Advisory Council on Food and Environmental Hygiene

Findings of the Second Hong Kong Population-based Food Consumption Survey

Purpose

This paper briefs Members on the main findings of the Second Hong Kong Population-based Food Consumption Survey (2nd FCS) conducted by the Centre for Food Safety (CFS) of the Food and Environmental Hygiene Department.

Background

2.   The CFS adopts a food safety regulatory strategy based on the risk analysis model as recommended by the World Health Organization and the Food and Agricultural Organization of the United Nations.   Risk analysis model is conducive to a targeted food safety control approach, prioritisation of work and optimal resource utilisation.   Many economies adopt this model as their food safety regulatory strategies.   The risk analysis model is based on risk assessment, management, and communication, which are inter-related.

Significance of Food Consumption Data

3.   Risk assessment involves scientific evaluation of the food safety risk that the population faces due to their exposure to various chemicals through daily food consumption.   Integration of food consumption data (i.e. what people are eating and the amount) and data on the levels of hazards present in food enables the quantification of dietary exposure to these hazards and in turn the assessment of the potential risk to the population.   The risk assessment results provide scientific basis for the CFS to formulate and deploy appropriate risk management measures, and

prepare appropriate food safety messages. Many economies conduct food consumption surveys periodically to keep the food consumption data of their populations updated in support of risk assessment.

4.   The First Hong Kong Population-based Food Consumption Survey was conducted between 2005 and 2007, the findings of which has been widely applied in CFS' work.   For instance, the CFS has used the food consumption data to conduct a Total Diet Study, the results of which revealed that dietary exposure to mercury[1] among women of childbearing age is a potential public health concern, because exposure to mercury during pregnancy could incur potential risk to foetal development.   With reference to the findings, CFS has been able to set work priorities, including the enhancement of advice on fish consumption for pregnant women and women planning for pregnancy, the review of relevant legislation, etc.   In addition, the Food Adulteration (Metallic Contamination) (Amendment) Regulation set the maximum levels for cadmium in foods.   In the process, the CFS used the local consumption data of cooked rice and in the presence of scientific substantiation, proposed to set a maximum level for cadmium in polished rice that was more stringent than that of the standard of the Codex Alimentarius Commission, with a view to protecting public health.   In gist, the data obtained from food consumption survey is a cornerstone of CFS' food safety risk assessment work, which is conducive to more focused and proportionate measures for regulatory control of food safety in Hong Kong, calibrated in accordance with the known risks associated with the food concerned.

Main findings of the 2nd FCS

5.   The 2nd FCS was a household survey covering the Hong Kong adult population, with an objective to gauge the latest food consumption pattern and obtain up-to-date food consumption data.   Data collection of the survey commenced in April 2018 and ended in February 2020.   A total

---

[1] Mercury is a metallic element which exists naturally in the environment in abundance and in different forms.   Methylmercury is the most toxic form of mercury.   Mercury can be found in fish, particularly larger predatory fish.

of 3 752 respondents aged 18 or above were successfully enumerated, and the response rate was 53.4%.

6.   The survey used two non-consecutive days of 24-hour dietary recall and a food frequency questionnaire to obtain food consumption estimates.   24-hour dietary recall is an internationally well-recognised method used in food consumption surveys.   Interviewers would invite the respondents to recall all food and drinks consumed over the previous day, and would prompt follow-up questions with reference to the responses given by the respondents with a view to collecting comprehensive dietary information and understanding the intake amounts of food and drinks commonly consumed by the population.   Food frequency questionnaire, on the other hand, is a supplementary research instrument used to understand the intake amounts of certain food and drinks (such as seasonal food and festive food) which are part of the local diet but not necessarily commonly consumed throughout the year.   Furthermore, respondents' body weight data as well as basic demographic information (including gender and age) were also obtained for facilitating the interpretation of the food consumption information collected.

7.   The 2nd FCS has provided the latest set of food consumption data comprising the daily intake amounts of 30 food groups, 160 food subgroups and over 1 500 food items.   The key findings are provided at **Annex I**, whilst some key food consumption amounts are summarised as follows:

    i.   The total consumption of solid food and liquid food (including water) were 1.15 kg/day and 1 741 ml/day, respectively, on average.

    ii.   Cereals and grains products were consumed in the amount of 395.31 g/day on average.   Bakery wares and Chinese pastry, a food group closely related to cereals and grains products, were consumed in the amount of 45.56 g/day on average.

    iii.   Vegetables and fruits were consumed in the amount of 202.65 g/day and 120.31 g/day, respectively, on average.

    iv.   The consumption of meat and poultry were 78.36 g/day and 32.12 g/day, respectively, on average.   Fish was consumed in the amount of 43.54 g/day on average.

v. The consumption of egg and egg products was 26.44 g/day on average. Milk and dairy products were consumed in the amount of 24.86 g/day on average.

vi. Regarding local favourites, dim sum was consumed in the amount of 48.05 g/day on average, whereas siu-mei and lo-mei was consumed at 15.34 g/day on average.

8. The survey report would be released in June 2021 through the CFS website. In addition, summary results of the food consumption data included in the survey report would also be uploaded to DATA.GOV.HK. for download and use by public members and academic institutions.

Way Forward

9. With the availability of the latest set of food consumption data, the CFS will continue to make reference to and use the latest data to conduct daily food safety risk assessment work, various risk assessment studies and Total Diet Study, as well as to review the Food Surveillance Programme to support local food safety standards and regulatory approaches as appropriate, with a view to safeguarding food safety in Hong Kong. On the other hand, the information collected from the survey can also serve as additional reference for health authorities to formulate public health policies and review resource allocation, with a view to facilitating the prevention and control of non-communicable diseases in relation to diet and nutrition of the local population. The information collected from the survey can also be made available to academic institutions for conducting research on the association between dietary pattern and diet-related health problems in Hong Kong.

Advice Sought

10. Members are invited to note the main findings of the 2nd FCS.

Centre for Food Safety
Food and Environmental Hygiene Department
June 2021

The Second Hong Kong Population-based Food Consumption Survey
Summary of Key Findings

The Second Hong Kong Population-based Food Consumption Survey (Survey) was conducted in Hong Kong in 2018-2020 to investigate the food consumption of Hong Kong adults aged 18 or above to obtain up-to-date food consumption information and facilitate food safety risk assessment work of the Centre for Food Safety (CFS).

The main objective of the Survey was to obtain food consumption information, especially, the types and the amount of food consumed by the Hong Kong population. In addition, some basic anthropometric and demographic information of the respondents enumerated in the Survey were also obtained for facilitating the interpretation of the food consumption information collected.

For each respondent, two 24-hour dietary recall (24HDR) interviews were conducted on two non-consecutive days by asking each respondent to recall all foods and beverages consumed in the previous 24 hours.   The interviewers collected the data using the multiple pass interviewing process and such data were entered into the HKDiet System that was developed by the CFS.   In addition, food consumption information of some selected food items was also collected under the "Food frequency questionnaire" (FFQ).

A two-stage sampling design was adopted in the Survey.   A representative sample list containing replicates of quarters was drawn from the database "Frame of Quarters" maintained by the Census and Statistics Department. One target respondent from each household of the living quarters was randomly selected for the interview through the Kish grid method.   In order to estimate and analyse the food consumption pattern of the population, a statistical grossing up process was adopted before analysing the data.

The potential target respondents of this Survey were the land-based non-institutional population of Hong Kong aged 18 or above who speak

Cantonese, Mandarin or English.　A total of 3 752 respondents completed the Survey, representing 53.4% of eligible respondents sampled in the Survey.

Food Consumption Information

Based on the information collected from the 24HDR interviews, the Survey has obtained an updated set of food consumption data comprising the average daily intake amounts of 30 food groups and 160 food subgroups consumed by the Hong Kong population.　Hong Kong adults, on average, consumed a total of 1.15 kg of solid food and 1 741 ml of liquid food (including water) per day.　Based on the average daily food intake amount consumed by the population, the findings on some major food groups are presented as follows.

Cereals and grains products were consumed in the amount of 395.31 g/day, 61.2% (242.12 g/day) of which was from the rice subgroup. Pasta/noodle from all origins (including rice, wheat, etc.) made up another 36.4% (143.72 g/day) of the cereals and grains products group.

Bakery wares and Chinese pastry is a food group closely related to cereals and grains products because the foods in the former food group contain a significant proportion of cereals and grains ingredients.　Bakery wares and Chinese pastry were consumed in the amount of 45.56 g/day, around 70% of which was from bread/roll (31.51 g/day).

Vegetables and fruits were consumed in the amount of 202.65 g/day and 120.31 g/day respectively.　Leafy vegetables and brassica vegetables contributed over half (112.04 g) of the daily vegetables consumption. Another 16.8% was from fruiting vegetables and squashes/gourds (34.05 g).　Slightly less than 10% (19.83 g) was from root vegetables/tubers. Citrus fruits contributed to around one-third (41.10 g/day or 34.2%) of the daily fruit consumption.　Another 26.0% was from pome fruits (31.29 g/day).

Meat and poultry were consumed in the amount of 78.36 g/day and 32.12 g/day respectively.　For the meat group, around 70% of the amount

consumed was from pig other than offal (54.77 g/day).   Another 24% was from cattle/calf other than offal (18.63 g/day).   As for the poultry group, over 95% of the amount consumed was from chicken other than offal (30.63 g/day).   **Fish** was consumed in the amount of 43.54 g/day.

The consumption of **egg and egg products** was 26.44 g/day, more than 95% of which was from chicken eggs.   **Milk and dairy products** were consumed in the amount of 24.86 g/day, of which over three-quarters (19.56 g or 78.7%) was from milk, milk beverage and dried milk.

Regarding local favourites, **dim sum** (a large range of small Chinese dishes that contain various ingredients or fillings) was consumed in the amount of 48.05 g/day, whereas **siu-mei and lo-mei** (a group of mainly meat and poultry products which have been barbequed, roasted or marinated) was consumed at 15.34 g/day.

Through the use of FFQ, the Survey has also obtained food consumption data of some selected seasonal foods (e.g. longans and lychees) and festive foods (e.g. Chinese New Year pudding and baked mooncake) which might be less likely to be captured from the 24HDR interviews, as well as some other foods which were of special interest for food safety/risk assessment (e.g. raw oysters and swordfish sashimi).