







# A mobile-based serious game for young adults with disordered eating

<b>Submission date</b> 02/02/2017	<b>Recruitment status</b> No longer recruiting	 Prospectively registered
<b>Registration date</b> 06/02/2017	<b>Overall study status</b> Completed	 Protocol added
<b>Last Edited</b> 15/02/2018	<b>Condition category</b> Mental and Behavioural Disorders	 SAP not yet added
		 Results not yet added and study completed for more than 2 years
		 Raw data not yet added
		 Study completed

## Plain English Summary

### Background and study aims

Disordered eating describes a variety of abnormal eating behaviors that, by themselves, do not warrant a diagnosis of an eating disorder but involve common features of eating disorders such as binge eating (overeating) or restrained eating (not eating enough). Some forms of disordered eating can limit a person's ability to change their lifestyle to improve their health, such as by dieting or avoiding weight gain. Disordered eating that prevents people from losing weight can be associated with several behavioral eating patterns, such as emotional eating which is, in essence, a way of coping with stress and unpleasant emotions through eating. SIGMA (the Self-help, Integrated and Gamified Mobile-phone Application) is an treatment program delivered using mobile phones (mHealth) to target overweight young adults that are at risk for obesity not only because of their weight, but also because of disordered eating habits. The app consists of four modules, one of which is in the form of a game that uses elements of cognitive behavioural therapy (CBT - a type of therapy that helps people to change the way they think and behave) to help change behavior and thoughts towards food. The aim of this study is to find out whether SIGMA can help people to change their behaviour and eat better.

### Who can participate?

Overweight Romanian-speaking young adults that own an Android operating smartphone who have problems with eating (emotional, compulsive or unstoppable eating or cravings) and are feeling depressed.

### What does the study involve?

Participants are randomly allocated to one of two groups. Those in the first group take part in the SIGMA program for eight weeks. This involves completing four of mHealth modules via a mobile phone app. The first module consists of education. The second module is a game which uses elements of CBT to help change behaviour and thought patterns relating to eating. The third module consists of motivational messages, relaxation tools and distraction techniques to prevent relapse in dieting, and the fourth module consists of self-monitoring and feedback. Those in the second group receive a modified version of the SIGMA app for eight weeks, which includes education but without the second module. At the start of the study and then again

after eight weeks and three months, participants complete questionnaires about their eating habits and have body measurements taken.

What are the possible benefits and risks of participating?

Participants may benefit from the CBT element of the program, as this type of therapy has been shown to be very effective at treating a range of mental health problems. There are no direct risks involved with participating.

Where is the study run from?

1. Babeş-Bolyai University (Romania)
2. University of Bucharest (Romania)

When is the study starting and how long is it expected to run for?

May 2017 to November 2017

Who is funding the study?

Romanian Authority for Scientific Research: CNCS-UEFISCDI (Romania)

Who is the main contact?

Dr Ioana Podina

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**Study website**

<http://sigma-mhealth.ro/en/>

## Contact information

**Type(s)**

Scientific

**Contact name**

Dr Ioana Podina

**Contact details**

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## Additional identifiers

**EudraCT/CTIS number**

**IRAS number**

**ClinicalTrials.gov number**

**Protocol/serial number**

## Study information

### Scientific Title

Rationale and study design of an evidence-based gamified mHealth intervention for weight management in young adults with disordered eating: a placebo-controlled randomized trial

### Acronym

SIGMA

### Study hypothesis

The SIGMA intervention will be significantly more effective in promoting change in maladaptive behaviors and cognitive styles, decreasing the maladaptive counterparts and increasing adaptive food-related behavioral and cognitive styles of response.

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

Ethics Commission, Babes-Bolyai University, ref: 30599/06.02.2017

### Study design

Multi-center randomized placebo-controlled trial

### Primary study design

Interventional

### Secondary study design

Randomised controlled trial

### Study setting(s)

Other

### Study type(s)

Treatment

### Participant information sheet

Not available in web format, please use the contact details to request a patient information sheet

### Condition

Irresistible food cravings, emotional eating or binge eating

### Interventions

Selected participants will be randomized in the intervention and control trial arms in a 1:1 ratio. An independent researcher will handle the randomization and the random sequence will be generated using a 1:1 allocation ratio via an online available random number generator (i.e.,

www.randomization.com). The randomization sequence will be concealed from the staff responsible for the enrollment and assignment of the participants in the trial arms, by using the sealed opaque envelopes method.

**SIGMA intervention:** The SIGMA intervention is designed to accommodate four mHealth modules, as follows:

1. The psychoeducation module, where information about the purpose of the app, as well as information about physical activity and dieting is provided
2. The gamified intervention module, consisting firstly in an explicit cognitive-behavioral intervention targeting conscious cognitive and behavioral contents, such as sabotaging thoughts regarding foods and maladaptive eating habits and secondly, in an implicit attention training intervention aimed at addressing an unconscious process, the biased attention towards appetizing stimuli
3. The Crisis & Relapse prevention module, aimed at preventing relapses in dieting, and consisting of motivational messages and coping strategies, relaxation tools and distracting strategies
4. The self-monitoring, feedback, and evolution module

**Attention placebo control:** Participants allocated to the attention placebo control condition will have full access to a modified version of the SIGMA app, which includes all the SIGMA modules except for the gamified intervention module, thus lacking the active/distinctive ingredients of the SIGMA app.

Both interventions are scheduled to take place for 8 weeks. The follow-up evaluation will take place 3 months after treatment conclusion.

## **Intervention Type**

Other

## **Primary outcome measure**

1. Maladaptive cognitive styles are measured using the Eating Disorders Beliefs Questionnaire at baseline, 8 weeks and 3 months
2. Behavioral eating habits are measured using the Dutch Eating Behavior Questionnaire at baseline, 8 weeks and 3 months

## **Secondary outcome measures**

1. Weight is measured using the SIGMA application's embedded self-report forms at baseline, 8 weeks and 3 months
2. Body mass index (BMI) is measured using the SIGMA application's embedded self-report forms at baseline, 8 weeks and 3 months
3. Physical activity levels are assessed by measuring the number of steps taken per day using the SIGMA application's embedded pedometer at baseline, 8 weeks and 3 months
4. General mood is measured using the Positive and Negative Affect Schedule – Short Form at baseline, 8 weeks and 3 months

## **Overall study start date**

01/11/2016

## **Overall study end date**

30/11/2017

# Eligibility

## Participant inclusion criteria

1. Young overweight adults ( $25 \leq \text{BMI} \leq 29$ )
2. Age between 18 and 35 years
3. Non-clinical eating behaviors in the range of irresistible food cravings, emotional eating or binge eating.
4. Owning an Android compatible smartphone

## Participant type(s)

Healthy volunteer

## Age group

Adult

## Lower age limit

18 Years

## Sex

Both

## Target number of participants

74

## Participant exclusion criteria

1. Presence of any medical condition incompatible with physical/dietary recommendations (including pregnancy and type 2 diabetes)
2. Presence of an eating disorder
3. The use of appetite influencing medication and/or current enrollment in other weight-management programs
4. Current depression or any form of psychotic disorder
5. Lack of access to an Android compatible smartphone

## Recruitment start date

05/04/2017

## Recruitment end date

30/06/2017

# Locations

## Countries of recruitment

Romania

## Study participating centre

**Babes-Bolyai University**

Faculty of Psychology and Educational Sciences

No. 7 Sindicatelor Street

Cluj-Napoca  
Romania  
400029

**Study participating centre**  
**University of Bucharest**  
Faculty of Psychology and Educational Sciences  
No. 90 Panduri Street  
Bucharest  
Romania  
050663

## Sponsor information

**Organisation**  
Romanian Authority for Scientific Research (CNCS-UEFISCDI)

**Sponsor details**  
Str. Mendeleev nr. 21-25  
Bucharest  
Romania  
010362

**Sponsor type**  
Research council

**Website**  
<http://www.cncs-nrc.ro/>

## Funder(s)

**Funder type**  
Research council

**Funder Name**  
Romanian Authority for Scientific Research (CNCS-UEFISCDI)

## Results and Publications

**Publication and dissemination plan**

Planned publication in a high-impact peer reviewed journal with an intent to publish around one year after the overall trial end date.

### **Intention to publish date**

30/11/2018

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

The datasets generated during and/or analyzed during the current study are/will be available upon request from [ioana.podina@fpse.unibuc.ro](mailto:ioana.podina@fpse.unibuc.ro)

### **IPD sharing plan summary**

Available on request

### **Study outputs**

<b>Output type</b>	<b>Details</b>	<b>Date created</b>	<b>Date added</b>	<b>Peer reviewed?</b>	<b>Patient-facing?</b>
<a href="#">Protocol article</a>	protocol	12/12/2017		Yes	No