

Information technology (IT) supported treatment of obese children and their families: A pilot study

Dagmar l'Allemand*¹, Tobias Kowatsch², Irena Pletikosa³, Björn Brogle¹, Anneco Dintheer¹,
Dunja Wiegand¹, Dominique Durrer⁴, Yves Schutz⁴, Wolfgang Maass⁵ & Dirk Büchter¹

¹Children's Hospital of Eastern Switzerland, St. Gallen, Switzerland, ²University of St. Gallen, Switzerland,

³ETH Zurich, Switzerland, ⁴Eurobesitas, Vevey-University of Fribourg, Switzerland, ⁵Saarland University, Saarbrücken, Germany

Background

Less than 1% of obese children with their families participate in multiprofessional therapy programs including physical activity, nutritional and behavioral interventions.

Research Questions

1. Does a mobile health information system (HIS) adapted to children and their parents improve adherence to therapy and thus health outcomes in families with low time resources?
2. Can HIS help the family to change its activity, nutrition, mood and communication habits by direct feedback control and therapist's supervision at distance?

Patients & Methods

In cooperation with therapists, extremely obese children, their parents, computer scientists and information systems researcher, a HIS with special data security was developed, consisting of a tablet PC with goal setting service, cooking and shopping support, relaxation tools, self-assessment of emotions by manikin mood scale and of speed of eating, as well as tracking of physical activity by 3-axes accelerometer. All parameters were transmitted to the therapists by a dashboard and, if necessary, answered by telephone calls.

Three groups of each six extremely obese children (BMI >Perc. 99.5, median BMI z-score 3.0 ± 0.7 in all groups equally, age 13.2 ± 2.3 years) were evaluated for the parameters mentioned above before and after 12 months of therapy in a specialized center in either an
(1) individual setting with HIS or
(2) group setting with HIS, or
(3) individual care without HIS (Controls).

Results

25% of extremely obese children with HIS & 60% without HIS decreased their BMI-SDS

HIS children did not reduce their obesity better than the control group without HIS (Δ BMI-SDS in groups 1, 2 & 3 was -0.3, 0.0 & -0.2 SD, resp.)

Reduction of obesity was marginally associated with higher emotional strain ($p=0.07$), but not with HIS usage or any other parameter.

Conclusions

In extremely obese children, home support with HIS was only feasible, when children were guided by their parents to work with the monitoring services.

To select appropriate families for HIS home support, a careful examination - through questionnaires & interviews - of their family situation and of their motivation and psychosocial problems is essential.



Partners



Funding

This work was part-funded by the Swiss National Science Foundation (SNF), Project 135552.

www.pathmate.ch

