EXTERNAL SCIENTIFIC REPORT

APPROVED: 25 October 2019

doi:10.2903/sp.efsa.2019.EN-1729

Slovenian national food consumption survey in adolescents, adults and elderly

National Institute of Public Health (NIJZ)

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Abstract

The Slovenian national food consumption survey in adolescents, adults and elderly was a part of the third Slovenian national dietary survey, named SI.Menu 2017/18, with the fieldwork taken place in 2017-2018. The methodology of the survey followed the EFSA EU Menu guidance and specifications in the contract. Individuals were randomly selected from the Slovenian Central Register of Population following a two-stage stratified sampling procedure. Dietary survey sample was at population level representative of gender and age classes (10-74 years old). The participation rate to the survey was 62 %. For 1319 individuals a fully completed data were collected of which 484 were adolescents, 387 adults and 450 elderly. Data collection period was divided into four quarters (3-monthly samples) and equal distribution of all week and weekend days in order to incorporate seasonal effects and day-to-day variation in food consumption was employed. Information on food consumption was collected with two non-consecutive 24-hour dietary recalls (using the OPEN dietary software) by interviews. This was complemented with a food propensity questionnaire. In addition to food consumption data, information concerning eating habits, consumers habits, food allergy, using food supplements, on life-style, physical activity, socio-demographic and socio-economic status, and health was collected. The food consumption data was also coded according to the FoodEx2 classification and will be included in the EFSA Comprehensive European Food Consumption Database. Body mass and height were measured. In addition, body composition was also measured in adults and elderly by using impedance analyser. Data from the survey will be very valuable for national risk assessments, nutritional studies, assessment of changes in dietary patterns, and the development and evaluation of nutrition or health policies.

Key words: Slovenia, food consumption survey, dietary intake, adults, adolescents, elderly, EU Menu

Question number: EFSA-Q-2014-00871

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Acknowledgements: The project coordinator would like to acknowledge the contribution of seven above-mentioned partners for their support in the implementation of the project. The coordinator also like to thank Mrs. Veronika Belec and her team and interviewers at GfK Research Institute to perform a field work of the survey. For financial support, the coordinator would like to thank the Ministry of Health of the Republic of Slovenia, Slovenian Research Agency and the European Food Safety Authority (EFSA).

Suggested citation: National Institute of Public Health. Gregorič M, Blaznik U, Delfar N, Zaletel M, Lavtar D, Koroušić Seljak B, Golja P, Zdešar Kotnik K, Pravst I, Fidler Mis N, Kostanjevec S, Pajnkihar M, Poklar Vatovec T, Hočevar Grom A, 2019. Slovenian national food consumption survey in adolescents, adults and elderly. EFSA supporting publication 2019:EN-1729. 28 pp. doi:10.2903/sp.efsa.2019.EN-1729

ISSN: 2397-8325

Summary

The SI.Menu 2017/18 national food consumption survey was conducted from March 2017 to April 2018. This survey was a part of the third Slovenian national dietary survey, focusing on adolescents (10-17 years), adults (18-64 years) and elderly (65-74 years). In addition to food consumption data, information concerning eating habits, consumers habits, food allergy, using food supplements, on life-style, physical activity, socio-demographic and socio-economic status, and health was collected. The methodology of the survey followed EFSA EU Menu guidance.

The respondents of the survey was randomly selected from the Slovenian Central Population Register following a two-stage stratified sampling procedure. A total sample consists of 2,280 selected individuals. Although many activities were included in this survey, the participation rate for the survey was 62%. Interviewers collected information from the respondents by interviews within three weeks interval. Prior to the fieldwork period, all individuals were informed and invited to participate in the survey by invitation letters together with leaflets with basic information on survey. Within two weeks after reception of these documents the selected individuals were contacted by the interviewer.

Dietary assessment was performed by means of a 24-hour recall with initial face-to-face interview (using computer-assisted personal interviewing – CAPI) at the respondent's home and the follow-up interview conducted with computer-assisted telephone interviewing (CATI). Open Platform for Clinical Nutrition (http://opkp.si) was applied in a survey as existing national dietary software and was upgraded for the aims of the survey to support 24h recall interviews as well as food diaries. It is an open-ended app and allows food and beverages consumed during the survey days to be entered (multi-pass method). Consumed amounts of foods were estimated using a national picture book, complemented with household measures and portions indicated in standard recipes. The picture book contains six different portion sizes for 46 different food products or simple recipes. Consumption data was complemented with a food propensity questionnaire (FPQ) to collect the usual frequency of consumption of specific foods (and food supplements) in the last 12 months. For the FPQ, a list of 75 rarely consumed and common in Slovenian diet food items corresponding to nine food groups were used. Additional non-dietary data was collected with a face-to-face questionnaire using a computer-assisted personal interview. Body mass and height were gathered using actual measurements performed by the trained interviewers following a standardized protocol. In addition, body composition was also measured in adults and elderly by using impedance analyser.

For the fieldwork, a subcontract with company, specialized for interviewing, was signed. Only those with nutrition background or with strong background in interviewing techniques were selected as interviewers. All interviewers received a two-day training by professionals from National Institute of Public Health, subcontracted company and consortium partners and were provided with extensive methodological guidelines. Several quality control measures were taken during different phases of the project to guaranty a high quality of collected data. Systematic quality controls were performed throughout the data input procedure. In addition, internal procedures for the fieldwork were performed to assess the basic quality controls and completeness of the data. During the project some important challenges ware faced (e.g. software upgrade with compositional data for branded foods, expected response rate, outsourcing of the fieldwork, controlling the quality of fieldwork, length and complexity of the interview, the harmonization and FoodEx2 coding), but all were properly solved. The main results of the survey will be presented in a statistical publication available on the website (http://www.nijz.si/). The food consumption data will be under certain conditions available also other potential users. As the survey is also included in the EU Menu project, the food consumption data coded according to the FoodEx2 classification will be included and available in the EFSA Comprehensive European Food Consumption Database.

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1. Introduction

1.1. Background and Terms of Reference as provided by the requestor

A long-term objective of EFSA is the acquisition of a harmonised pan-European Food Consumption database within the framework of the EU Menu process "What's on the Menu in Europe?" (EU Menu).

In October 2009, the EFSA Expert Group on Food Consumption Data (EGFCD) endorsed the Guidance of EFSA on "General principles for the collection of national food consumption data in the view of a pan-European dietary survey"[1]. The main objective of this Guidance was to recommend general principles for the collection of dietary information that can be used to estimate dietary exposure to food borne hazards and nutrients considered by EFSA's Scientific Panels and Units. The methodology used in the national food consumption survey is expected to follow the general principles described in the 2009 EFSA Guidance. The most important requirements are reported here below. For some of the requirements, the present call presents differences with respect to the above-mentioned Guideline and the requirements of the tender specifications must be followed. The main changes are mainly due to the results of the pilot and methodological projects supported by EFSA in the last years. EFSA is planning to publish on EFSA's web-site an updated version of the EFSA Guidance on the EU Menu methodology within 2014[2]. This will contain additional information, but the basic methodology requirements described in the present call will not change. The methodology described in the Guidance of EFSA and complemented in the present call for tender based on the results of the recent pilot and methodological projects is defined here as the EFSA EU Menu methodology.

- The piloting activities have included the following projects: In December 2009, EFSA started the Article 36 project (CFP/EFSA/DATEX/2009/02) "Pilot study for the Assessment of Nutrient intake and food Consumption Among Kids in Europe" (PANCAKE), to develop and test tools and procedures for the collection of individual food consumption data for infants, toddlers and other children up to 10 years of age. The final report, protocols and questionnaires produced by this project were published on the EFSA website in September 2012 (Ocke et al, 2012).
- In December 2011, EFSA started the Article 36 project (CFP/EFSA/DATEX/2010/02) "Pilot study in the view of a Pan-European dietary survey – Adolescents, adults and elderly" (PILOTPANEU), to develop and test similar tools and protocols for the different adult population groups. The report, protocols and questionnaires produced by this project were published on the EFSA website in November 2013 (Ambrus et al, 2013).
- Further, EFSA has collaborated with the International Agency for Research on Cancer (IARC) through a negotiated procedure contract (NP/EFSA/DATEX/2010/01) in order to develop and adapt the EPIC-SOFT dietary software according to the needs of EFSA and to ensure that this software can be used by EU Member States for their dietary surveys within the context of the EU Menu process. The final report of this project called EMP-PANEU was published on the EFSA website in June 2013 (IARC, 2013).
- In August 2012, to get a broader view of the dietary tools available for dietary surveys, EFSA started the procurement project "Dietary Monitoring Tools for Risk Assessment" (Mandate number M-2012-0027). This project carried out a review of dietary assessment tools mainly available in Europe, evaluated 11 European tools and tested in collaboration with EFSA six tools in a

[1] European Food Safety Authority; General principles for the collection of national food consumption data in the view of a pan-European dietary survey. EFSA Journal 2009; 7(12):1435. [51 pp.]. doi:10.2903/j.efsa.2009.1435. Available online: http://www.efsa.europa.eu/en/efsajournal/pub/1435.htm

[2] The guidance of EFSA has been updated in December 2014 and is available as Guidance on the EU Menu Methodology at http://www.efsa.europa.eu/en/efsajournal/pub/3944

standardised ring-trial setting and provided a critical analysis of data accumulated through this project. The final report of this project will be made available on the EFSA website within 2014[3].

- Since 2011, EFSA has supported 14 dietary surveys in 10 Member States, as part of the EU MENU process. The first three supports to national dietary surveys were provided by means of the calls for tender CFT/DCM/2011/02, CFT/DCM/2012/01 and CFT/DCM/2013/02. So far both children and adults are covered by contracts with eight Member States, namely France, Estonia, Spain, Belgium, Latvia, The Netherlands, Cyprus and Portugal; only adults are covered by a contract with Greece, and only children are covered by a contract with Romania.

The aim of this procurement procedure is to award direct service contracts to organizations from EU Member States, and from Norway and Iceland which have a governmental mandate to carry out a dietary survey at national level in the period from 2014 to 2019 and a national dietary survey has not been carried out within the country in the last five years for the planned target group and Under the resulting contracts the contractor(s) should either adapt or develop the methodology to be used in these surveys according to the EFSA EU Menu methodology. The dietary data collected through the contracts should be available for EFSA's scientific activities without restrictions on its use.

The objectives of the contract resulting from the present procurement procedure are as follows:

- objective 1: to either adapt or develop the methodology to be used in the national food consumption survey according to the EFSA EU Menu methodology and to prepare and transfer to EFSA the national protocols and related documents, pilot and carry out the data collection.
- objective 2: to prepare and transfer to EFSA the food consumption data and related information collected during the survey according to the format required by EFSA.

This contract was awarded by EFSA to: National Institute of Public Health of the Republic of Slovenia as Consortium leader and coordinator of the Project.

Contractor: National Institute of Public Health (NIJZ) Ljubljana, Slovenia (contractor and consortium leader), Jožef Stefan Institute (IJS) Ljubljana, Slovenia (partner 1), Nutrition Institute (NUTRIS) Ljubljana, Slovenia (partner 2), University of Ljubljana, Biotechnical Faculty (UL BF) Ljubljana, Slovenia (partner 3), University of Primorska, Faculty of Health Sciences (UP FVZ) Koper, Slovenia (partner 4), University of Maribor, Faculty of Health Sciences (UM FZV) Maribor, Slovenia (partner 5), University of Ljubljana, Faculty of Education (UL PF), Ljubljana, Slovenia (partner 6), University Medical Centre Ljubljana, University Children' s Hospital (UKC PeK) Ljubljana, Slovenia (partner 7).

Contract title: Service contract "Support to National Dietary Surveys in Compliance with EU menu methodology-fourth support". Lot 2 – "The adults survey", including individuals from 10 to 74 years old.

Contract number: OC/EFSA/DATA/2014/02-LOT2-CT03

2. Description of the protocol of the survey

The methodology of the Slovenian national dietary survey, named SI.Menu 2017/18, focused on adolescents (10-17 years of age), adults (18-64 years of age) and elderly (65-74 years of age). The project had its Project policy, Scientific and Steering Committee and was divided into five Work Packages, with each responsible for fulfilling its specific objectives.

The various phases of SI.Menu 2017/18 survey are shown in Table 1. The survey followed the EFSA Guidance on EU Menu methodology (EFSA, 2014) and specifications of the 2014 call for tender

[3] The final report of the Dietary Monitoring Tools for Risk Assessment project has been published and is available at: https://efsa.onlinelibrary.wiley.com/doi/pdf/10.2903/sp.efsa.2014.EN-607

"Support to National Dietary Surveys in Compliance with the EU Menu methodology- fourth support". The SI.Menu 2017/18 on adolescents, adults and elderly was a cross-sectional study.

Table 1: Time scheme of the SI.Menu 2017/18 survey on adolescents, adults and elderly survey

	2014	2015	2016	2017	2018	2019
Preparation of the methodology framework, consortium meetings with the consortium partners						
Adaptation and development of the survey methodology according to the EFSA EU MENU methodology (WP1)						
Adaptation and development of dietary software and supporting tools according to the EFSA EU MENU methodology (WP2)						
The pilot survey Selecting and training of interviewers (WP3)						
Preparation of the survey sample Collecting the data from fieldwork Activities to increase response rate (WP4)						
Data preparation and harmonization to the EFSA (WP5)						
Final report and databases in EFSA reporting format						

2.1. Study population and exclusion criteria

The study population of the SI.Menu 2017/18 on adolescents, adults and elderly was defined as persons aged 10 to 74 years old with their residence in Slovenia. EFSA recommends to collect food consumption data in specific age groups (EFSA, 2014). Taking this into account, the sample was stratified according to three age groups of adolescents (from 10 to 17 years old), adults (from 18 to 64 years old) and elderly (from 65 to 74 years old). All these age groups were stratified also according to the size and type of settlements (6 classes) and according to the statistical region (12 regions).

Selected persons were systematically excluded from further implementation of the interviews if they were found to be ineligible:

a) institutionalized population (hospitalised or live in different types of institutions),

b) individuals residing abroad

c) individuals who experienced disease during the survey period and

d) those with severe known physical or mental disability, which are unable to cooperate.

2.2. Sampling frame

National Statistical Office selected the individuals by using Central Register of Population Slovenia (CRP), which serves as a sampling frame for majority of population-based surveys in Slovenia.

The register contains several variables, which are needed for the sample preparation such as Personal identification number (PIN), name, gender, age, year of birth, address, municipality, statistical region, size of settlement, degree of urbanization and weight of selection probability is defined during the selection procedure.

The sample selection was spread over 52 weeks and performed in seasonal waves (four quarters means 3-mounth samples seasons) in order to use the most actual version of the CRP to ensure the

compatibility of age groups with the target population and avoid individuals who had died or moved between the date of selection and the date of interview. This was especially important for infants in order to capture the necessary age groups in every relevant season.

2.3. Sampling method and design

The subjects of the SI.Menu dietary survey were selected according to a two-stage, stratified sampling procedure. The sample size consisted of 2,280 selected individuals aged from 10 to 74 years old, stratified according to the size and type of settlements (6 classes), according to the statistical region (12 regions) and age groups (Figure 1).

In general, Slovenia uses the same sampling frame for all probability samples and similar sample designs. Sample frame is based on Central Register of Population and divided into strata as described above, and further on divided in around 10.000 primary sampling units (PSU) with 200 inhabitants on average (but varying from 30 inhabitants to around 300 inhabitants per PSU). Within two stage stratified sample design, the PSUs are selected with probability proportional to size, and within PSU the fixed number of persons is selected, what enables the equal probability of sampling for all units (at this point, neglecting different probabilities of selection due to age groups what was calculated and balanced later on).

At the first stage primary sampling units (PSU) were selected with the probability proportional to size (PPS), where size of PSU is defined as weighted average of number of persons in target age groups. At the second stage, certain number of persons in the target population was selected according to interclass correlation coefficients gathered in other population surveys like Slovenian Household Budget Survey, where also consumed quantities of food and drinks are measured. About 8-10 persons per PSU were selected. Given that subjects were selected with different selection probabilities due to different age groups, weights were defined at this stage of sample selection.

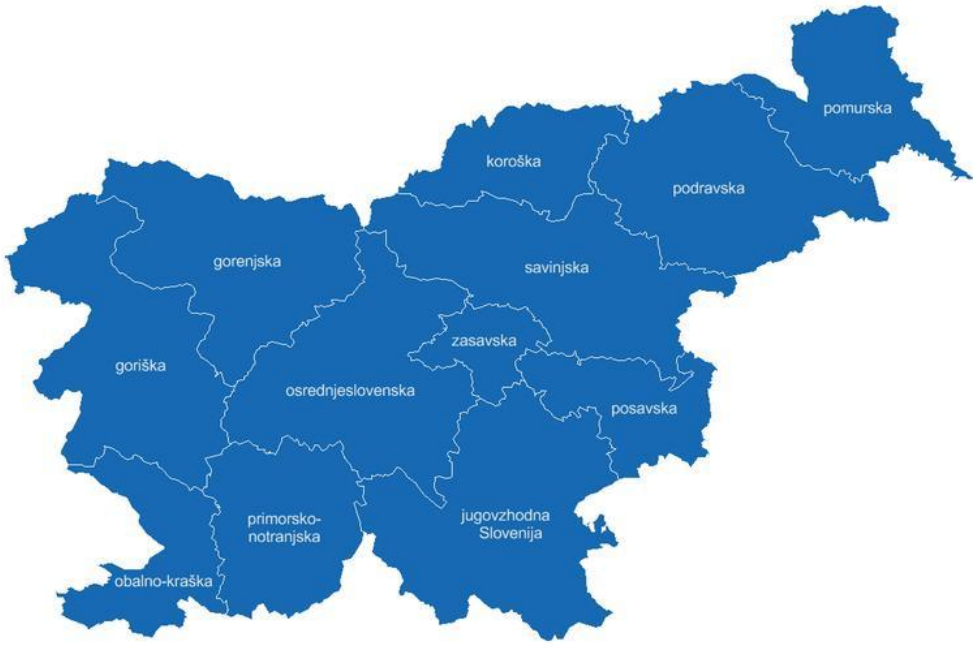

Figure 1: Statistical regions in SI.Menu 2017/18 survey on adolescents, adults and elderly survey

2.4. Sample size

The sample size based on minimum sample sizes for age groups proposed by EFSA and was enlarged taken into account expected realistic participation rate (min 60 %). The calculation of the sample size took into account also calculations of a sample size of the previous dietary surveys conducted in Slovenia (Koch, 1997, Gabrijelčič et al., 2009).

In total, 2,280 persons were recruited as follows:

- Adolescents (from 10 to 17 years old): at least 760 individuals,
- Adults (from 18 to 64 years old): at least 760 individuals,
- Elderly (from 65 to 74 years old): at least 760 individuals.

A special scheme for integration of these three population groups during the different seasons of the year were prepared (a year period was structured in quarters).

2.5. Strategy to achieve an adequate response rate and the initial sampling size

As the participation to the survey was voluntary, it was expected that some of the selected individuals would not participate, either because we would not be able to contact them (ineligible and non-contacted units), they would refuse to participate or fail to respond due to other reasons. All interviewers had to achieve at least five personal contacts with the selected subjects. If none of these five contacts were successful, the subject was recognised as non-respondent. Substitutions were not applied. The interviewer met each respondent at least once to provide information on the complete dietary survey, supporting questionnaires and perform the anthropometric measures.

In case of low response rate at a specific PSU, more experienced interviewer was sent to double check the situation. Besides, in case of soft refusals, additional contacts were made by another interviewer.

Prior to the fieldwork period, an invitation/advance letter, with detailed information on the survey characteristics and the motivational text, was sent by mail to all selected individuals. There were additional information of the SI.Menu 2017/18 survey at the back of the advanced letter (legal background, information on data confidentiality, overview of data from previous or likewise surveys) to present how the collected data will be used. Telephone number and e-mail address were available for additional questions.

Within two weeks after the reception of the invitation/advance letter the selected persons were personally contacted by the interviewer. If selected person was not at home at the time of the visit, the interviewer left the notice with the date of the next visit, the interviewer's telephone number, the telephone number of the survey company (with available working hours) and the e-mail address for additional questions. At least five contacts had to be made for each selected individual before they were classified as non-contactable.

After the first successful face-to-face visit at the respondents' homes, all respondents got a small incentive to be motivated to complete the survey (glass water bottle, bib, headphones, umbrella, ice bags). Incentives were very well accepted.

A national press release announced the start of the national food consumption survey in 2017 to gain publicity in the general Slovenian population. All consortium partners assisted in these activities. They were also asked to raise awareness of the survey on the local level by newspaper articles, digital newsletters, advertisement on their websites or social media, etc. All information related to the survey were also available on the NIJZ website.

The response burden was decreased as much as possible by shortening some parts of the questionnaires on the basis of the pilot study and by optimizing the process during 24-hour recall. Therefore all respondents were asked to fill in a quick list of food and drink s consumed on a previous day in a free written style by estimating portions in household measures. Respondents filled in the list just prior the interview. This has proved to be very helpful, because it shortened the time of interview.

A great efforts were made to boost the participation to the survey and select a representative sample of the Slovenian population, therefore a response rate (i.e., the ratio of completed interviews to the number of eligible units in the sample frame) was 62%, which is similar to the rate observed during the previous national dietary surveys and also comparable with other national survey with similar contents. For 1,339 adolescents, adults and elderly, there are 24 hours recall data available, of which 98.5% (n=1,319) had fully completed data of questionnaire and 2 days of recall and 1.5% (n=20) only 1 day. Among them there were two adolescent males and seven females, four adult males and three females and one elderly male and three females. These data were also included in the final dataset.

The final status and response rates of respondents in SI.Menu 2017/18 survey on adolescents, adults and elderly is presented in Table 2.

Table 2: Final status of all subjects invited to participate to the SI.Menu 2017/18 survey on adolescents, adults and elderly, according to the gender and age group

	Adolescents		**Adults**		**Elderly**		**Total**
	Males	Females	Males	Females	Males	Females	
Number Of Units In The Sample	384	376	390	370	377	383	2280
Number Of Contacts	384	376	390	370	377	383	2280
Eligible Units	366	356	353	340	343	361	2119
Number of fully completed (questionnaire + Diary/ 24h recall)	248	236	178	207	220	230	1319
Response Rate	67.8%	66.3%	50.4%	60.9%	64.1%	63.7%	62.2%

The response rates according to quarters of the survey (see Table 3) clearly show that the lowest response was during the summer time, when many families are on vacation.

Table 3: Response rates in the SI.Menu 2017/18 survey on adolescents, adults and elderly, according to the quarters

Response Rate	**1st quarter (spring)**	**2nd quarter (summer)**	**3rd quarter (autumn)**	**4th quarter (winter)**
Adolescents	63 %	59 %	68 %	78 %
Adults	61 %	51 %	50 %	60 %
Elderly	62 %	61 %	56 %	75 %

2.6. Legal and ethical aspects

The National Medical Ethics Committee (NMEC) of the Republic of Slovenia accepted the survey protocol in July 2016 (KME 0120-337/2016). The survey collects sensitive personal data, therefore survey was included in the Annual Programme of Statistical Surveys for 2016 (Nr. R3.2.05.01.12), available in Slovenian language at: http://www.pisrs.si/Pis.web/pregledPredpisa?id=DRUG4163, which serves as a legal framework.

Written informed consent was obtained from the respondents or the parent(s)/legal guardian(s) of respondents younger than 18 years old, before the start of the first home visit.

3. Dietary survey tools

3.1. Food propensity questionnaire

As recommended by EFSA and by the PANEU project an age-adjusted FPQ was developed and used in all age groups for the respondents to report their usual frequency of consumption of specific foods (and food supplements) in the last 12 months for usual intake modelling purposes (EFSA, 2014; Dodd et al., 2006). In total, 75 food items were included in FPQ. Food items corresponded into nine food groups as follows:

- Cereals and cereal products;
- Milk and milk products;
- Fruit;
- Vegetables;
- Meat, fish, eggs and meat products;
- Fats and fatty food;
- Sugar and sweeteners;
- Beverages;
- Miscellaneous.

In each food group, the frequency of consuming the most typical representatives of this group, foods that are rarely consumed and foods that are possible major source of hazardous agents was asked. Some food items were identical with SI.Menu 2017/18 survey on infants and toddlers to achieve comparability with the study carried out in 2007/2008 (Gabrijelčič et al., 2009).

The frequency response options for the food list were never, 1-3 times per month or less, once per week, 2-3 times per week, 4-6 times per week, 1-2 times per day or more.

In the case of food supplements, we introduced some common ingredients in food supplements (multivitamins, proteins, omega 3 and omega 6 fatty acids, plant extracts, probiotics / prebiotics, propolis, algae, mushrooms, glucosamine, lutein, isoflavones, coenzyme Q), but the question was also open to add other food supplements. The frequency response options for the food supplements were: never, a few days, regularly 1 month, regularly 3 months or more.

The FPQ was included in the general questionnaire and respondents used special cards with possible answers that it was easier for them to respond quickly.

3.2. Dietary recall

Dietary assessment in adolescents, adults and elderly was performed by means of a 24-hour dietary recall method, carried out on two non-consecutive days, with at minimum seven days and maximum three weeks interval between them. The second recall had to be performed in the same days as in the first recall (working day or weekend day).

Just prior the interview each respondent was asked to fulfil a paper form of food and drink eaten on a previous day in a free writing style by estimating portions in household measures.

After that, the trained interviewer asked the respondent to reproduce the detailed data on foods and beverages (and food supplements) consumed in the preceding day, including their quantity (Biro et al., 2002). The consumption data was collected in computer-assisted interviews using "OPEN app". Information on food consumption were recorded per day, per meal and in between meals with

prepared structure by usual food consumption occasions – before breakfast, breakfast, meal before noon, lunch, after lunch meal, dinner, after dinner meal and additional occasions. The OPEN app contains questions with predicted structure: type of meal/ snack, place and time of the meal, special conditions, food supplements, brands of foods (e.g with expected trans fats) and food items that could be easily forgotten, such as salt, water, oil, fortified foods etc.

The design of dietary recall followed the recommendations of the EFSA Guidance and of the PANEU project. Prepared design was integrated in paper form as well as OPEN app.

3.2.1. Food description

All foods, beverages and food supplements consumed were recorded per food consumption occasion (before breakfast/ breakfast/ mid-morning snack/ lunch/ mid-afternoon snack/ dinner/ after dinner /between meals). For each food consumption occasion, the place and time of consumption were recorded.

All composite dishes were disaggregated and described at the ingredient level. The disaggregation was based on information provided by the respondent (if self-made) or by means of standard recipes (742). Different facets and descriptors were used to describe dietary items (i.e. foods, recipes and food supplements) in more detail. Facets characterise different aspects of the dietary item.

For food description and codification purposes, the FoodEx2 codification system has been used (EFSA, 2015). Foods have been classified at raw (edible part) and at ingredient level. The software includes an open database in which close to 2401 codified food items are included. In the case that a new item was reported, it was codified and included in the database.

3.2.2. Determination of portion sizes

Consumed amounts of foods were estimated using a national picture book, complemented with household measures and portions indicated in standard recipes. Picture book compose pictures from the PANCAKE pilot study and pictures from Slovenian national menu. The selection of food items was adjusted for the Slovenian population (country specific and frequently consumed foods/dishes by Slovenian population). 11 picture series with six portion sizes from national menu were prepared for this purpose and 31 picture series from existing PANCAKE food picture book were added. Determination of portion sizes, photography conditions and validation according to the method of conceptualization were done according to the EU Menu protocol, as well with PILOT-PANEU and PANCAKE validation protocols. Validation was performed in May 2015 at Biotechnical Faculty in Ljubljana (Vede et al., 2016). Validation revealed only two unacceptable picture series.

After the pilot study 4 pictures series from national menu were added, the order of the pictures has been changed and the table of contents has been included.

In the final picture book, 46 different food products or simple recipes were represented by a series of pictures (photos of reference foods with their actual gram weight). Each of the series included six different portion sizes. These pictures were used not only for estimating the food that is illustrated, but also other food with similar density, size and shape. This is explained in the picture book. Weight data of 57 food items from manufacturer's information or commercial units and around 50 household measures (spoon, cup, glass, etc.) were added in appendix of picture book (NIJZ, 2017).

The interviewers used the picture book with quantified food items (in grams) and the respondents use the picture book with the numbers (1-6) by the food items (without grams).

3.2.3. Dietary software

The Open platform for clinical nutrition (OPEN) (http://opkp.si) is a computerised 24-hour recall program that has been developed and is maintained by the Institute Jožef Stefan Institute (consortium partner) included in several national and EU-funded nutrition-based projects: EuroFIR NEXUS, RFID Farm2Fork, Diets2, EuroDISH, ISO-FOOD, SAAM and QuaLiFY.

The OPEN has been extended by the mobile app "EUMenu", which uses food composition data maintained in the OPEN database. The OPEN food composition database complies with "Food data structure and format standard" (BS EN 16104:2012) and includes Slovenian food composition data on meat and meat products as well as food composition data on plants (Korošec et al., 2013). Missing food composition data have been borrowed from other European and USDA food composition databases. OPEN has embedded a database of generic foods and food supplements. It also provides food composition data on traditional recipes and recipes that are frequently consumed in Slovenia. For each recipe, OPEN provides a list of ingredients (with their quantities), its yield factor and portion size. The OPEN database also stores compositional data on many branded foods purchased in Slovenia. For branded foods, OPEN provides food composition data for nutrients that are available (in most cases, data for branded foods include data for energy, protein, fats, carbohydrates, sugar, fibre and sodium).

OPEN also enables an easy inputting of new foods, food products and recipes. If there was a lack of time during the 24h recall interview, the interviewer described a missing food in a comment field and the missing data was added to the database after the 24h recall interview and considered before reporting to EFSA. If the survey respondent is able to describe the missing dish (recipe) in details, the interviewer either entered the new dish into OPEN directly or into the comment field (by specifying the ingredients, quantities, portion size). Otherwise, when the survey respondent was unable to describe the missing dish in details, we consider a general recipe to specify the dish with respect to ingredients, their quantities and portion size. Many foods and all the recipes hold an information about household measures/portions. The reported food and recipe data was indexed by FoodEx2. OPEN has been scientifically validated (Koroušić Seljak et al., 2013; Bizjak et al., 2014; Benedik et al., 2015) and applied in the cross-border (Slovenia–Italy) cooperation project PANGeA: Physical Activity and Nutrition for Quality Ageing (2007-2013) (http://www.pangeaeu.org).

The OPEN app was designed to support 24h recalls as well as food diary. It allows its usage in a local mode, where no internet access is available. A user may be an interviewer or an administrator. While an interviewer may access only a limited set of profiles, one for each interviewee, an administrator may control all the profiles (all the interviewees), create new profiles, generate reports etc. Collected data is regularly stored on the IJS server, whenever an access to internet is available. Data quality checking measures are integrated into the app. If the meal or daily meal energy intake exceeds the recommended daily intake, a user is alerted about that. If mandatory data, such as place of consumption, time of consuming etc. is missing, the interview (24h recall) cannot be completed. A report, which conforms to the EFSA methodology requirements, can be easily exported directly from the app. This feature is enabled only for administrators.

3.3. Other information

3.3.1. Questionnaires

Additional data was collected with a face-to-face questionnaire using a computer-assisted personal interviewing (CAPI) technique. Due to differences a two versions of general questionnaire were designed for adolescents (Lot 2/adolescents) and for adults and elderly (Lot 2/adults).

Questionnaire for adolescents included:

- Questions on socio-demographic and socio-economic determinants of the adolescent and family
- Questions on dietary habits
- FPQ with 75 questions about 9 food groups and selected food items
- Specific questions on food supplements
- Specific questions related to food allergy
- Specific questions on life-style
- Health status
- Specific questions on physical activity

Questionnaire for adults and elderly included:

- Questions on socio-demographic and socio-economic determinants
- Questions on dietary and consumers habits
- FPQ with 76 questions about 9 food groups and selected food items
- Specific questions on food supplements
- Specific questions related to food allergy
- Specific questions on life-style
- Health status
- Specific questions on physical activity

In survey questionnaire, the International Physical Activity Questionnaire - short form (IPAQ-SF) was used to assess physical activity levels.

3.3.1.1 Socio demographic information

General questionnaire was performed at first face-to-face interview (CAPI). A general questionnaire included questions such as the academic level and employment status. Moreover, questions about age, gender, marital status, region, rural/urban area, household size, self-reported socio-economic standard were included. To achieve comparability with the study carried out in 2007/2008 (Gabrijelčič et al., 2009), the wording of majority of questions were identical.

The employment status of the respondent, classified according to the eight social classes (Eurostat, 2007) was also asked. The academic level of the respondents was classified according to the nine education classes (Eurostat, 2007) There were also questions related to self-estimated socio-economic standard of the household and the amount of monthly income of the respondent's household.

3.3.1.2 Physical activity

Physical activity (PA) was measured by using a self-report PA questionnaire (using the CAPI technique) to obtain PAL levels. The International Physical Activity Questionnaire - short form (IPAQ-SF) was used to assess physical activity levels. This questionnaire has been extensively validated in previous studies (Lee et al., 2013).

For adolescents, the same questionnaire (IPAQ-SF) was used, with some minor modifications, since self-reported physical activity questionnaires is considered as suitable for adolescents (Guedes et al., 2005).

3.3.2. Measurement of body weight and height

Body mass and height were collected using actual measurements performed by the trained interviewers following a standardized protocols considering also the instructions from PANCAKE and PILOT-PANEU projects.

Respondent' mass and height were measured at their home in light clothing and without shoes. The body mass was measured to the nearest 0.1 kg using a calibrated digital mass scale with a bioimpedance analyser (Tanita BC-730, Japan). The height was measured to the nearest 0.5 cm with a measuring tape and wooden corner block with the head positioned in the Frankfort horizontal plane. The measurements were performed preferably at the first home visit.

In addition for adults and elderly, body fat, body water, muscle mass and bone mass were measured for all respondents to assess the body composition with calibrated digital mass scale with a bioimpedance analyser (Tanita BC-730, Japan) using the included algorithms (Tanita, 2014).

3.3.3. Food supplements

For food supplements consumed in the preceding day, information was collected through OPEN app. The app collect data on the supplement name, technological form (drops, tablets…) and quantity consumed (e.g 1 tablet/day) according to their instructions for use.

It was impossible to collect the unit weight of the consumed food supplement by the interviewer at the time of the home visit; therefore, as much information as possible about the product was collected during the visit (including the brand name and photo of the product) and then obtained the data from Database of Food Supplements in Slovenian market. In the case that the unit weight was not available we used the average weight for different types of food supplements as determined by EFSA (EFSA, 2018), taking into account the reported consumption (number of drops, tablets, capsules).

The FPQ also collected the usual consumption frequency of 15 different food supplements in the last 12 months. The frequency options were: never, 1-3 times per month or less, once per week, 2-3 times per week, 4-6 times per week, 1-2 times per day or more. The questionnaire further asked about the specific vitamins and minerals containing in supplement and the place of purchase (e.g. food store, website, fitness).

4. Administration of the interview

4.1. Selecting the examination site

Face-to-face interviews and anthropometric measurements were performed at the respondent's home during visits.

4.2. Content and organization of the study visits

Figure 2 illustrates the organisation of the data collection according to the age group of the selected individual.

1st CONTACT (HOME VISIT)		
Tools	**Activities** (app. 60 minutes)	**Outcomes**
Motivational and supportive materials (paper and elect. forms)	Presentation and motivation for conducting a survey	Consent to the survey (a signed statement)

Incentives for the respondent		
Notebook with uploaded SurveyToGo app. to perform general questionnaire Showcards (paper form)	CAPI – computer assisted personal interview	Collected data from general questionnaire (GQ2A or GQ2B), including Food Propensity Questionaire
Notebook with uploaded OPEN app. to perform food recall 24h recall (paper form) Picture book for the estimation of portions (paper form)	CAPI – computer assisted personal interview	Collected data from the 1st 24h recall
Digital mass scale with a bioimpedance analyser Measuring tape Wooden corner block	Anthropometric measurements Adolescents: body height, body mass Adults: body height, body mass, body fat, muscle mass, body water	Collected anthropometric information
Picture book for the estimation of portions (paper form) and 24h recall (paper form) that remain to the respondent	Announcement of 2nd 24h recall	The agreed date for completion the 2nd 24h recall

Within three weeks interval

2nd CONTACT (TELEPHONE OR HOME VISIT)		
Tools	**Activities** (app. 30 minutes)	**Outcomes**
Phone Notebook with uploaded OPEN app. to perform 24h recall 24h recall (paper form) Picture book for the estimation of portions (paper form)	CATI/CAPI – computer assisted telephone/personal interview	Collected data from the 2nd 24h recall
Notebook with uploaded OPEN app and SurveyToGo app.	Controlling entered data in OPEN app and answers in SurveyToGo app.	Checked and completed data for each respondent

Figure 2: Organisation of the data collection in adolescents, adults and elderly (10-74 years) in the SI.Menu 2017/18, survey on adolescents, adults and elderly

4.2.1. First contact

Selected individuals were invited by an invitation letter together with an information leaflet. Within two weeks after reception of these documents the selected individuals were contacted by the interviewer on their home address.

In accordance with the methodological guidelines each interviewer needed to make at least five contact attempts with the selected individuals before they were classified by the interviewer as non-

contactable. In case of low response rate at specific sampling unit, another interviewer was sent to this primary sampling unit to double check the situation.

This first contact (face-to-face) was the opportunity to check the receipt of invitation letter and to explain further the survey, determine the eligibility of the selected person and obtain consent for participation.

After agreement of selected individuals to participate to the survey, the first interview was performed.

4.2.2. First interview

The first interview took place at the respondent's home address and was consisted of:

- 24h recall: a computer- assisted personal (face-to-face) interview (CAPI) with the support of picture book and household measurements to provide complete food consumption data;
- explanation and administration of GQ and FPQ;
- anthropometric measurements by using calibrated instruments;

Before the beginning of the interview, the interviewer went through an information form explaining the survey in more detail (including the confidentiality and use of results of the survey) with the respondent. Subsequently, the informed consent was signed by the respondent or the parent(s)/legal guardian(s) of respondents younger than 18 years old.

Just prior the interview each respondent was asked to fill in a quick list of food and drinks consumed on a previous day in a free writing style by estimating portions in household measures. Based on that information, the first 24-hour recall was performed using OPEN app. During the interview portion sizes were estimated by a combination of picture book (photos of reference foods with their actual gram weight) and household measurements with their actual gram weight (spoon, cup, glass, etc.).

Afterwards, other information was collected with a face-to-face general questionnaire (GQ) using the CAPI technique. The answers were directly entered into a portable computer. During the interview, respondents received a showcards showing the possible answer categories on complex or sensitive questions (e.g. paper FPQ and questionnaire on health, smoking behaviour in adolescents).

Finally, anthropometrical measurements were performed by digital mass scale with a bioimpedance analyser, measuring tape and wooden corner block. In addition, in adults and elderly body composition was measured with a mass scale that included a bioimpedance analyser (Tanita, BC730, Japan). All results were directly entered into a portable computer.

At the end of the first home visit, a picture book and 24h recall (both paper form) were provided to the respondent for second interview occasion and a date for second interview was scheduled.

4.2.3. Second interview

The second interview was administered by telephone and consisted of:

- 24h recall: a computer-assisted telephone interview (CATI) with the support of picture book and household measurements to provide complete food consumption data. In case of low response rate, same groups were interviewed face-to-face during the second home visit;
- controlling entered data and answers. The interviewer quickly had to check the entered data and answers from first interview and completeness of questionnaire.

4.2.4. Interviewing and checking questionnaires

All interviewers were provided with a portable computer containing all the necessary software to perform the 24-hour recall (OPEN app) and CAPI questionnaires (SurveyToGo® software, a computer-assisted interviewing system), a two different versions of picture book for determining portion sizes during the 24-hour recall, extensive methodological guidelines and the showcards showing the possible answer categories for the CAPI questions. Interviewers were also provided with measuring tape, wooden corner block and digital mass scale with a bioimpedance analyser for anthropometrical measurements as well as practical incentives for respondents.

With the CAPI mode, the responses to the questionnaires (for other information) were directly entered into a portable computer. This mode enables automatic controls and redirections within the questionnaire. Anthropometrical measures were also registered with the CAPI system during the second home visit.

Fieldwork was organised in accordance with internal procedures and the contract signed with the sub-contracting company conducting the interviews. The work of each interviewer was continuously checked and their payment relayed on the completeness of collected data for each individual respondent. These quality assurance controls were foreseen by subcontracted company for performing the interviews. Weekly reports on response rates were prepared (including the numbers of eligible and non-eligible persons, soft and hard refusals, non-contacts, etc.). Besides, data collected with CAPI interviews and 24-hour recalls were weekly checked to assess their completeness or inconsistencies.

There were also nominated supervisors for the survey that control the fieldwork. They checked approximately 15 % of conducted interviews per each interviewer. Respondents were informed in advance that the controls of the interviewers' work is foreseen. If the control showed any deviations for a particular interviewer, a 100 % control were conducted for this specific interviewer. The control included specific oriented question s for selected respondents.

After participation, each respondent received a small incentive to be motivated to complete the survey (such us glass water bottle, bib, headphones, umbrella, ice bags, etc.).

4.3. Recruitment and training of the staff

4.3.1. Selection of the fieldwork staff

In the selection process of interviewers, those with a background in human nutrition, dietetics or food sciences (minimum B.Sc.) or with strong background in interviewing techniques with similar content (health, nutrition, etc.) have been favoured as specified in the call for tender. Interviewers had to sign a contract with the company conducting the interviews. For each PSU (initially) 8-10 interviewers were selected, resulting in total of 30 interviewers.

Interviewers were recruited separately for different regions of Slovenia. All interviewers have been selected with the help of consortium partner and subcontracted company. The NIJZ as project leader authorised all selected interviewers.

4.3.2. Training

All interviewers received a collective two-day training, which was held a few days before the start of the fieldwork period. Selected interviewers were trained by professionals in human nutrition and interviewing techniques from NIJZ and consortium partners, as well as from subcontracted company, which has a lot of experience with interviews in surveys. Basic training of interviewers were handled in accordance with internal procedure called "Education for quantitative research". All interviewers had

to attend a two day methodological course with practical examples. They received methodological instructions, questionnaires, access to the dietary software, and picture books.

The training course, performed at the subcontracted company in Ljubljana, included:

- organizational issues,
- basic interviewer's skills (technical instructions for performing the interview, introduction of survey methodology, methods to improve response rate, instructions on how to approach the selected persons, etc.),
- presentation of the content of the questionnaire,
- presentation of CAPI technique and the SurveyToGo,
- food diaries instructions and 24h-recall methodology,
- handling with the OPEN app,
- performance of anthropometric measurement,
- workshop with practical examples.

The goal of training course was to conduct high quality interviews, to act in sensitive manner and to protect the confidentially of the respondent at all times.

Interviewers were provided with an extensive methodological guideline describing general survey information, the protocol for home visits and telephone calls, the content of the questionnaires, the anthropometrical measuring protocol and the user manual for the CAPI questionnaire. For OPEN app the partners from Jožef Stefan Institute prepared a separate detailed manual.

In addition, all interviewers were asked to read methodological instructions once more at home and to contact survey coordinator the day before they started with the interview.

After three quarters of the fieldwork, we carried out a refreshing one-day training, where we presented the previous course of the survey and distributed practical gifts to the interviewers. They provided valuable information of their experiences on the survey from the field.

New interviewers recruited during the course of the fieldwork received the same training, but at an individual or smaller group basis.

5. Quality assurance

Quality assessment principles were effectively implemented to continuously improve the quality of deliverables. Previous to the survey, as a part of the quality assurance, a pilot study was done to test the methodology, questionnaires and tools. The sample for the pilot survey was selected "on-purpose" to achieve different population groups. The pilot study was carried out under a strong supervision of survey methodologists and nutritionists, responsible for methodology of the survey. On the basis of pilot results, the final version of the dietary survey design and supporting tools were prepared.

The following measures were taken to ensure the quality principles of the project:

5.1. Organization of the survey

- Tasks, competences and responsibilities of all Work Packages were well defined;
- Highly motivated, qualified and responsible personnel participated in each step of the survey;
- Task were organised in five Work Packages, employed in different time periods;

- The specific management structure ensured the partners to exchange views and solve potential problems as well as follow the progress of the project and take decisions;
- Each member of the core group of the consortium has defined internal project working group, responsible for the implementation of the project tasks at partner level. They had regular meetings;
- All partners were obliged to report to the coordinator on the progress of the project at least every six months
- Scientific committee consisted of one researcher from each partner with one additional member from the core group;
- Steering committee consisted of one senior representative from members of core group and representatives of ministries;
- Communication and specific meetings between different working groups, scientific committee and steering committee were arranged when needed;
- All prepared deliverables were checked according to the quality control and assessment plan by Scientific Committee to guarantee for their quality and their timely submission to EFSA.

5.2. Sampling

- The sampling protocol selected ensured representativeness by gender and age classes (10-17/18-64/65-75 years);
- Response and non-response rate was controlled;
- The sample was prepared by a professional institution (Statistical Office of the Republic of Slovenia) from the CRP.

5.3. Field work

- Only interviewers with a background in human nutrition, dietetics or food sciences (minimum B.Sc.) or with strong background in interviewing techniques have been favoured;
- Fieldwork were handled in accordance with internal procedures. Weekly reports on response rates were prepared (including the numbers of eligible and non-eligible persons);
- The database was checked regularly to assess the basis quality controls and completeness of data.
- The supervisors were nominated for the survey. They checked approximately 15 % of conducted interviews per each interviewer;
- Details on field work supervision are given in point 4.2.4.

5.4. Data entry

- OPEN dietary software was upgraded to support 24h recall and food diary methods;
- Systematic quality controls were performed throughout the data input procedure to avoid missing collecting of mandatory information and foods that are easily forgotten to be recorded during interviews;
- Automatic checks were performed for daily energy intake control, which had to be within expected range for different age and gender groups. The software calculated energy intake during the 24-h recall session as well as on a daily basis;

- Screen warnings appeared when there were inconsistencies or partially erroneous
- data;
- Maintenance procedures were kept regularly for food, recipe and food supplement databases. New data were also indexed by FoodEx2;
- Storage, output and export of all the SI.Menu 2017/18 survey databases were foreseen.

5.5. Data cleaning of the food consumption data

- Two team members from NIJZ with high nutrition knowledge regularly checked to assure quality criteria in this project;
- A supervisor, nutritionist, checked all interviews according to the quality control and assessment protocol, looking for inconsistencies, for example:
  - very high or very low consumption amounts;
  - reporting of foods that are expected to be thermally treated as raw (e.g. raw pasta, raw meat);
  - reporting of foods which are normally assumed to be prepared with liquid (e.g. instant porridge and cocoa powder without milk);
  - dishes defined as undefined dishes (no exact recipe);
  - food items unrelated to the interviewee's age (whole nuts, spicy food in children under one year old; infant formula in adults, etc.);
  - the same food is eaten several times a day (eg. the same fish or the same meat);
  - respondents who identified themselves as vegetarians or vegans consumed meat etc.

5.6. Anthropometric measurements

- A pre-determined protocol for collecting anthropometric data was followed;
- Repeated measurements were performed if measurements seemed incorrect;
- Quality control of devices: instruments were calibrated and validated.

5.7. Food consumption amounts

- Consumed amounts for every food item and individual consumption were checked for detecting odd data (very low or high amounts for a specific food item). Food weight or volume data were compared with standard or commercial portions, recipes, recommendations, etc.

5.8. Energy intake

- Energy intake was checked as a final control, which had to be within expected range for different age and gender groups.

6. Data management

The data management process was designed bearing in mind that the reliability of the collected information should be ensured from the field work, carried out by the interviewers to the final users of

the consumption data. Collected information, either by phone or by face-to-face interviews, was transferred online to the host system and was systematically backed up.

Each user (interviewer or administrator) of the OPEN app had a personal identification and password. Moreover, different levels of accessibility were established: e.g. interviewers were only allowed to the data entry level, supervisor had all power. Code numbers were assigned to each respondent and personal data were allocated in separate files than those containing other information. Each instrument of data collection: Survey questionnaire, 1st and 2nd 24h recall, 1st and 2nd Food Diary generated an independent data base, which could be only combined together through the respondent code.

All food consumption and related data were checked (skip checks, validation checks, consistency checks etc.) and cleaned, and are stored on OPEN web server and in the NIJZ server according to internal acts (The life-cycle of NIJZ databases; The protocol of data processing). All data in the database was stored according to all the variables available, coded according to the data model.

Food consumption and related (transmission) datasets were provided to EFSA according to a common data model defined by EFSA and through Data Collection Framework. Before that, all foods and facet descriptors were coded according to the FoodEx2 food classification and description system. Data were divided in three files: Subject, Food and Consumption file.

7. Dissemination and publicity

The main results of the SI.Menu 2017/18 survey on adolescents, adults and elderly will be available for general and professional public in statistical publication, which will be published on the website (http://www.nijz.si/). As the survey is also included in the EU Menu project, the food consumption data coded according to the FoodEx2 classification will be included and made available in the EFSA Comprehensive European Food Consumption Database.

Original dataset will be available for the national risk assessment agency and for any other potential users for research and statistical purposes under certain conditions. An agreement with researcher / research agency on data transmission will be required. General terms and conditions for the use of those data are available on NIJZ web page.

The consortium partners were committed to developing ways to increase use of the data by external researchers in order that this rich resource may be put to full use. As indicated above, the set of conditions ensures that data are correctly interpreted and takes a disciplined approach to its use at all times. In order to maintain a comprehensive archive as a resource for internal and external use, careful monitoring of the use of data and related publications is necessary through certain procedures.

8. Special issues/challenges

No special issues arose during the survey, therefore, it was not necessary to implement any of major deviations. However, different challenges listed in Table 4 had to be faced and were solved without any disruption of the survey progress. Most of the challenges were foreseen thanks to previous experience of similar surveys and projects.

Table 4: Main expected challenges and issues in the SI.Menu 2017/18 dietary survey

Work Package	Special issues/challenges
Adaptation and development of the survey methodology according to the EFSA EU MENU methodology.	- Time consuming - Cooperation was needed with many other institutions
Adaptation and development of dietary software and supporting tools according	- Mapping of Slovenian foods to the FoodEx2 classification

to the EFSA EU MENU methodology.	(although most of food items are already connected with FoodEx2 codes) - Software updates during the fieldwork
Methodological guidelines for interviewers training and the pilot survey.	- Difference (dis-advantages) between interviewers with and without nutrition background - Interviewers with nutritious background should or should not participate in any dietary or health advice giving
Preparation of the sample, collecting the data from fieldwork.	- Response rate - Outsourcing (although we have good experience with some previous surveys) - Sample points (100 households represents one sample point) - Length and complexity of interview - Emerge conditions (floods, bad weather)
Data preparation and harmonization to the EFSA.	- Datasets validation (corrections in datasets….)

Conclusions

The SI.Menu 2017/18 survey was conducted in years 2017 and 2018 in Slovenia to collect recent food consumption data in adolescents (10-17 years), adults (18-64 years) an elderly (65- 74 years).

At national level, the survey provided valuable information regarding eating habits, nutrient intake, consumer's habits and food allergy, food supplements use, life-style, physical activity and health. Furthermore, the food consumption data will be useful for national risk assessments, nutritional studies and the development and evaluation of nutrition or health policies, especially for evaluation of Slovenian new food and nutrition action plan. The results of the SI.Menu 2017/18 survey will be also valuable for the preparation of national food-based dietary guidelines.

Slovenia applied to EU Menu project as consortium, consisting of several partners from academia, institutes and hospitals. It turned out that this way of work is highly effective and as a consortium continue research on food and nutrition and apply on national and European scientific projects. Being part of EU Menu project was also an opportunity for our national dietary software provider, which have enabled us to fully harmonise our project with EFSA requirements. Due to the limited number of dietary experts, this project was an opportunity to create a national network of experts.

At European level, the participation of the SI.Menu 2017/18 in the EU Menu project has been very beneficial because of the high level of standardization of the survey methodology and its quality assurance. Although the coding of the food consumption according to the FoodEx2 classification after data collection required an extra effort, the inclusion of the Slovenian consumption data in the EFSA Comprehensive European Food Consumption database is considered to be valuable for future dietary exposure assessments at European level.

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Glossary / Abbreviations

CAPI	Computer assisted face-to-face interview
CATI	Computer assisted telephone interview
CRP	Central Register of Population in Slovenia
Diets2	Dieticians ensuring education, teaching and professional quality
EFSA	European Food Safety Authority
FoodEx	Food classification and description system developed by EFSA
EGFCD	EFSA Expert Group on Food Consumption Data
EPIS-Soft	software developed to conduct 24-h dietary recalls in the European Prospective Investigation into Cancer and Nutrition (EPIC) Study
EuroDISH	Studying the need for food and health research infrastructures in Europe
EuroFIR NEXUS	The EuroFIR Food Platform: Further integration, refinement and exploitation for its long-term self-sustainability
FPQ	Food Propensity Questionnaire
GQ	General Questionnaire
IARC	International Agency for Research on Cancer
IJS	(Inštitut Jožef Stefan) Jožef Stefan Institute
IPAQ	International Physical Activity Questionnaire
ISO-FOOD	Era chair for isotope techniques in food quality, safety and traceability
NIJZ	(Nacionalni inštitut za javno zdravje) National Institute of Public Health of the Republic of Slovenia
KME	National Medical Ethics Committee
NMEC	National Medical Ethics Committee
NUTRIS	(Inštitut za nutricionistiko) Nutrition Institute
OPEN	Open platform for clinical nutrition, developed by IJS
QuaLiFY	Quantify Life Feed Yourself
PANGeA	Physical Activity and Nutrition for Great Ageing
PANCAKE	Pilot study for the Assessment of Nutrient intake and food Consumption Among Kids in EU
PeK	(Pediatrična klinika) University Medical Centre Ljubljana, University Children´s Hospital
Pilot-PANEU	Pilot study in the view of a Pan-European dietary survey - Adolescents, adults and elderly
PANGeA	Physical Activity and Nutrition for Great Ageing
PIN	Personal identification number

PPS	Probability proportional to size
PSU	Primary sampling Unit
RFID-Far2Fork	European project funded through the CIP ICT PSP programme
SAAM	Supporting Active Ageing through Multimodal coaching
SI.Menu	Slovenian national dietary survey
UKC Pek	(Pediatrična klinika) University Medical Centre Ljubljana, University Children' s Hospital
UL BF	(Biotehnična fakulteta) University of Ljubljana, Biotechnical Faculty
UL PF	(Pedagoška fakulteta) University of Ljubljana, Faculty of education
UM FZV	(Fakulteta za zdravstvene vede) University of Maribor, Faculty of Health Sciences
UP FVZ	(Fakulteta za vede o zdravju) University of Primorska, Faculty of Health Sciences
WP	Work Package