The use of mobile applications among adolescents with type 1 diabetes

Introduction and aim

- The use of mobile applications ("apps") for diabetes management is a rapidly developing area, and has relevance to adolescents who tend to be early technology adopters.
- Several mobile-device-based interventions have been conducted on adolescents with type 1 diabetes (T1D). However, outside of controlled intervention studies, very little is known about typical app usage in this population.
- Our aim was to explore app usage amongst adolescents with T1D.

Methods

- 728 young people with T1D responded to a series of study-specific app usage questions as part of a national, online survey.
- Participants were:
  - 439 (60%) girls; 289 (40%) boys
  - Mean±SD age 14.3 ±2.6 (range 10 - 19) years
- Questions were designed to both assess the reasons for usage and non-usage of apps by adolescents with T1D.

Results

- 59% (n=439) of respondents indicated they used an app for diabetes management. Of these, 35% (n=252) reported carbohydrate counting as the most common purpose; with 64% (n=165) reporting use of "CalorieKing", a food database and weight management app (see Figures 1 and 2).
- Of those not using apps, 72% (n=321) indicated that this was due to either no knowledge of apps, or a belief that apps could not help. These two reasons were evenly split between respondents (see Figure 1).
- 13 to 19 year olds who were not using an app to help with their diabetes were asked what they would like in an app: carbohydrate counting (62%; n=186), recording blood glucose (60%; n=181) and insulin dose calculation (46%; n=139) were the three most common requests.
- 93 (31%) respondents selected the above functions together indicating a desire for multifunctional, diabetes specific apps. There was a significant relationship between age and app usage (p<0.01; see Figure 3). Younger respondents were more likely to use apps than older adolescents.
- There were no gender differences in app usage.

Figure 1: Reasons for and against app usage

What do you use your app(s) for?

- 9 in 10 Carbohydrate counting
- 2 in 10 Recording blood glucose
- 1 in 10 Insulin dose calculation

Why don’t you use apps?

- 5 in 10 They can’t help me
- 4 in 10 I haven’t found any good ones
- 1 in 10 I don’t have a mobile/tablet

Conclusions

- Only 1 in 3 are using apps, most of which were not diabetes-specific despite being used to support diabetes self-management.
- The main reasons given for not using apps were either a lack of knowledge about suitable apps or a belief that they would not help. This suggests that any future efforts to encourage app usage for diabetes management may need to include a simple educational component.
- Older adolescents are less likely to use apps. Further analysis will explore the relation of age and app usage.

- Amongst adolescents who are not using apps, there is a distinct interest for apps with multifunctionality. This could help to inform future app development in this area. However, previous work in this area has highlighted such multifunctional apps as problematic in terms of usability.
- Future research needs to identify what drives app usage and how to support adolescents wanting to adopt this new technology to support their diabetes self-management.

References


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