Pengembangan aplikasi perawatan diri berbasis Android: Carbohydrate Intake And Calorie Output (CICO) Count dan dampak uji coba terhadap resiliensi anak DMT1 = Developing self-care application based on Android: Carbohydrate Intake And Calorie Output (CICO) Count and the impact of trial of resilience of DMT1 children

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Abstrak

Aplikasi Perawatan diri Diabetes Melitus Tipe 1 (DMT1) merupakan aplikasi yang menyediakan kegiatan harian yang diperlukan untuk pengendalian kadar glukosa darah, (GD) anak DMT1, agar kadar GD berada pada kondisi normal atau mendekati normal. Aplikasi dikembangkan berdasarkan permasalahan tingginya kasus KAD, kurangnya pemahaman orangtua anak DMT1 tentang pengendalian glukosa darah, dan terbatasnya jumlah edukator DMT1. Edukasi yang tepat dan berkesinambungann sangat diperlukan dalam pengelolaan DMT1. Edukasi melalui teknologi internet menjadi pilihan terbaik sebagai salah satu upaya penyelesaian masalah.

Penelitian ini bertujuan untuk menghasilkann aplikasi yang valid dan menguji coba dampak penggunaan aplikasi perawatan diri terhadap resiliensi anak DMT1. Aplikasi ini diberi nama Carcohydrate Intake and Calory Output (CICO) Count yang menyediakan aktivitas utama menghitung kebutuhan karbohidrat (KH) dan luaran kalori harian dari anak DMT1 dan dipadukan dengan permainan pohon terimakasih (gratitude intervention).

Penelitian dilakukan selama 15 bulan, berupa pengembangan aplikasi yang diuji validitasnya oleh 7 pakar. Hasil uji validitas internal didapatkan nilai CVi 0,97 (valid, >0,8). Tahap berikutnya dilakukan ujicoba aplikasi kepada empat (4) responden orangtua anak DMT1 untuk melihat kesesuaian isi aplikasi dengan kebutuhan penggguna. Hasil ujicoba menunjukkan kepuasan penguna mencapai 75%. Tahap penelitian akhir adalah ujicoba dampak aplikasi terhadap resiliensi anak DMT1. Pada kelompok kontrol dan intervensi dilakukan pengukuran kadar glukosa darah secara berulang setiap pekan selama empat pekan. Responden penelitian adalah 24 orang tua anak DMT1. Data dianalisis menggunakan uji perbedaan dengan Mann Whitney korelasi Pearson dan Spearman, serta GLM repeated measure.

Hasil penelitian menunjukkan adanya perbedaan kadar glukosa darah antara kelompok kontrol dan intervensi pada akhir pekan keempat (= 0.06, p<0,1), tidak ada perbedaan skor resiliensi antara kelompok kontrol dan intervensi (p=0,531). Berdarakan uji korelasi didapatkan faktor dukungan emosional keluarga (r=0,380, p<0,1) dan gratitude (r= -0,509, p<0,1) berkorelasi dengan kadar glukosa darah praprandial. serta faktor stress (r= -0,610, p<0,1), koping avoidance (r= -0,289, p<0,1), koping emotional (r= - 0,489, p<0,1), koping distance (r=0,285, p<0,1), dan dukunngan emosional keluarga (r= 0,386, p<0,1) berkorelasi dengan resiliensi anak DMT1.

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The Type 1 Diabetes Mellitus (T1D) self-care application is an application that accomodates day-to-day activities for controlling blood glucose of children with T1D into a normal or near to normal levels The application was developed to respond to the current situations, including high number of Diabetic Ketoacidosis (DKA) cases, lack of understanding of parents of children with T1D regarding blood glucose

control, and limited number of T1D educators. proper and continuous education are required in the course of T1D management. Education through internet technology is the best approach for the problem solutions

This study aimed to create a valid application and examine the impact of T1D self-care applications on the level of resilience of children with T1D This application is so-called as Carbohydrate Intake and Calorie Output (CICO) count which enables to calculate the carbohydrate (CH) needs, and daily caloric output of T1D children, and these are integrated with a gratitude intervention game.

The study was conducted for 15 months, in the form of application development, and has been tested for the validity by seven experts. The internal validity test showed a CVi value was 0.97 (valid,> 0.8). The next step was to examine the application of DMT1 in parents to evaluate whether the contents of the application was compatible with the needs of users. The results showed 75% user satisfaction. The final step was tested the impact of application on the resilience of children with T1D. Both the control and the intervention groups was measured for their blood glucose levels and repeated weekly in one month period. The total respondents were 24 parents of T1D children. The data was analyzed, used the difference test with Mann Witney, Pearson, and Spearman correlation, and GLM repeated measure.

The results showed that there were differences in blood glucose levels between the control and intervention groups at the end of the fourth week (= 0.06, p <0.1), and there were no differences in resilience scores between the control and intervention groups (p = 0.531). Based on the correlation test, family emotional support factors (r = 0.380, p <0.1) and gratitude (r = -0.509, p <0.1) correlated with pre-prandial blood glucose levels. The stress factors (r = -0,610, p <0,1), coping avoidance (r = -0,289, p <0,1), emotional coping (r = - 0,489, p <0,1), coping distance (r = 0.285, p <0.1), and family emotional support (r = 0.386, p <0.1) correlated with the resilience of T1D children.