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NutriHED - Nutritional and Food Risk Factors of Multidisease in Diet-related Diseases and Evaluation of the Impact of Nutrition Education

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General information

The project is financed by the Agency for Medical Research with funds from the State Budget in the framework of the competition “Open competition for the implementation of epidemiological studies on multimorbidity”

Project no. 2023/ABM/03/00014

Project duration 2024 -2033

Contractors

- National Institute of Public Health NIH – National Research Institute
 - Department of Nutrition and Nutritional Value
 - Department of Population Health Monitoring and Analysis
 - Medical Center for Dietetics and Nutrition Education
 - Department of Food Safety



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Main objectives of the project

- **Primary objectives:**
 - To assess the impact of diet on the incidence of multi-disease diet-related diseases.
 - To assess the impact of nutrition education on improving health parameters in the prevention of multimorbidity in the adult population in Poland
- **Secondary objectives:**
 - Evaluation of the prevalence of multimorbidity in diet-related diseases
 - Influence of nutrition education on knowledge and dietary change in the surveyed population of adults in Poland
 - Exposure estimation and risk assessment of food contaminants and additives in subjects with normal and incorrect diets

Research hypotheses

- Dietary intake in terms of energy, nutrients, food groups and dietary habits and nutritional status influence the risk of developing multimorbidity in terms of diet-related diseases.
- Nutrition education provided in the form of long-term dietetic care influences dietary change and, as a result, reduces the risk of developing multimorbidity in terms of diet-related diseases.
- Proper nutrition reduces exposure to chemical contaminants of food, especially those resulting from processing and food additives.

Scheme of the survey

- **Arm 1** will include a random representative sample of Polish adults aged 18 - 64 years as of 1/1/2025,
- Two observations scheduled to be conducted between 05/2025-6/2026 and 1-12/2030.
- During the first observation, 2 additional Arms of the study will be selected - a study group (**Arm 2**) and a control group (**Arm 3**) for the evaluation of the Nutrition Education Programme as part of a non-clinical intervention study.

Scheme of the study - Arm 1

- **In arm 1** of the study, the diet, nutritional status, biochemical parameters and other lifestyle elements (e.g. physical activity) of the study subjects will be assessed as risk factors for the development of multi-disease diet-related diseases
- The survey will include:
 - collection at the respondent's home of socio-demographic data,
 - data on health status and other selected lifestyle factors (socio-demographic data questionnaire),
 - data on physical activity (physical activity assessment questionnaire),
 - data on dietary habits and frequency of food intake (FPQ questionnaire),
 - qualitative-quantitative data on food intake (interview on food intake in the last 24 hours conducted twice),
 - anthropometric measurements (weight, height, waist circumference, hip circumference).

- Based on the collected data, people with multimorbidity in terms of diet-related diseases will be identified,
- In order to objectify/complement the data on the diagnosis of the studied diseases in the respondents, data on services reported to the National Health Fund - source of the Center for e-Health (CeZ) - will be used.
- Complementary analysis based on NHF data will be done after 1 and 2 observations. The energy and nutritional value of the diets will be calculated based on food consumption data.
- The diet of the subjects will be assessed by comparing food intake data with dietary recommendations and nutrition standards to identify dietary abnormalities affecting the risk of developing multi-disease diet-related diseases.
- A BMI index will be calculated to identify, among other things, overweight and obesity, and a WHR index, to determine the type of obesity

Preventive intervention under study: Nutrition Education Programme (NEP)

Nutrition education will be carried out by dietitians of NIZP PZH-PIB, based on the current recommendations for healthy eating for the Polish population in the form of the Healthy Eating Plate and additional educational materials developed for the intervention.

- The main educational tool will be the Healthy Nutrition Plate, which is a reference material representing a model of the recommended diet and was created to educate about nutrition. The Healthy Eating Plate graphically depicts the recommended proportions of each product group in the whole-day diet and is complemented by the material "In 3 steps to health" presenting specific dietary recommendations and how to gradually introduce them into the diet.
- The preventive intervention will consist of online nutritional education provided by dietitians of the NIZP PZH-PIB. It is also planned to develop additional educational materials for the intervention.

Healthy Nutrition Plate

Recommendations for a healthy diet

EAT A VARIETY OF FOODS EVERY DAY

↑ Eat more:

- Whole grain cereal products (e.g. oatmeal, wholemeal bread, wholemeal pasta, groats);
- Colourful vegetables and fruit - more vegetables than fruit;
- Legumes (e.g. beans, peas, chickpeas, lentils, broad beans);
- Fish (especially fatty sea fish);
- Skimmed dairy products, especially fermented dairy products;
- Nuts and seeds (e.g. walnuts, pumpkin seeds, sunflower seeds).

↓ Eat less:

- Salt;
- Red meat and processed meat products (e.g. sausages, cold cuts, bacon);
- Sugar and sweetened drinks;
- Processed foods (such as fast food, salty snacks, biscuits, chocolate bars, wafers) with high salt, sugar and fat content.

↔ Swap:

- Processed cereal products (e.g. light bread, sugary breakfast cereals) for whole grains;
- Red meat and processed meat for fish, poultry, eggs, legumes and nuts;
- Sweetened drinks for water;
- Animal fats for vegetable fats (oils e.g. canola oil, olive oil);
- Full-fat for skimmed dairy products (milk, yoghurt, kefir, buttermilk, white cheese);
- Frying, grilling for boiling including steaming, braising or roasting.

Zalecenia zdrowego żywienia

JEDZ RÓŻNORODNE PRODUKTY KAŻDEGO DNIA

↑ Jedz więcej:

- Produktów zbożowych z pełnego ziarna (np. płatki);

↓ Jedz mniej:

- Sól;
- Mięsa czerwonego i przetworów mięsnych (m.in. kiełbas, wędlin, boczków);
- Cukru i słodzonych napojów;
- Produktów przetworzonych (takich jak: fast food, słone przekąski, herbatniki, batony, wafelki) z dużą zawartością soli, cukrów i tłuszczów.

→ Zamieniaj:

- zbożowe (np. jasne pieczywo, słodkie płatki śniadaniowe) na pełnoziarniste;
- drobne mięso na ryby, drożdże, jajka, nasiona roślin strączkowych i orzechy;
- zasmażone roślinie (oleje np. rzepakowy, oliwa z oliwek);
- łuste na niskotłuszczowe (mleko, jogurt, kefir, masłanka, biały ser);
- gotowanie w tym na parze, duszenie lub pieczenie.

Рекомендації щодо здорового харчування

ЩОДНЯ ЇЖТЕ РІЗНОМАНІТНУ ЇЖУ

↑ Їжте менше:

- Солі;
- Червоного м'яса та переробленого м'яса (наприклад, ковбас, м'ясних нарізок, бекону);
- Цукру та підсолоджених напоїв;
- Оброблених продуктів (такі як фаст-фуд, солоні закуски, печиво, батончики, вафлі) з високим вмістом солі, цукру і жиру.

↔ Замініть:

- білі зернові продукти (наприклад, легкий хліб, солодкі сухі сніданки) на цілізернові;
- м'ясо та перероблене м'ясо на рибу, птицю, яйця, бобові та горіхи;
- напої на воду;
- жири на рослинні (олію, наприклад, ріпакову, оливкову);
- олочні продукти на нежирні (молоко, йогурт, кефір, пахту, білий сыр);
- «ж», гриль на відварювання їжі, включаючи приготування на пару, тушування або «ж».

Активно активними, підтримуйте вагу тіла в нормі

Якщо ви страждаєте на хронічні захворювання, проконсультуйтеся з дієтологом щодо свого раціону.

Estimation of exposure and risk assessment associated with the presence of food contaminants and food additives in people with normal and incorrect diets

Data on the levels of contaminants (current data for Observations 1 and 2) will be obtained in cooperation with the laboratories of the State Sanitary Inspectorate - about 11 000 samples are taken and tested for contaminants annually, and about 4 000 samples for food additives

- Heavy metals (Cd, As, Pb, Hg)
- Mycotoxins (aflatoxins, ochratoxin A, deoxynivalenol, fumonisins, zearalenone, citrin, T2 and HT-2 toxins, patulin, ergot alkaloids)
- Process contaminants (polycyclic aromatic hydrocarbons, furan and derivatives, acrylamide, 3-MCPD and glycidol esters)
- Plant toxins (tropane alkaloids, pyrrolizidine alkaloids, opium alkaloids, hydrogen cyanide, tetrahydrocannabinols, erucic acid)
- Nitrate, Perchlorate
- Food additives

Estimation of exposure and risk assessment associated with the presence of food contaminants and food additives in people with normal and incorrect diets

- Food Intake data will be from the study
- Exposure estimates will be made for observations in 2025 and 2030
- Comparison of exposure between observations and between normal and incorrect diets
- Risk assessments will be carried out for all contaminants and food additives

Thank you for your attention