

Internet Psycho-education Programs Improve Outcomes in Youth with Type 1 Diabetes: A Randomized, Crossover Study

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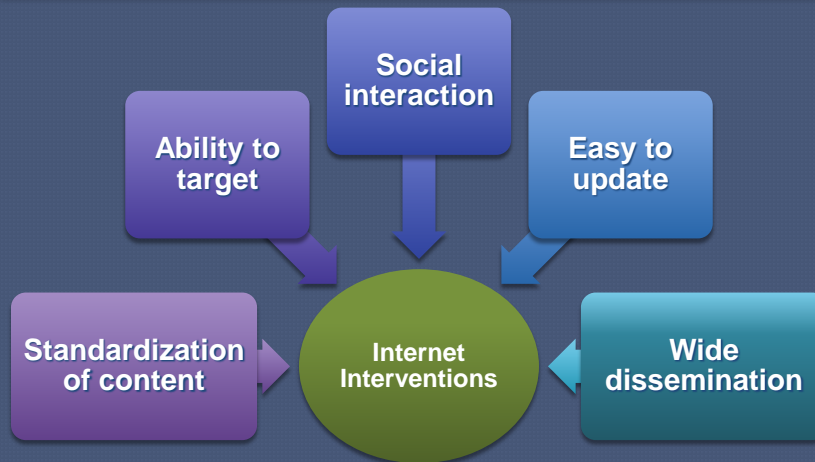
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Background

- ◆ Adolescence is a vulnerable time for youth with T1D.
- ◆ Psycho-educational programs can improve metabolic control, psychosocial adjustment, and QOL.
- ◆ Implementation is challenging.

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Background



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Interventions

TEENCOPE

- ◆ Introduction to Coping Skills and “Self-Talk”
- ◆ Communication Skills
- ◆ Social Problem Solving
- ◆ Stress Management
- ◆ Conflict Resolution

MANAGING DIABETES

- ◆ Healthy Eating
- ◆ Exercise
- ◆ Glucose Control
- ◆ Preventing and Managing Sick Days
- ◆ Diabetes Technology and Research

Whittemore et al., *Comput Inform Nurs*, 2010

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Interventions



TEENCOPE™

MANAGING DIABETES



Five interactive learning modules released weekly over 5 weeks.
Youth notified of release via email.
Took approximately 30 minutes to complete.

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Methods

- ◆ Multi-site clinical trial
- ◆ 4 diverse U.S. sites (Philadelphia, Phoenix, Miami, New Haven)
- ◆ Youth randomized to **TEENCOPE** or **MANAGING DIABETES** for 12 months
- ◆ Data collected at baseline, 3, 6, and 12 months

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Participation

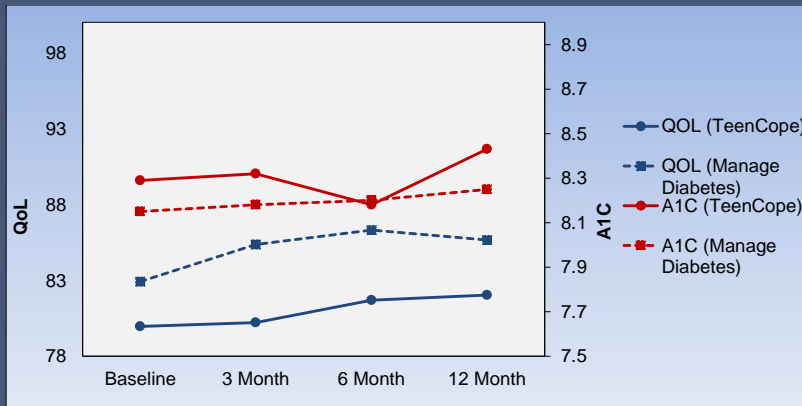
- ◆ Attrition: 28% over 12 months
- ◆ 78.1% completed 4/5 modules
- ◆ 90% completed at 1 least module
- ◆ Significant difference by income category
- ◆ No significant difference between treatment groups, gender, race/ethnicity, age, metabolic control

Whittemore et al., *J Med Internet Res*, 2013

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TeenCope vs. Managing Diabetes

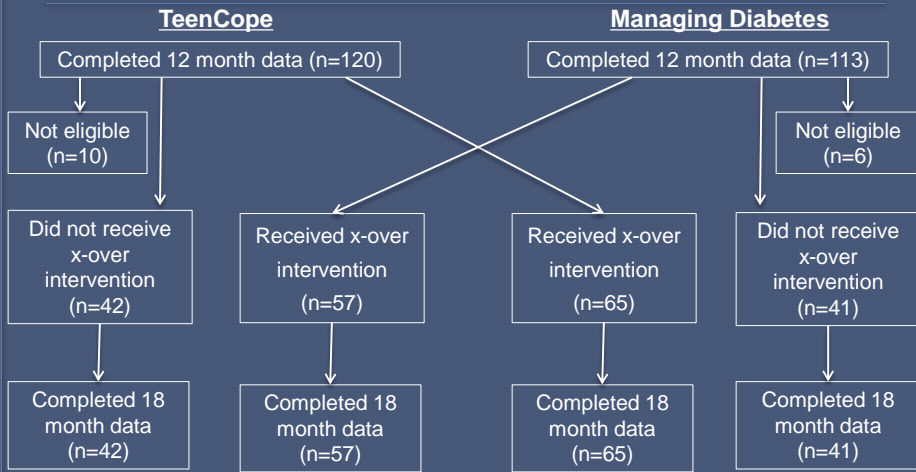
Mean QoL and A1C over 12 Months (N=320)



Grey et al., *Diabetes Care*, 2013

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Crossover



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Purpose

To compare metabolic, psychosocial, and family outcomes in youth with T1D who completed:

- ◆ Both **TEENCOPE** and **MANAGING DIABETES** vs.
- ◆ Either **TEENCOPE** or **MANAGING DIABETES**

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Inclusion Criteria

- ◆ Age 11-14
- ◆ Diagnosed with T1D for ≥ 6 months
- ◆ No prior exposure to previous studies of *Coping Skills Training*
- ◆ No other significant health problems
- ◆ School grade appropriate for age

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Measures

Metabolic:

- ◆ HbA1C

Behavioral:

- ◆ Self-Management of T1D in Adolescence (Schilling et al., 2006)

Family:

- ◆ Diabetes Family Conflict Scale (Hood et al., 2007)

Psychosocial:

- ◆ Perceived Stress Scale (Cohen et al., 1993)
- ◆ Self-Efficacy for Diabetes Scale (Grossman, Brink, and Hauser, 1987)
- ◆ Self-Perception Profile for Adolescents (Harter, 1988)
- ◆ Pediatric Quality of Life Inventory (Varni et al., 1999)

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Data Analysis

- ◆ Mixed-effects models controlling for gender, age, race/ethnicity, duration, income, therapy type, site
- ◆ Intent-to-treat
- ◆ Per-protocol (≥ 4 modules completed)

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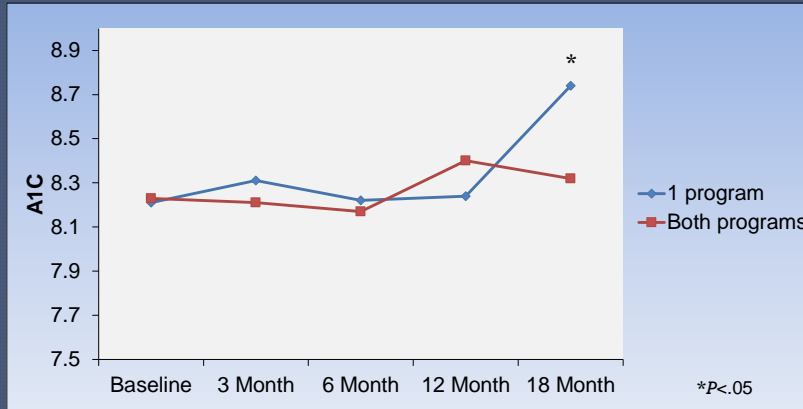
Enrolled Sample (N=320)

- ◆ Age: 12.3 years (± 1.1)
- ◆ Duration: 6.1 years (± 3.5)
- ◆ A1C: 8.5% (± 1.4)
- ◆ 60% pump users
- ◆ 55% female
- ◆ 38% non-White
- ◆ 21% < \$40K
- ◆ Parent education: 14.6 years (± 2.8)

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One vs. Both Programs

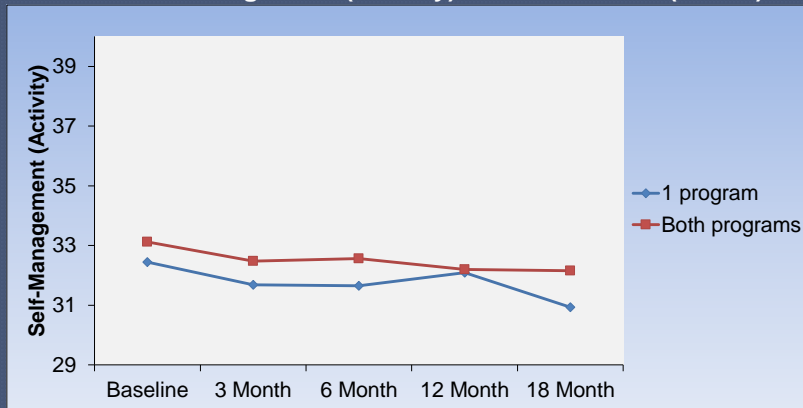
Mean A1C over 18 Months (N=250)



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One vs. Both Programs

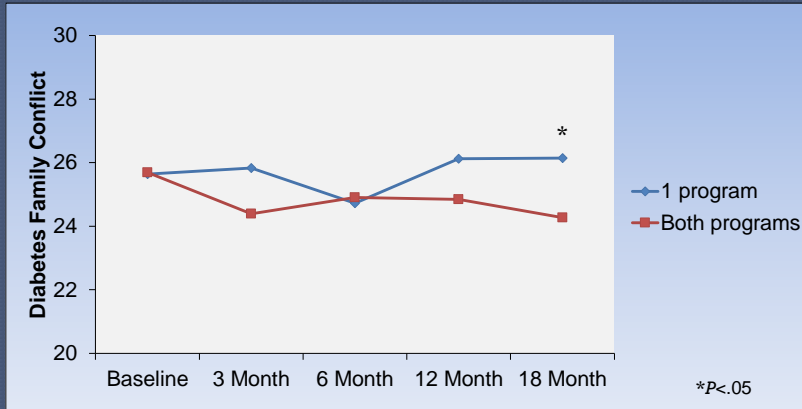
Mean Self-Management (Activity) over 18 Months (N=250)



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One vs. Both Programs

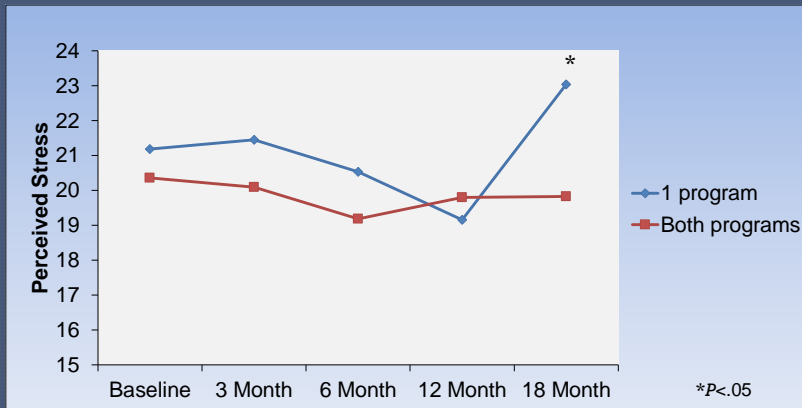
Mean Diabetes Family Conflict over 18 Months (N=250)



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One vs. Both Programs

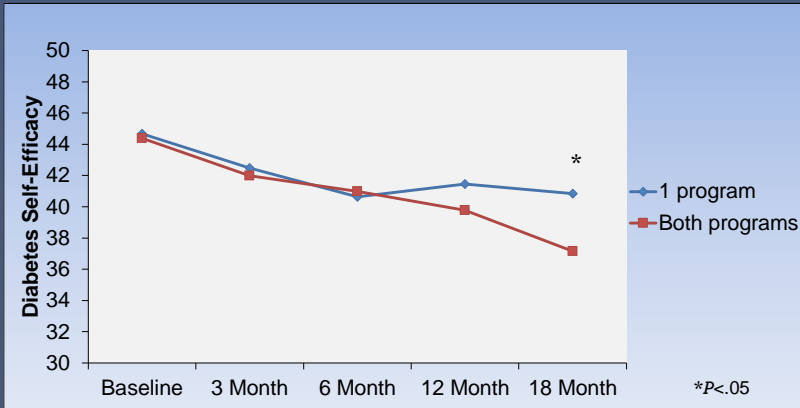
Mean Perceived Stress over 18 Months (N=250)



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One vs. Both Programs

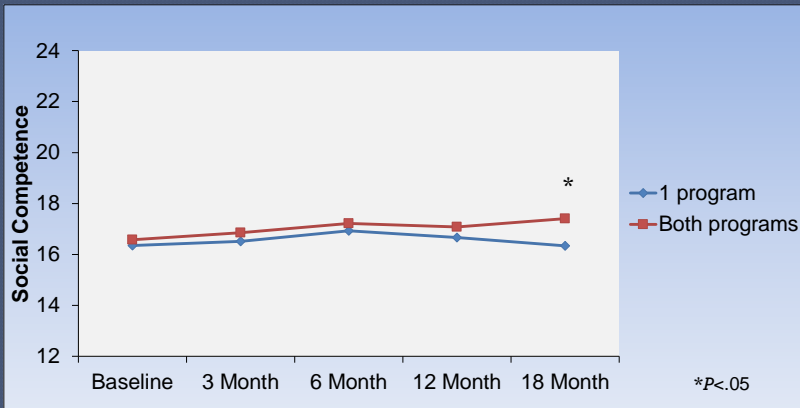
Mean Diabetes Self-Efficacy over 18 Months (N=250)



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One vs. Both Programs

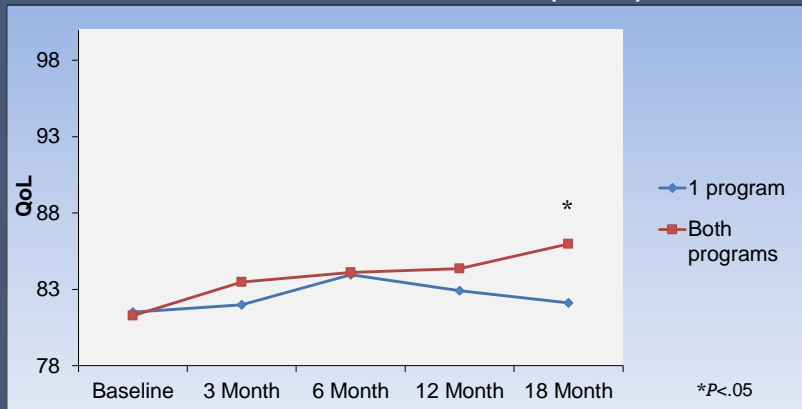
Mean Social Competence over 18 Months (N=250)



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One vs. Both Programs

Mean QoL over 18 Months (N=250)



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Discussion

- ◆ Psycho-educational internet programs improve psychosocial and behavioral outcomes while maintaining metabolic control in youth with T1D.
- ◆ Completion of both programs resulted in better outcomes than only one.
- ◆ Youth with T1D may benefit from diabetes management education and coping skills training.

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Discussion

- ◆ Delivery via the internet is an efficient and feasible way to reach youth for a long duration and improve outcomes.
- ◆ More research is indicated.

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Acknowledgements



Yale

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