Background

• Changing dietary habit
  - A challenging task of diabetes self-management

• Mobile terminal
  - Effective platform to support diet management and health promotion

<Review of Mobile Terminal-based Tools for Diabetes Diet Management>
- Theoretical part of master thesis project to develop a mobile nutrition self-management tool for people with diabetes
Study aim and key objectives

• Study aim
  - To improve knowledge about how a tool for diabetes diet management should be designed to promote health

• Key objectives
  - Findings from relevant literatures describing mobile terminal-based support tools for diet management in diabetes
  - Summarize key success factors for designing such tools
  - Discuss recommendations for future research
Methods

- Data sources:
  Electronic databases from PubMed, ACM and IEEE

- Exclusion criteria
  - Papers not written in English
  - Papers which the full text was not available
  - Review articles
Methods – cont.

- Keywords for searching:
  Food / Nutrition / Diet
  +
  (Cell / Mobile)Phone /
  Personal digital assistant / Handheld

- Eliminated duplicates
- Extracted by keyword <Diabetes>
- 27 papers
- Selected relevant publications by reading the abstracts/the whole text
- 14 papers

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Results

• Design and development of management tools for people with diabetes : 10 papers
• Evaluations by potential users : 7 papers
• Clinical outcomes (HbA1c) : 4 papers
• Type of terminal used
  Mobile phone : 6 papers
  PDAs : 8 papers
• Target population
  People with Type 2 diabetes : 7 papers
  Young people with Type 1 diabetes : 2 papers
  Unclear : 5 papers
Results– cont.

- The purpose of the tool
  Overall diabetes management system with recording blood glucose values, physical activities, etc. in addition to food intake: 6 papers
  A tool dedicated to dietary management: 8 papers
- Remote health care professionals support: 4 papers
- Recording food items
  Search from database: 8 papers
  Photographing: 2 papers
  Categories (Carbohydrate): 3 papers
  Games for educational purpose: 1 paper

Findings

• HbA1c decreased : 4 of 4 papers
• Improved nutrition habit : 1 paper
• Ease of use : 6 papers
• Usefulness, problem-solving, learning and motivational effects, feasibility for patient interventions : 8 papers
• Difficulties in using PDAs for elderly participants : 2 papers
• Drop-outs, decrease in use, negative opinion : 4 papers
  - Burdensome/tiresome daily registration, apparent improvement in glycaemic control, saturation of effect, limited understanding importance of self-management regimens
• Photograph of food item is practical : 2 of 2 papers
• Educational games are useful for young people for short-term use : 1 of 1 paper
Discussion

- Mobile terminal tools - effective for diet management or glycaemic control
- People need good understanding of their diet regimen
- For feasible and useful diet management
  - Record food intake in an easy way but accurate enough manner
  - Provide immediate analytical feedback based on personal data in an easily interpretable way (with exercise data, etc)
  - Include educational materials with familiar food items
- Food recognition by photographing with reliable identification
- How to design a tool that support adherence in self-monitoring over substantial period
- Simple and quick registration with immediate feedback but not tiresome or boring
- Further research with smart phone applications to identify key features for design of effective and useful support tool
Thanks for your attention!

<References>


