done, it is possible that new/other dietary patterns will be identified.

Response: The aggregation of food items into food groups was presented in detail in table 1 and some corrections were made according to the comment no. 2. The percentage of variance explained in our study was 36.7%, what indicates that the factors derived in the analysis appropriately illustrate actual dietary habits in the study group. In the study performed in a group of Polish adults by Suliga et al. (Suliga E et al. Nutrients. 2017;9:1366) the percentage of total variance explained was 26.7%. Also in many other studies the percentage of variance explained often does not exceed 30%. The methodology of the dietary patterns analysis was described in detailed in response to the comment no. 4.

4. Traditional (Polish) DP consists of fish - it is amazing and may result from incorrect aggregation of foodstuffs. In no Polish studies (there are many, but they were not cited) traditional DP did not contain fish. This should be discussed extensively, and other Polish studies should be cited. According to other results, fish should be a component of Prudent DP.

Response: Dietary patterns in our study were derived a posteriori using principal component analysis with varimax rotation. The purpose of this method is to explain as much of the data variance as possible and no prior assumptions are required - in contrast to the a priori methods (including dietary indexes, e.g. Dietary Quality Index, Mediterranean Diet Score or Healthy Eating Index) where the assessment of diet quality is based on the prior assumptions and points are given depending on the fulfillment of specified requirements.
In the dietary pattern analysis food products are categorized into food groups based on their composition and nutritional value. In our study the Kaiser’s criterion, scree plot and interpretability of the data were used to determine the final number of identified dietary patterns. Obtained DPs were named based on the factor-loading matrix for the identified patterns – therefore fish were not included in the ‘traditional’ DP in advance, but the pattern characterized by high intake of mixed dishes, soups, red meat and fish was called “traditional”. Depending on the studied population “traditional” patterns may consist of wide range of food items and, as result, have beneficial or harmful properties. We called the third identified pattern “traditional” mainly due to the fact that it had the highest factor loadings for two typical for Polish cuisine items: mixed dishes and soups. The analysis showed that individuals who often consumed mixed dishes, soups and red meat had also high intake of fish. Although fish are typically considered a component of a healthy (prudent) diet, it is worth mentioning that fish characteristic for Polish cuisine and included in the FFQ validated for the Polish adult population are usually prepared with not recommended techniques (breading, frying) and/or are served with not recommended toppings (cream), which changes the overall nutritional value of these food products.

5. In overall, a drop out is &gt;20% - it should be discussed in the limitation section. 395 participants were excluded due to lack data on FG. These 395 participants and others with complete data (n=1630), dietary data should be compared and put into supplementary material.

Response: The information about drop out was discussed in the limitation section. The methodology section was modified and the comparison of the study group and the drop out group was presented in the supplementary material.

6. When the aggregation of food items will be made, it should be considered to create two separate fat groups - vegetable-based and animal-based due to different link to health outcomes.

Response: Different variants of food item categorization were checked during the preliminary analysis. Final food grouping applied in our study explained the highest percentage of total variance in food intake (36.7%).

7. All tables: notes should be carefully checked because each table/figure should be self-reading.

Response: All tables and notes were checked and necessary modifications were made.

8. "High-fat cheese and cream" group - what about low-fat cheese? It was considered in the study?
Response: The food frequency questionnaire used in the PURE Study consisted of the following low-fat cheese products: cottage cheese (no. 6 in the FFQ) and quark, fresh cheese (no. 10 in the FFQ). These types of low-fat cheese are the most common in the Polish diet. Above-mentioned types of low-fat cheese were included in the “Milk and low-fat dairy” group.

9. In general, the discussion section is weakly written. The first paragraph of the discussion should summarise results, while conclusion should contains overall consideration drawn on the base of own results (without results summary).

Response: The discussion and conclusions sections were carefully revised and corrected.

10. Table 2 and others: Cut-off point for elevated glucose should be given.

Response: The cut-off point for elevated glucose ($\geq 100$ mg/dl) was shown in table 2 and table 6 (previously table 5).

11. Lines 30-31 and 116-117: What was cut-off point for elevated glucose? $\geq 100$ mg/dl.

Response: The cut-off for elevated glucose was $\geq 100$ mg/dl. Necessary corrections in the manuscript text were made.

12. Line 145: What about subjects who had parameters = median, were they excluded from analysis?

Response: Subjects who had parameters = median were included in the $\geq$ median group. Necessary corrections in the manuscript text were made.

13. Lines 180-187: In my opinion, data described in these lines are important and should be shown in tables, in the main text or supplementary material.

Response: The data described previously in lines 180-187 were modified and shown in new table (table 5). In order to standardize the classification of egg intake in the study, according to the Reviewer’s previous comments, we decided to compare SFA and dietary cholesterol intake in three groups of individuals with habitual intake of $\leq 1$ egg per week, 2 to 4 eggs per week and $\geq 5$ eggs per week.
I hope that the revised manuscript will be accepted for publication in Nutrition Journal.

Yours sincerely,

Dorota Różańska