“Mon Alimentation Sur-Mesure”, a tailored nutrition counselling web application based on mathematical diet optimization

Context:
Tailored approaches

“any combination of information or change strategies intended to reach one specific person, based on characteristics that are unique to that person [...] and have been derived from an individual assessment.” [Kreuter, Ann Behav Med, 1999]

1. Declaration
   e.g. Fruits and vegetable intakes
2. Comparison to a
   recommended value
3. Selection of a pre-
   conceived tailored advice from a library
4. Transmission of
   the advice

→ Tailored dietary behavior change interventions: small and significant effect on dietary behavior change, but usually target a few food groups or nutrients, without evaluating the overall diet

Objective:
The aim of this work was to combine tailored approaches and individual diet optimization in a web application of tailored nutrition counselling.

Method and result:
Development of “Mon Alimentation Sur-Mesure”

→ A web application to improve the nutritional quality of the whole diet of adults without major disease

Web application based on behavior change techniques (BCT) [Michie, Psych.&Health, 2011]

Functionality of “Mon Alimentation Sur-Mesure”

Functionality 0: Creation of a personal account and login

Functionality 1: « My Profil »

Food frequency questionnaire

[Gazan, Front Nutr, 2017]

Personal information

Physical activity

All questionnaires are completed ?

If yes, allow the access to :

Functionality 2: « My current diet »

Food frequency questionnaire

- Overview of food consumption, diet cost, physical activity level

- Overview of nutritional intakes

Energy and macronutrients

Intakes, dietary quality scores, vitamins and minerals intakes

Legend: 🌟 User action is required

Functionality 3: « My dietary advices »

Food frequency questionnaire

Selection of foods to exclude

(for food preferences, health reason, etc.)

Choice of a scenario

OPTIMIZATION

Exhaustive list of dietary changes (increase and decrease of foods, in portions) needed to reach nutritional adequacy

Selection of dietary advices that the user considers achievable

1 Three diet optimization scenarios were implemented, adapted to different ways to change food consumption such as:

“I prefer to improve the nutritional quality of my diet:

Scenario 1: ...by privileging small variations on some foods that I already consume, and agreeing to consume new foods if necessary.”

Scenario 2: ...without changing the type of food I consume but favoring variations on the amount of these foods”.

Scenario 3: ...by changing the amounts of what I already eat, and adding new foods if necessary.”

Conclusion:
Using “Mon Alimentation Sur-Mesure”, the user is actor to his/her dietary changes. The web application could be a future online health promotion tool:

- to help individuals to improve their diet,
- to serve as a decision-support tool for health professionals.

The evaluation of the tool is warranted before use in the field of health promotion.