

Poster

Visual Food Diary for Social Support, Dietary Changes and Weight Loss

Heli Salmenius-Suominen^{1*}, BAppSc; Mikko Lehtovirta^{2*}, MD; Henna Vepsäläinen¹, MSc; Hanna Konttinen^{3*}, PhD; Maijaliisa Erkkola^{1*}, PhD

¹Department of Food and Environmental Sciences, Division of Nutrition, University of Helsinki, Helsinki, Finland

²FiMM, Institute for Molecular Medicine Finland, University of Helsinki, Helsinki, Finland

³Department of Social Research, University of Helsinki, Helsinki, Finland

*these authors contributed equally

Corresponding Author:

Heli Salmenius-Suominen, BAppSc

Department of Food and Environmental Sciences, Division of Nutrition

University of Helsinki

PL 66

Helsinki, 00014

Finland

Phone: 358 405036811

Fax: 358 405036811

Email: heli.salmenius-suominen@helsinki.fi

Abstract

Background: To find out to what degree health-improving dietary behavior (eg, increasing consumption of vegetables and fruits) can be furthered in virtual peer support groups moderated by a nutrition professional using a mobile app.

Objective: To find out, to what degree health improving dietary behaviour, for example increasing the use of vegetables and fruits can be furthered in virtual peer support groups moderated by a nutrition professional using a mobile application.

Methods: In this feasibility study, volunteering adult men and women (body mass index [BMI]>25 kg/m²) were recruited both from a diabetes outpatient clinic and from an occupational health care unit. Participants were divided into 3 groups. All participants used a smartphone app that allowed them to keep a visual food journal, share their meals and activity with group members, and receive virtual coaching from a nutrition professional. Outcomes were assessed via surveys at baseline, after the intervention, and 4 weeks later using a food frequency questionnaire (FFQ). Frequency of app use, weight, and waist circumference were estimated at baseline and after the intervention.

Results: Mean weight loss (n=25) after intervention was 1.5 kg (95% CI 0.79 to 2.29), or 1.7% (95% CI 0.89 to 2.5) in all subjects together, and 1.5% in group 1 (95% CI -0.02 to 2.9), 1.9% in group 2 (95% CI 0.56 to 3.25), and 1.7% in group 3 (95% CI -0.20 to 3.61), respectively. Mean waist circumference (n=22) reduced 2.4% (95% CI 1.3 to 3.4). At the end of the 4-week intervention, the consumption of vegetables and fruits (n=26) had increased by 55%, while the consumption of sweets and chocolate had decreased by 39% as compared to baseline. Almost all participants (84%) strongly agreed (40%) or agreed (44%) that they got support and encouragement from other group members. Similarly, altogether 92% of participants strongly agreed (67%) or agreed (25%) that they felt like they belonged to the group. The engagement level was high, with the average user uploading 5.2 meals a day and recording a total of 9.3 sessions a day. There was some variation between the 3 groups. On average, users in groups 1, 2, and 3 uploaded 3.8 (n=8, 862 meals), 5.8 (n=8, 1315 meals) and 5.7 (n=11, 1774 meals) meals a day, respectively, within the 4 week period. In total, the participants uploaded 3951 meals and recorded 7066 sessions.

Conclusions: Smartphone-based virtual peer support can be used as a tool to promote healthy eating both in outpatient clinic and occupational health settings.


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KEYWORDS

mHealth; nutrition; food journal; peer support; obesity

This poster was presented at the Connected Health Symposium 2016, October 20-21, Boston, MA, United States. The poster is displayed as an image in [Figure 1](#) and as a PDF in [Multimedia Appendix 1](#).

Figure 1. Poster.



VISUAL FOOD DIARY FOR SOCIAL SUPPORT, DIETARY CHANGES AND WEIGHT LOSS

Heli Salmenius-Suominen, Department of Food and Environmental Sciences, Division of Nutrition | Mikko Lehtovirta, FIMM, Institute for Molecular Medicine Finland | Henna Vepsäläinen, Department of Food and Environmental Sciences, Division of Nutrition | Hanna Konttinen, Department of Social Research | Maijaliisa Erkkola, Department of Food and Environmental Sciences, Division of Nutrition

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FACULTY OF AGRICULTURE AND FORESTRY

BACKGROUND

Behaviour changes in diet may prevent or delay onset of chronic diseases such as type 2 diabetes. Social support is a known predictor of successful behaviour change. However, it is not known whether also virtual peer support could be used to improve dietary behaviour.

OBJECTIVE

To find out whether virtual peer support groups moderated by a nutrition professional using a mobile application can be used to promote healthy eating.

METHODS

In this 4-week feasibility study, volunteering adult (n=26) overweight (BMI > 25 kg/m²) men and women were recruited from a diabetes outpatient clinic and from an occupational health care unit.

Participants used a smartphone application to keep a visual food journal, share their meals and activity with peer group members and receive virtual coaching.

Several physical measurements and questionnaires were completed both before and after the intervention:

- food frequency questionnaire (FFQ) including eight food groups in 48 rows
- self-efficacy, group environment and social support scales
- height, weight and waist circumference

Also frequency of the application use was analysed.

RESULTS

After the intervention the daily use of vegetables and fruits were 6.04 (SD 2.31) portions. The daily use had increased by 2.15 (SD 2.64) portions (p<0.001) compared to baseline.

Food	Change in consumption (average, SD)	Significance
Vegetables and fruits, per day	2.15 (2.64)	p < 0.001
Wholegrain products, per day	0.30 (1.33)	p = 0.274
Low-fiber grain products, per week	-0.70 (3.17)	p = 0.276
Sweets and chocolate, per week	-0.97 (4.14)	p = 0.248
Sugared soft drinks and juices, per week	-0.39 (2.38)	p = 0.419
Sugar-free soft drinks and juices, per week	-0.85 (3.09)	p = 0.175

Placed samples that not used for vegetables, fruits and wholegrain products. For the other variables Wilcoxon Signed Rank test was used.

Mean weight loss after the intervention was 1.5 kg (SD 1.82, p=0.001) in all subjects together. Mean reduction in waist circumference was 2.4 cm (SD 2.418, p=0.001).


Variable	Change after intervention (average, SD)	Significance
Weight (kg)	-1.54 (1.82)	p = 0.001
BMI (kg/m ²)	-0.54 (0.63)	p = 0.001
Waist circumference (cm)	-2.40 (2.42)	p = 0.001

Wilcoxon Signed Rank test was used.


84% of participants agreed that they got support from other group members. The use of application was high: average user uploaded 5.2 meals per day and used the application total of 9.3 times per day.

CONCLUSIONS


Smartphone based virtual coaching and peer support can be used as a tool to promote healthy eating and weight loss.




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Multimedia Appendix 1

Poster.

[\[PDF File \(Adobe PDF File\), 1MB - iproc_v2i1e38_app1.pdf\]](#)

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