The Sugarsquare study: a multicenter randomized controlled trial concerning a web-based patient portal for parents of a child with type 1 diabetes

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Introduction

What do we know?
1. Parenting a child with type 1 diabetes (T1D) can be stressful
2. Parents indicated the need for tailored care, up-to-date disease information, local peer support and accessibility of the team
3. The Internet is expected to be a potential mode for delivery of these aspects, as an add-on to usual care

What do we lack?
Knowledge on feasibility and effects of an Internet intervention for parents of a child with T1D

What do we aim for?
To assess the efficacy and feasibility of a web-based patient portal, Sugarsquare:
- Online parent-professional communication
- Online peer support
- Online disease information.

Methods

Design
A multicenter randomized controlled trial
- T0 = enrollment intervention exp group
- T1 = 6 months later
- FU = 12 months later

Participants
- 189 parents of a child with T1D
- In 7 hospitals in the Netherlands

Measures
Efficacy
- Parenting stress: PSI-SF
- HbA1c

Feasibility
- Practicability (can they use it?)
- Acceptability (do they use it?)
- Demand (do they continue to use it?)
- Integration (does it fit with treatment)

Results

Parenting Stress

<table>
<thead>
<tr>
<th></th>
<th>T0 (M, SD)</th>
<th>T1 (M, SD)</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp</td>
<td>48.28 (20.40)</td>
<td>49.67 (18.79)</td>
<td>1.18, p &gt; .05</td>
</tr>
<tr>
<td>Contr</td>
<td>46.02 (17.83)</td>
<td>45.44 (18.77)</td>
<td>1.49, p &gt; .05</td>
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</tbody>
</table>

HbA1c

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<thead>
<tr>
<th></th>
<th>T0 (M, SD)</th>
<th>T1 (M, SD)</th>
<th>FU (M, SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp</td>
<td>62.97 (12.20)</td>
<td>62.28 (9.60)</td>
<td>62.65 (9.35)</td>
</tr>
<tr>
<td>Contr</td>
<td>62.79 (9.37)</td>
<td>65.73 (8.85)</td>
<td>67.93 (10.40)</td>
</tr>
</tbody>
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Feasibility
- Practicability: 90% logged in at least once
- Acceptability: 100% applications used
- Demand: 75% logged in repeatedly
- Integration: Fits with ISPAD guidelines? Yes, it does

Discussion

Sugarsquare was found to be feasible.
Sugarsquare was also found to protect against increase in HbA1c at follow-up:
- Takes time to implement intervention
Sugarsquare was not found to improve parenting stress:
- Very low baseline levels
- Parents with high baseline levels might benefit

A web-based patient portal is a useful supplement to diabetes care.

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