Supplementary Material

# Supplementary Data

**A. The I-NK questionnaire: Italian Nutrition Knowledge questionnaire**

List of the questionnaire items measuring i) Nutrition knowledge related to experts recommendations; ii) Food's composition; iii) Food choices and nutrition labels; iv) Diet-disease associations.

|  |  |
| --- | --- |
| ***Experts recommendations*** |  |
|  | **C1.** What do you think the experts recommend that people should be eating for the following foods? (*eating more; eating less; no recommendation; I don’t know*)*vegetables; water; fruit; high fibre foods; salty foods, sugary foods; processed and preserved meat; fatty foods.***C2.** How many servings of fruit and vegetables a day do you think experts are advising people to eat? (*1; 2, 4; 5 or more; I don’t know*)**C3.** What do you think the experts recommend that people should be consume among the following fats? (*eating more; eating less; I don’t know*) *saturated fats; trans fats; unsaturated fats.***C4.** Which type of milk do experts advice people to eat (s*kimmed or semi-skimmed milk; whole milk; I don’t know; both; no one, not should be consume*)**C5.** How many times a week do you think experts are advising people to eat fish? (*3-4 times a week; 1-2 times a week; everyday; I don’t know*)**C6.** What is the tolerated limit of alcohol intake (alcoholic beverages) per day? (*1 drink for male and female; 2 drinks for male and female; 2 drinks for male and 1 drink for female; 3 drinks for male and 2 drinks for female; I don’t know)***C7*.*** How many times a week do you think experts are advising people to do breakfast? (*everyday; 4 times a week; I don’t know; 3 times a week)***C8**.Two glasses of fruit juice a day how many servings of fruits and vegetables correspond to? (*0; 1; 2, 3; I don’t know*)**C9**. According to the Guidelines for a healthy Italian diet, how many carbohydrates should be taken daily compared to the total caloric intake? (*1/3; ¼; ½; I don’t know*) |
| ***Food's composition*** |  |
|  | **D1.** Do you think these food products are high or low in added sugar? (*high; low; I don’t know*)*cola drinks with sweeteners; ice cream; tomato ketchup; melon; natural yoghurt.*  **D2.** Do you think these food products are high or low in salt? (*high; low; I don’t know*)*soup, canned beans; bread; red meat; frozen vegetables; breakfast cereals.***D3.** Do you think these food products are high or low in fiber? (*high; low; I don’t know*)*oat flakes; potatoes with peel; bananas; white rice; pasta; eggs.***D4.** Do you think these food products are high or low in protein? (*high; low; I don’t know*)*beans; nuts; cheese; chicken meat; butter; fruits.***D5.** Do you think these food products are high or low in starch? (*high; low; I don’t know*)*potatoes; pasta; bread; nuts; cheese.***D6.** What is the main fat contained in the following foods? (*polyunsaturated; saturated; monounsaturated, cholesterol; I don’t know)**butter; eggs; olive oil; sunflower oil.***D7.** Which of these food products mainly contain hydrogenated fats? (*biscuits, cakes and sweets; sunflower oil; fish; eggs; I don’t know)***D8.** The amount of calcium in a glass of whole milk compared to a glass of skimmed milk is? (*the same; higher; lower; I don’t know)***D9.** In your opinion, which one of the following has the most calories for the same weight? (*sugar; fats; carbohydrates/starch; fiber; I don’t know*)**D10.** In your opinion,processed foods compared to those poorly processed contain: (*more calories; more fiber; low salt, I don’t know*)  |
| ***Food choices and nutrition labels*** |  |
|  | **E1.** If a person wants to buy a low sugar yogurt, which would choose? (*natural yogurt; yogurt fruit 0% fat; fruit yogurt dessert; I don’t know)***E2.** If a person wants to eat a dish in a restaurant, which is the option with the lowest fat content? (*pumpkin cream; spelt and bean soup, risotto with mushroom; I don’t know*)**E3.** What is the healthiest and most balanced choice for a meal in a restaurant? (*grilled chicken breast, with raw oil, vegetables and potatoes; burger with sauces and fries; fried fish and salad; I don’t know*)**E4.** Which of these is the healthiest and most balanced picnic lunch? (*sandwich with tuna and tomatoes + fruit + skimmed yogurt + water;* s*andwich with omelette (2 eggs) + juice fruit + skimmed yogurt + water; sandwich with cooked ham and cheese + fruit snack + fruit juice + water; I don’t know*)**E5.** Which of these desserts is the healthiest alternative? (*apple pie; ice cream; tart with jam of plum; cheesecake; I don’t know*)**E6.** Which of these vegetable combinations in a salad would count a better variety of vitamins and antioxidants? (*broccoli, carrots, tomatoes; red peppers, tomatoes, lettuce; lettuce, green peppers, cabbage; I don’t know*)**E7.** If a person wants to reduce the fat content in the diet, but does not want to avoid French fries, which of the following types is the best choice? (*thicker chips; less thick chips; wrinkled chips; I don’t know*)**E8.** In your opinion, what would be added to flavor food without adding additional fat or salt? (*aromatic herbs; soy sauce; ketchup; I don’t know*)**E9.** In your opinion, which of the following cooking methods requires the addition of fat? (*frying, steaming;* *grill; I don’t know*)**E10.** On the product’s label, in what order are the ingredients placed? (*descending order; there is no rule; ascending order*; *I don’t know*)**E11**. In your opinion, light foods are always good option because they are low in calories? (*I disagree; I agree; I don’t know*)**Figure 1:** Nutrition labels used in the administration of questions.**E12.** Considering the images of Product 1 and Product 2, which of the two has more calories (kcal) per 100 grams? (*product 1; product 2; they have same quantity; I don’t know*)**E13**. What are the sources of sugar in the Product 1 ingredient list? (*sugar, fructose and malt syrup; sugar and malt syrup; sugar, fructose and lecithin; I don’t know*) |
| ***Diet-disease associations*** |  |
|  | **F1.** In your opinion, which of these diseases is related to low fiber content? (*intestinal disorder; anaemia; decay; I don’t know*)**F2**. In your opinion, which of these diseases is related to sugar content in the diet? (*decay; hypertension; anaemia; I don’t know*)**F3**. In your opinion, which of these diseases is related to salt content in the diet? (*hypertension; hypothyroidism; diabetes; I don’t know*)**F4**. What do you think experts recommend to prevent cancer? (*eat less red meat; avoid additives in food; drink alcohol regularly; I don’t know*)**F5**. What do you think experts recommend to people to prevent cardiovascular diseases? (*eat less trans fats; eat less fat fish; take supplements; I don’t know*)**F6**. What do you think experts recommend to prevent diabetes? (*eat less refined foods; drink more fruit juices; eat more processed meat; I don’t know*)**F7**. In your opinion, which of these foods is responsible for increasing blood cholesterol? (*animal fat; eggs; vegetable oils; I don’t know*)**F8**. In your opinion, which of these foods has a high glycemic index? (*white bread, refined cereals; fruit and vegetables; I don’t know*)**F9.** In your opinion, to maintain an optimal weight, people need to completely eliminate fat from the diet. (*I disagree; I agree; I don’t know*)**F10**. In your opinion, to maintain an optimal weight, people need to follow a high-protein diet. (*I disagree; I agree; I don’t know*)**F11**. In your opinion, eating bread always causes weight increase. (*I disagree; I agree; I don’t know*)**F12**. In your opinion, eating fiber may decrease the risk of weight increase. (*I disagree; I agree; I don’t know*)**F13**. In your opinion, which of these options can help people maintain an optimal weight? (*yes; no; I don’t know*)*pay attention when eating; read nutritional labels; check the weight; no eat while watching tv; snack during the day; take supplements.***F14**. In your opinion, if a person has a Body Mass Index (BMI) of 23kg/m2, what is their nutritional status? (*normal weight; overweight; underweight; obese; I don’t know*)**F15**. In your opinion, if a person has a Body Mass Index (BMI) of 31kg/m2, what will their nutritional status? (*normal weight; overweight; underweight; obese; I don’t know*)**F16**. In your opinion, which of these body shape corresponds to an increase of cardiovascular risk? (*apple shape; pear shape; I don’t know*)**Figure 2:** Body shapes. |

# 2.1 Supplementary Tables

 **B. Table 3-Nutrition knowledge scores and sociodemographic characteristics**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 3- Nutrition knowledge and sociodemographics |   |   |   |   |   |   |   |   |   |   |   |   |   |
| NK-General Nutrition Knowledge | **Total** | Gender | Age (years) | Education |   |   |   |   |
| Male | Fenale | 18-24  | 25-34  | 35-44  | 45-54  | 55-64  | > 64 | Low | Medium | High |   |   |   |   |
| Low (0-42) | **25.4%** | 29.1%a | 22.0%b | 28.3%a,c | 36.3%a,b | 42.7%b | 19.7%c,d | 17.5%d | 17.8%d,e | 31.2%a | 22.6%b | 13.3%c |   |   |   |   |
| Low-Medium (43-52) | **26.5%** | 28.4%a | 24.7%b | 29.0%a,b | 19.7%a | 19.7%a | 25.5%a | 26.9%a,b | 33.5%b | 31.5%a | 21.7%b | 21.7%b |   |   |   |   |
| Medium-High (53-60) | **26.0%** | 23.6%a | 28.2%b | 26.3%a,b | 24.2%a,b | 19.1%a | 26.0%a,b | 30.3%b | 28.2%b,c | 21.9%a | 29.3%b | 31.0%b |   |   |   |   |
| High (>60) | **22.1%** | 18.9%a | 25.1%b | 16.4%a | 19.9%a | 18.5%a | 28.8%b | 25.2%a,b | 20.6%a | 15.4%a | 26.4%b | 34.0%c |   |   |   |   |
|   |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Table 3 (continued) |   |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| NK-General Nutrition Knowledge | **Total** | Region | Degree of urbanisation |
| Alpin Regions (Piemonte, Liguria, Valle d'Aosta) |  Lombardia |  North east regions (Trentino Alto Adige, Friuli Venezia Giulia ) |  Veneto |  Emilia Romagna |  Appennine regions (Tuscany, Umbria) |  Adriatic regions (Marche, Abruzzo) |  Lazio | Puglia and Molise |  Campania | Calabria and Basilicata | Islands (Sardegna, Sicilia) | High | Medium | Low |
| Low (0-42) | **25.4%** | 22.2%a,d,f,h | 30.3%a,b,c | 39.5%c | 26.8%a,c,d | 16.1%d | 17.5%d,e,f | 32.0%b,c,f,g | 17.6%d,g | 23.7%a,c,d | 31.6%b,c,h | 22.1%a,c,d | 27.9%a,c,d | 20.2%a | 27.1%b | 39.2%c |
| Low-Medium (43-52) | **26.5%** | 24.9%a | 31.2%a | 18.9%a | 23.9%a | 24.5%a | 21.6%a | 28.4%a | 25.2%a | 36.0%a | 26.9%a | 23.9%a | 24.9%a | 28.3%a | 27.6%a | 15.7%b |
| Medium-High (53-60) | **26.0%** | 27.5%a,d,e,f,g,i | 17.9%a,b | 18.4%a,c,d | 28.0%a,d,e,f,g,i | 32.1%d,e,f,g,i | 39.6%e | 18.8%b,c,f,h | 27.8%a,d,e,f,g,i | 27.0%a,d,e,f,g,i | 23.9%b,c,g,h | 36.3%d,e,h,i | 22.9%b,c,i | 28.4%a | 24.9%a,b | 20.5%b |
| High (>60) | **22.1%** | 25.4%a,b | 20.6%a,b | 23.2%a,b | 21.3%a,b | 27.3%a | 21.3%a,b | 20.8%a,b | 29.5%a | 13.3%b | 17.6%a,b | 17.7%a,b | 24.3%a,b | 23.1%a | 20.4%a | 24.6%a |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Table 3 (continued) |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| NK-General Nutrition Knowledge | **Total** | Household size (member number) | Household annual income |   |   |   |
| 1 | 2 | 3 | 4 | >=5 | <=18,000 € | 18,001- 27,000 € | 27,001- 36,000€ | 36,001 - 54,000€ | 54,001 -72,000 € | >=72,001 € | I prefer not to answer |   |   |   |
| Low (0-42) | **25.4%** | 24.8%a | 17.7%b | 30.3%a,c | 27.5%a | 39.7%c | 28.1%a | 25.0%a | 26.0%a | 24.7%a | 24.1%a | 24.1%a | 29.9%a |   |   |   |
| Low-Medium (43-52) | **26.5%** | 25.9%a,c,d | 30.9%a,b | 20.8%c | 27.5%b,d | 23.7%a,c,d | 32.1%a | 25.4%a | 27.2%a | 22.8%a | 18.6%a | 16.5%a | 30.5%a |   |   |   |
| Medium-High (53-60) | **26.0%** | 26.9%a | 26.9%a | 27.1%a | 23.5%a | 23.1%a | 21.0%a | 29.6%b | 24.8%a,b | 26.5%a,b | 20.6%a,b | 24.7%a,b | 19.9%a |   |   |   |
| High (>60) | **22.1%** | 22.4%a,b | 24.5%a | 21.9%a,b | 21.4%a,b | 13.5%b | 18.8%a | 19.9%a,c | 22.0%a,c | 25.9%a,b | 36.7%b | 34.8%b,c,d | 19.7%a,d |   |   |   |
| Values in the same row and sub-table that do not share the same index are significantly different at p< ,05 in the bilateral equality test for column proportions. |   |   |   |   |   |   |   |   |

**C. Table 4 - Adherence to Mediterranean Diet and sociodemographic characteristics**

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| Table 4- Predimed Plus and sociodemographics |   |   |   |   |   |   |   |   |   |   |   |   |
| Predimed Plus | **Total** | Gender | Age (years) | Education |   |   |   |   |
| Male | Fenale | 18-24  | 25-34  | 35-44  | 45-54  | 55-64  | > 64 | Low | Medium | High |   |   |   |   |
| Low (0<6) | **31.4%** | 36.6%a | 26.6%b | 39.9%a | 36.6%a,b | 35.2%a,b | 31.4%a,b,c | 27.6%b,c | 26.4%c | 35.0%a | 29.5%b | 24.6%b |   |   |   |   |
| Low-medium (6-7) | **31.3%** | 31.7%a | 30.9%a | 34.8%a | 26.9%a | 35.9%a | 31.8%a | 32.4%a | 28.6%a | 31.6%a | 30.5%a | 32.3%a |   |   |   |   |
| Medium-high (8-9) | **24.0%** | 22.0%a | 26.0%b | 18.0%a | 23.9%a | 20.7%a | 26.3%a | 25.8%a | 25.3%a | 22.1%a | 26.0%a | 25.7%a |   |   |   |   |
| High (10-17) | **13.3%** | 9.7%a | 16.6%b | 7.3%a | 12.6%a | 8.2%a | 10.6%a | 14.2%a,b | 19.8%b | 11.4%a | 14.1%a,b | 17.4%b |   |   |   |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| Table 4 (continued) |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Predimed Plus | **Total** | Region | Degree of urbanisation |
| Alpin Regions (Piemonte, Liguria, Valle d'Aosta) |  Lombardia |  North east regions (Trentino Alto Adige, Friuli Venezia Giulia ) |  Veneto |  Emilia Romagna |  Appennine regions (Tuscany, Umbria) |  Adriatic regions (Marche, Abruzzo) |  Lazio | Puglia and Molise |  Campania | Calabria and Basilicata | Islands (Sardegna, Sicilia) | High | Medium | Low |
| Low (0<6) | **31.4%** | 30.1%a,b | 32.8%a,b,d | 45.4%a,d | 34.4%a,b,d | 27.0%a,b | 26.3%b | 30.7%a,b,d | 34.0%a,b,d | 23.6%b,c | 44.2%d | 24.2%b,e | 25.0%b,f | 31.4%a | 30.6%a | 34.3%a |
| Low-medium (6-7) | **31.3%** | 32.6%a,d,e | 33.0%a,b,d,g | 18.6%a,c,e,f | 27.8%a,d,e | 33.3%a,d,e | 40.6%d | 29.8%a,d,e | 20.8%e | 36.4%b,d,f,g | 23.2%c,e,g,h | 39.1%d,h | 37.0%d,i | 27.7%a | 34.0%b | 35.5%b |
| Medium-high (8-9) | **24.0%** | 22.4%a | 24.0%a | 24.6%a | 26.0%a | 22.4%a | 19.5%a | 27.8%a | 29.0%a | 30.3%a | 22.7%a | 21.7%a | 20.2%a | 26.2%a | 22.3%a | 21.9%a |
| High (10-17) | **13.3%** | 14.9%a | 10.2%a | 11.4%a | 11.7%a | 17.2%a | 13.6%a | 11.7%a | 16.2%a | 9.8%a | 9.9%a | 15.0%a | 17.7%a | 14.7%a | 13.1%a | 8.3%b |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Table 4 (continued) |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Predimed Plus | **Total** | Household size (member number) | Household annual income |   |   |   |
| 1 | 2 | 3 | 4 | >=5 | <=18,000 € | 18,001- 27,000 € | 27,001- 36,000€ | 36,001 - 54,000€ | 54,001 -72,000 € | >=72,001 € | I prefer not to answer |   |   |   |
| Low (0<6) | **31.4%** | 22.5%a | 28.2%a,b | 32.2%b,c | 37.4%c | 42.2%c,d | 29.8%a | 29.7%a | 28.0%a | 32.1%a | 37.2%a | 34.3%a | 33.1%a |   |   |   |
| Low-medium (6-7) | **31.3%** | 30.6%a | 29.9%a | 33.8%a | 31.6%a | 29.6%a | 32.9%a | 35.5%a | 28.6%a | 27.7%a | 22.5%a | 34.6%a | 29.9%a |   |   |   |
| Medium-high (8-9) | **24.0%** | 33.1%a | 24.7%b | 21.5%b | 21.9%b | 19.9%b | 26.9%a | 23.7%a | 28.4%a | 22.7%a | 23.3%a | 18.6%a | 20.5%a |   |   |   |
| High (10-17) | **13.3%** | 13.8%a,b | 17.2%a | 12.5%a,b | 9.1%b | 8.3%b,c | 10.3%a | 11.1%a | 15.0%a | 17.4%a | 16.9%a | 12.5%a | 16.4%a |   |   |   |
| Values in the same row and sub-table that do not share the same index are significantly different at p< ,05 in the bilateral equality test for column proportions. |   |   |   |   |   |   |   |