

# Evaluating mobile prototypes utilization of individual meal recording

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<b>Registration date</b> 05/04/2018	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 18/02/2019	<b>Condition category</b> Nutritional, Metabolic, Endocrine	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

There is a great need for new dietary assessment methods that not only provide valid data, but also suit the lifestyles of different types of users. In mHealth app development, prototypes commonly evolve from concept in more than one design variant. The usability of these design variants are rarely subjected to systematic evaluation, and lack comparative evidence from user interaction. The aim of this study is to evaluate and compare the effectiveness of two app designs.

### Who can participate?

University students aged over 18 recruited from Chang Gung University (18-29 years old), and older adults recruited among volunteers from Chang Gung Memorial Hospital (55-73 years old)

### What does the study involve?

Participants are randomly allocated to use of one two application prototypes. The first application is called self-chosen tab (SCT), and allows users to choose and click each food ingredient to synthesize a food. The second application is called autonomous exhaustive list (AEL), in which users scroll through and select from a comprehensive list of combined food ingredients. The research assistant demonstrates the use of the application through one meal with four food items to familiarize participants with application operation. After the demonstration, each user is allowed to practice application operation for three minutes to warm up. Each participant is asked to observe two actual meals and to record each item in one prototype. The meals are prepared with real food in appropriate portions, and presented consistently on a plate throughout the experiment. Each participant completes the task within 30 minutes. Application usability is assessed in terms of accuracy and response time in the task of reporting the food items. Participant's time and input of the buttons in each app is automatically recorded by the prototype.

### What are the possible benefits and risks of participating?

There are no risks of taking part in the study.

### Where is the study run from?

Chang Gung University (Taiwan)

When is the study starting and how long is it expected to run for?  
June 2014 to January 2015

Who is funding the study?

1. Ministry of Science and Technology (Taiwan)
2. Research Fund of Chang Gung Memorial Hospital and Chang Gung University (Taiwan)

Who is the main contact?

1. Dr Ying-Chieh Liu
2. Dr Sherry Yueh-Hsia Chiu

## Contact information

### Type(s)

Public

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## Additional identifiers

**Protocol serial number**

103-2745B

## Study information

**Scientific Title**

Evaluating mobile prototypes utilization of individual meal recording using a randomised trial

**Study objectives**

The aim of this study is to assess the accuracy and efficiency of the two prototypes for dietary recording utilization, including innovative designs of SCT (self-chosen tab) and AEL (autonomous exhaustive list) for individual dietary intakes.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Ethics Committee of Chang Gung Memorial Hospital, 23/06/2014, ref: 103-2745B

**Study design**

Randomised parallel trial

**Primary study design**

Interventional

**Study type(s)**

Other

**Health condition(s) or problem(s) studied**

Nutrition

**Interventions**

A parallel two-group randomized controlled trial (RCT) was designed to evaluate and compare the effectiveness of two app designs to help users select a wide variety of food alternatives. Two prototypes were implemented in the Android operating system for use in mobile devices. The first application is called self-chosen tab (SCT), and allows users to choose and click each food ingredient to synthesize a food. The second application is called autonomous exhaustive list (AEL), in which users scroll through and select from a comprehensive list of combined food ingredients. Participants were recruited through local hospitals and colleges. Baseline data and informed consent were acquired following online registration. The assessment was performed by a research assistant who began the process by administering a basic background questionnaire. The research assistant then demonstrated the use of both applications through one meal with four food items to familiarize participants with application operation. Participants were given three minutes to complete each task. Having completed the first meal, the participant continued to label the second meal without taking a rest. Recruitment and implementation were performed based on the order of randomization lists with a 1:1 ratio. Individual appointments were then made for evaluation.

**Intervention Type**

Device

### **Primary outcome(s)**

Application usability assessed in terms of accuracy and response time in the task of reporting the food items:

1. Accuracy was defined as the number of correct counts divided by the overall counts. "Correct" was defined as the subject selecting the correct main food ingredient(s) button in the app as well as the correct food attribute(s) button for each of the 12 items, given unlimited switching among food groups and/or subgroups
2. Response time was recorded in milliseconds in terms of the time elapsed from a user's selection (clicking) at a certain main food ingredient button to complete in food attribute(s) selection

### **Key secondary outcome(s)**

There are no secondary outcome measures

### **Completion date**

31/01/2015

## **Eligibility**

### **Key inclusion criteria**

1. University students aged over 18 recruited from Chang Gung University (18-29 years old)
2. 35 older adults recruited among volunteers from Chang Gung Memorial Hospital (55-73 years old)

### **Participant type(s)**

Healthy volunteer

### **Healthy volunteers allowed**

No

### **Age group**

Mixed

### **Lower age limit**

18 years

### **Upper age limit**

73 years

### **Sex**

All

### **Key exclusion criteria**

Those who could not use smartphone or could not communicate with others

### **Date of first enrolment**

30/09/2014

**Date of final enrolment**

10/01/2015

**Locations****Countries of recruitment**

Taiwan

**Study participating centre****Chang Gung University**

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**Study participating centre****Chang Gung Memorial Hospital, LinKuo, Taiwan**

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**Sponsor information****Organisation**

Chang Gung University

**Organisation**

Chang Gung Memorial Hospital

**Organisation**

Chang Gung University

**ROR**

<https://ror.org/00d80zx46>

**Funder(s)**

**Funder type**

University/education

**Funder Name**

Research Fund of Chang Gung Memorial Hospital and Chang Gung University (BMRPB81; BMRPD67)

**Funder Name**

Ministry of Science and Technology, Taiwan (NSC-105-2221-E-182-044; NSC-104-2221-E-182-049)

**Alternative Name(s)**

Ministry of Science and Technology, R.O.C. (Taiwan), Ministry of Science and Technology of Taiwan, MOST

**Funding Body Type**

Government organisation

**Funding Body Subtype**

National government

**Location**

Taiwan

## Results and Publications

**Individual participant data (IPD) sharing plan**

The datasets generated during and/or analysed during the current study are/will be available upon request from Dr Sherry Yueh-Hsia Chiu. This should follow the mechanism governed by the ethical committee agreement.

**IPD sharing plan summary**

Available on request

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	15/02/2019		Yes	No