


The Effect of a Community-based Multifaceted Behavioral Intervention in Korean Americans with Type 2 Diabetes (SHIP-DM)



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- **Tam Nguyen, PhD**
 - Boston College, Connell School of Nursing, Boston, MA



Funding Sources

- **Funding Sources**

- NIDDK (**R18DK083936**).
- LifScan provides study devices (OneTouch® glucometer, OneTouch® UltraSoft® test strips & OneTouch® UltraSoft® lancets).

- **Clinical Trial Registration**

- clinicaltrials.gov identifier NCT0126479



Background

- Type 2 diabetes mellitus is a serious health problem in Asian-American communities, including the Korean Americans (KAs).
- Today's Korean Americans (KAs)
 - have low literacy levels
 - experience a scarcity of personal and community resources
 - face institutional and cultural barriers






Objective

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- The project tested **a community-based, culturally tailored, multifaceted behavioral intervention program** designed for **Korean Americans (KAs) with type 2 diabetes** on critical behavioral and clinical outcomes.

Specific Aims

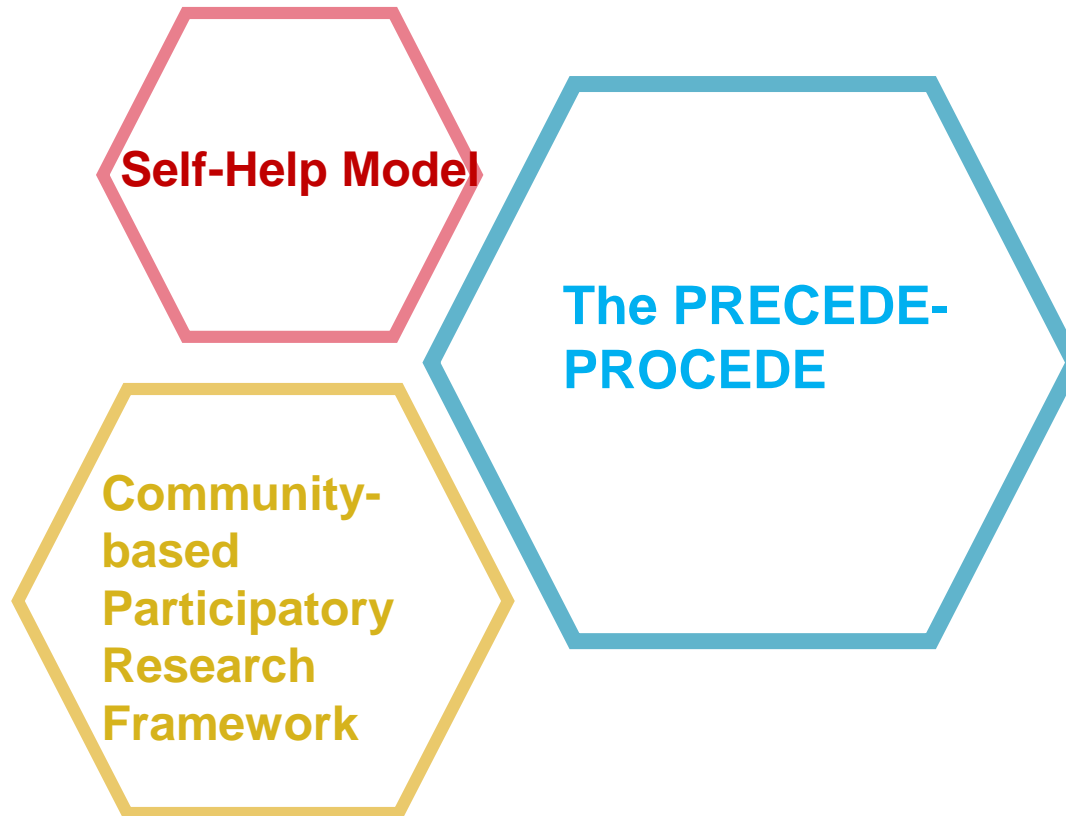
- Enroll 250 Korean Americans with type 2 diabetes in a clinical trial comparing a comprehensive community-based RN/CHW behavioral intervention to usual care to **reduce HbA1c levels** over 12 months
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Methods

- **Design:** Open Label Randomized Clinical Trial
- **Setting:** Baltimore Washington metropolitan area
- **Period:** September 2010 – June 2013
- Community partner, The Korean Resource Center (KRC), in charge of recruitment, enrollment, retention of participants, and active engagement in interventions.
- Intervention has three components
 - 1) 12-hour group education sessions
 - 2) Home blood sugar monitoring for 12 months
 - 3) Monthly telephone coaching session using motivational counselling method



● Integrated Theoretical Framework



ANTECEDENTS

Predisposing Factors

- Individual characteristics
- Acculturation status
- Cultural beliefs/attitudes
- Severity of disease
- Depression

Enabling Factors

- Health literacy
- DM knowledge
- DM related self-efficacy
- Accessibility to care

Reinforcing Factors

- Family/peer support
- Community support

INTERVENTIONS

Culturally Tailored Behavioral Education Program

- Classroom education with culturally sensitive materials
- Health literacy tailored education

Ongoing Home Glucose Monitoring

- Tele-transmission of home glucose monitoring
- Individually tailored monitoring reports to promote patient-provider communication
- Telephone reminders of follow-up appointment

Individualized Case Management via Telephone Counseling

- Individually tailored behavioral counseling via phone
- Guidance for optimal utilization of healthcare
- Referrals to community resources for care as needed

OUTCOMES

Predisposing Factors

- Glucose control ↑
- BP control ↑
- Total cholesterol control ↑

Psycho-Behavioral Outcomes

- DM knowledge ↑
- Self-care skills ↑
- QOL ↑

CBPR Process


- Active engagement with community collaborators in all phases of the study
- Empowering community-Supervision, consultation, feedback by community advisory board
- Expanding community infrastructure by using coalitions
- Direct Communication to patients, families, & the target KA community to sustain established infrastructure
- Developing dissemination strategies with community partners

Community Outcomes

- Community readiness/awareness about diabetes
- Culturally tailored, literacy-focused DM management protocol
- Readily transferable education materials to other communities
- Community empowerment for self-care for DM control



Eligibility Criteria

- The first generation of Korean American immigrant
 - Physician diagnosis Type 2 DM
 - Age 35 years or older
 - Difficulty of managing glucose level as demonstrated by HbA1c at 7.0 or above
 - Able to stay in the program for at least a year.
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Randomization (n=250)

Integrate Care Group (ICG) (n=120)

- 1) 6 weeks in-class training
(12 hours)
- 2) Home glucose monitoring
- 3) Monthly telephone counseling

Usual Care Group (UCG) (n=130)

- Delayed intervention after month 12

0 Month

3 Month

6 Month

9 Month

12 Month

Interventions

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DM knowledge ↑

Problem solving ↑

Confidence ↑

Self-care skills ↑

Confidence ↑

Problem solving ↑

Positive cognitive reframing ↑



- **Culturally-tailored protocol:**

- Acknowledging cultural myths about each component of the behavioral intervention
- Crafting intervention messages based on relevant cultural philosophy or values
- Adapting the most popular cultural practices to reinforce the behavioral modifications



Intervention 2

Ongoing Home Glucose Monitoring

INTERVENTIONS

Culturally Tailored Behavioral Education Program

- Classroom education with culturally sensitive materials
- Health literacy tailored education

Ongoing Home Glucose Monitoring

- Tele-transmission of home glucose monitoring
- Individually tailored monitoring reports to promote patient-provider communication
- Telephone reminders of follow-up appointment

Individualized Case Management via Telephone Counseling

- Individually tailored behavioral counseling via phone
- Guidance for optimal utilization of healthcare
- Referrals to community resources for care as needed

Self-care skills ↑

Confidence ↑

Evidence-based DM-specific behavioral intervention components

- Power of self-monitoring and documenting in chronic disease management as a tool to enhance self-efficacy and promote adherence to treatment recommendations, and ultimately treatment outcomes

Intervention 3

Individualized Case Management via Telephone Counseling

INTERVENTIONS

Culturally Tailored Behavioral Education Program

- Classroom education with culturally sensitive materials
- Health literacy tailored education

Ongoing Home Glucose Monitoring

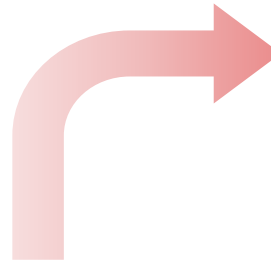
- Tele-transmission of home glucose monitoring
- Individually tailored monitoring reports to promote patient-provider communication
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Individualized Case Management via Telephone Counseling

- Individually tailored behavioral counseling via phone
- Guidance for optimal utilization of healthcare
- Referrals to community resources for care as needed

Evidence-based DM-specific behavioral intervention components

- Mobilization of social support by interacting with trained bilingual nurse counselor



Problem solving ↑

Positive cognitive reframing ↑

● Sample Characteristics at Baseline (n=250)

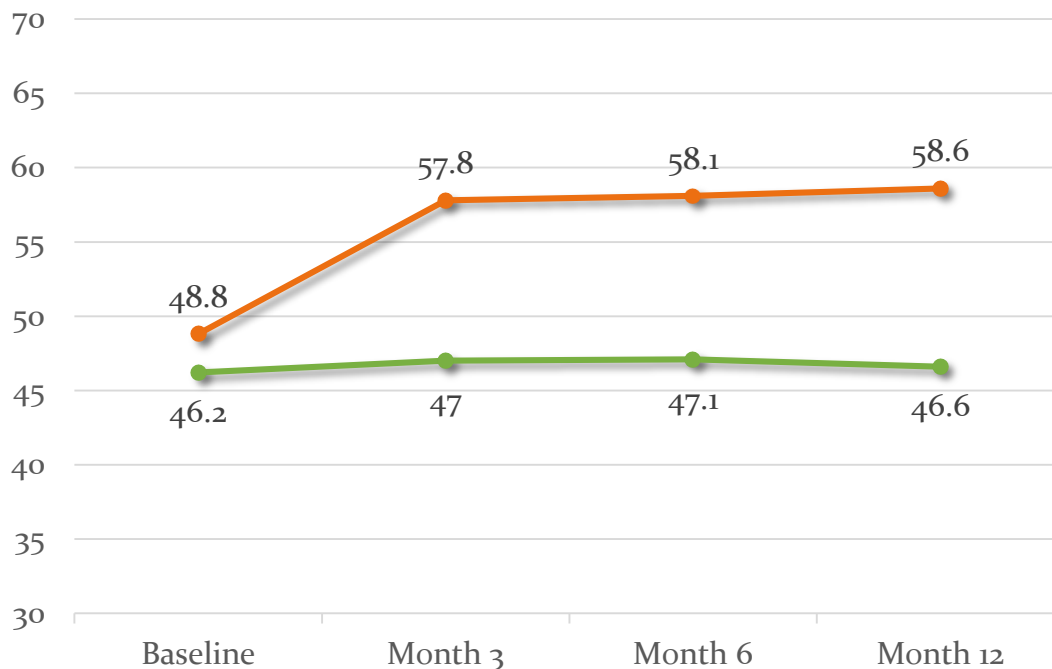
Subject	Total
Age, years (SD)	58.9 (8.44)
Male, n (%)	142 (56.8%)
Female, n (%)	108 (43.2%)
Married, n (%)	224 (89.6%)
Family size, persons (SD)	3.0 (1.22)
Working: full/part time (%)	148 (59.7%)
Years in USA (SD)	23.7 (11.1)
Education, years (SD)	13.3 (3.22)
Housing own, n(%)	160 (64.0%)
Comfortable living/OK, (%)	169 (68.1%)
Monthly income, \$(SD)	\$4,269 (\$7,379)

Proximal outcome (1)

● Diabetes self-efficacy (8-80) ($\alpha = .86$)

Usual
Care Group
(UCG)
(n=130)

Integrate
Care Group
(ICG)
(n=120)



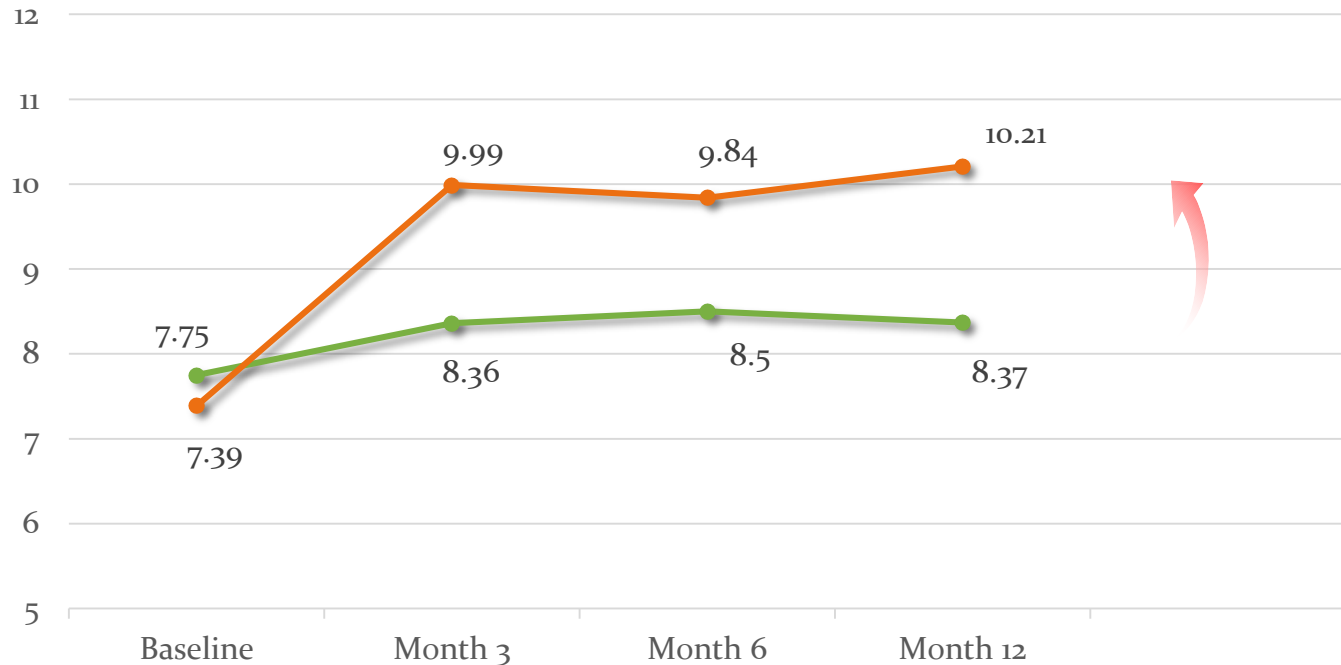
	Baseline	Month 3	Month 6	Month 12	Total (M0-12)
diff(ICG-UCG)	2.6	10.8	11.0	12.0	8.9
P(diff)	.179	.000	.000	.000	.000

Proximal outcome (2)

● Diabetes knowledge (0-14) ($\alpha = .82$)

Usual
Care Group
(UCG)
(n=130)

Integrate
Care Group
(ICG)
(n=120)



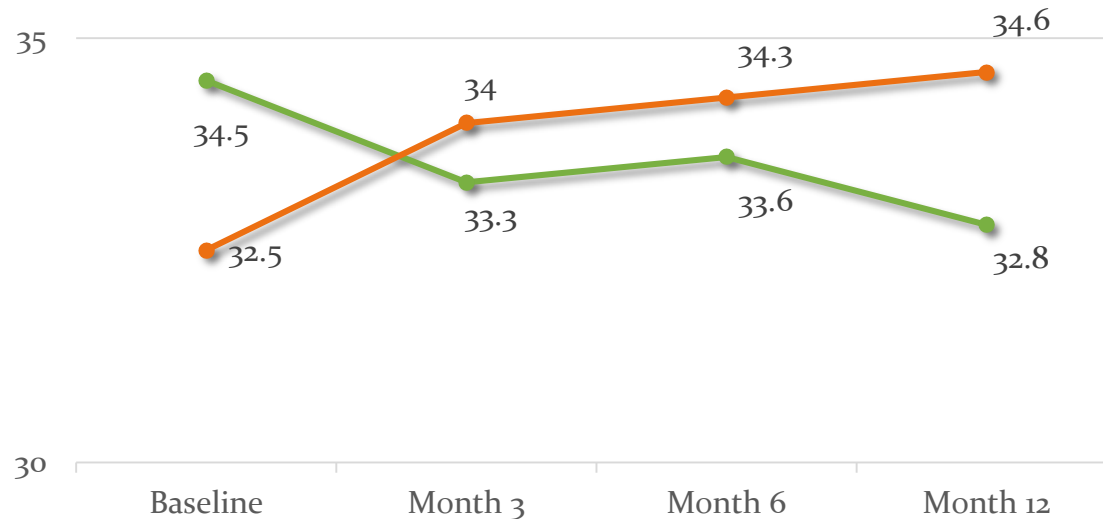
	Baseline	Month 3	Month 6	Month 12	Total (M0-12)
diff(ICG-UCG)	-0.36	1.63	1.34	1.84	1.09
P(diff)	.348	.000	.000	.000	.000

Proximal outcome (3)

● Attitudes toward diabetes (10-50) ($\alpha = .80$)

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Care Group
(UCG)
(n=130)

Integrate
Care Group
(ICG)
(n=120)



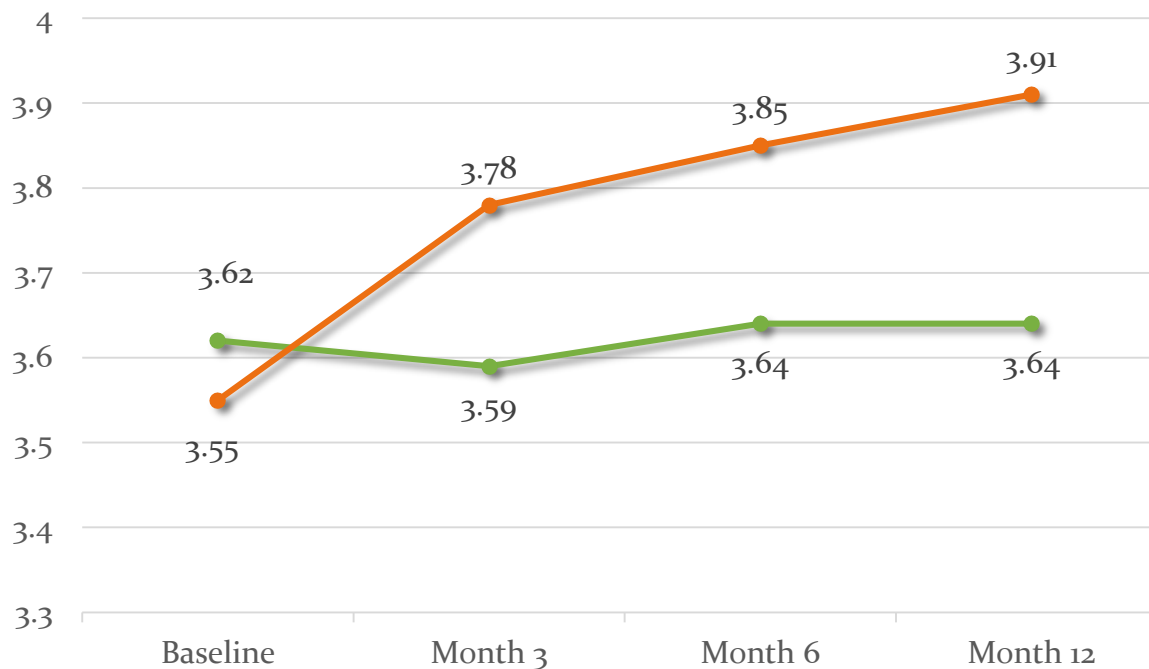
	Baseline	Month 3	Month 6	Month 12	Total (M0-12)
diff(ICG-UCG)	-2.0	0.7	0.6	1.9	0.936
P(diff)	.037	.435	.515	.072	.644

Proximal outcome (4)

DM Quality of Life (1-5) ($\alpha = .8407$)

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(n=130)

Integrate
Care Group
(ICG)
(n=120)



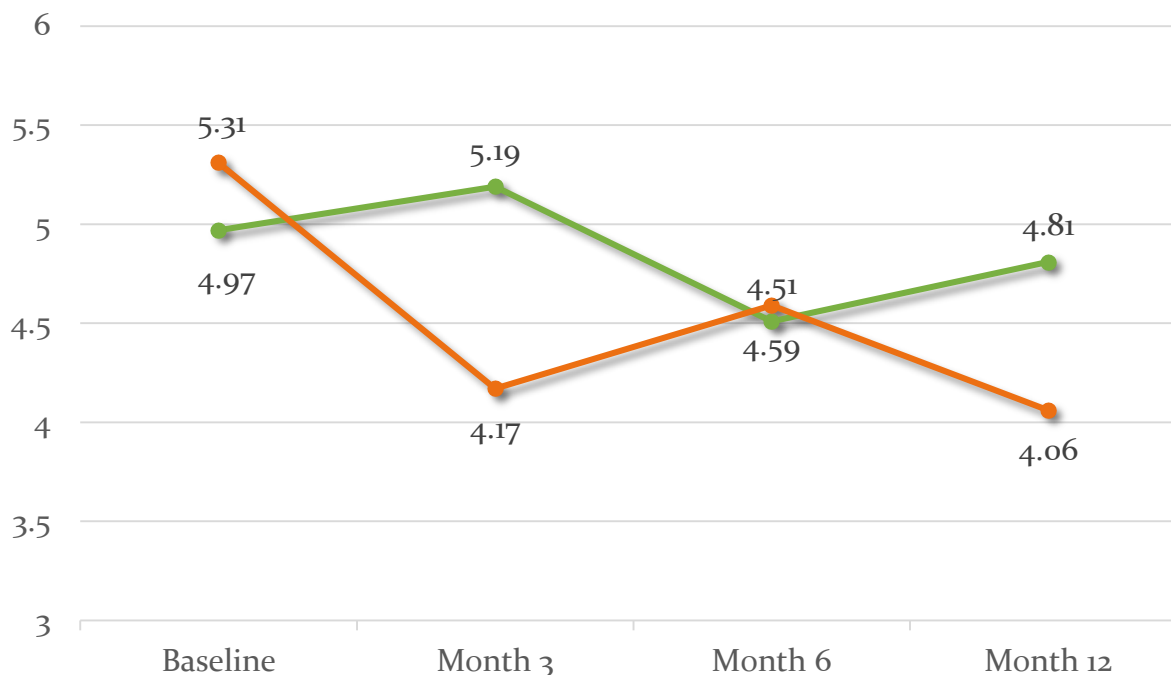
	Baseline	Month 3	Month 6	Month 12	Total (M0-12)
diff(ICG-UCG)	-0.06	0.18	0.21	0.27	0.14
P(diff)	.429	.014	.017	.002	.000

Proximal outcome (5)

● Depression-PRQ9 (0-27) ($\alpha = .87$)

Usual
Care Group
(UCG)
(n=130)

Integrate
Care Group
(ICG)
(n=120)



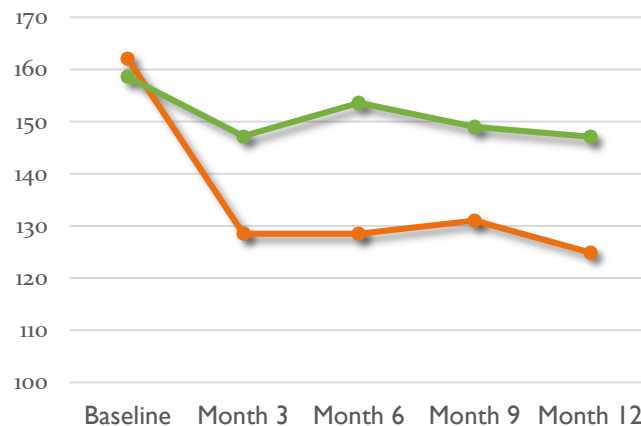
	Baseline	Month 3	Month 6	Month 12	Total (M0-12)
diff(ICG-UCG)	0.34	-1.02	0.08	-0.75	-0.33
P(diff)	.585	.081	.899	.237	.284

Distal outcomes

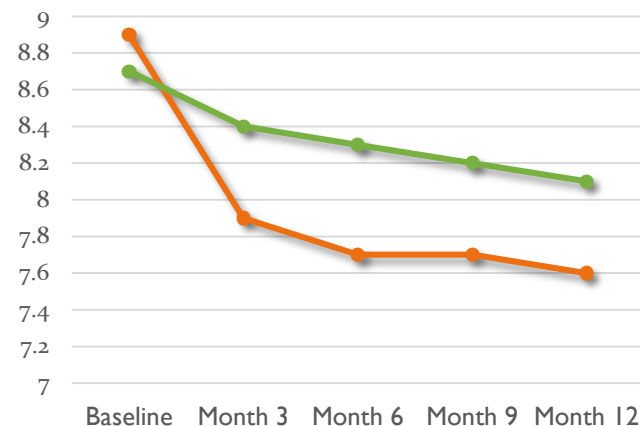
Usual
Care Group
(UCG)
(n=130)

Integrate
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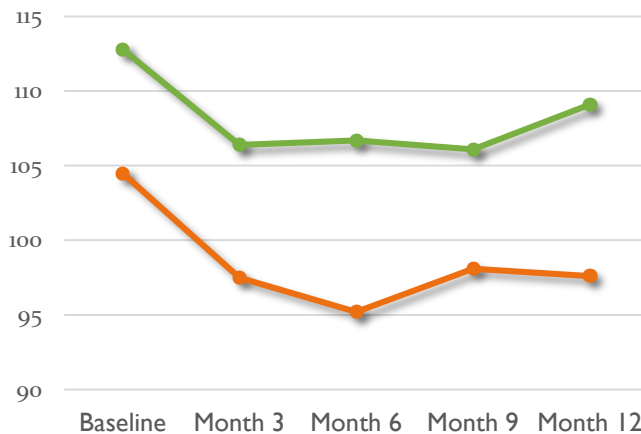
Glucose (mg/dL)



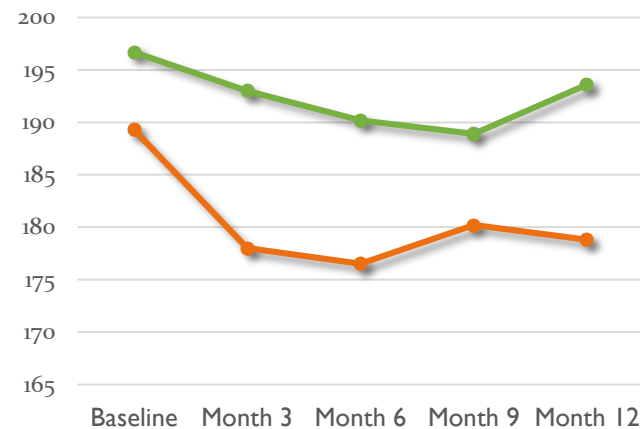
Hemoglobin A1c



LDL Cholesterol (mg/dL)



Total Cholesterol (mg/dL)

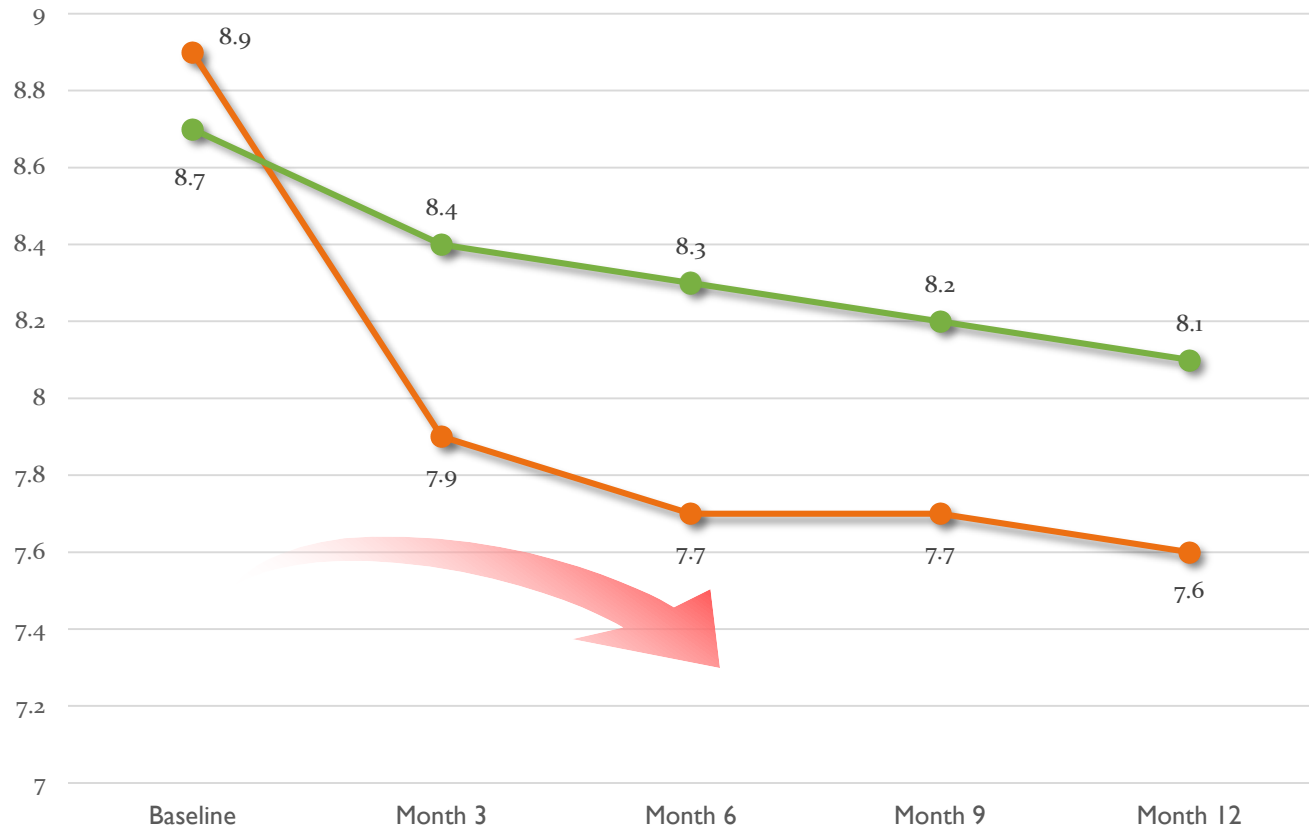


Distal outcome

Hemoglobin A1c

**Usual
Care Group
(UCG)
(n=130)**

**Integrate
Care Group
(ICG)
(n=120)**





Summary

- During the 12 month project period:
 - ICG sustained 1.0%-1.3% reductions of HbA1c, while UCG maintained 0.3%-0.6% reductions.
- Statistically significant improvement of self-efficacy and quality of life in IG was observed when compared to the UCG.



Conclusions

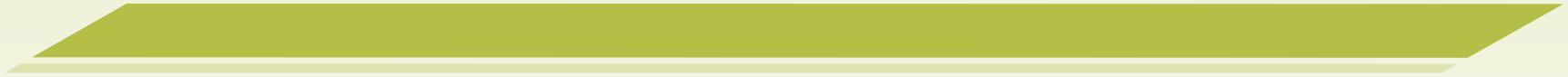
- Community-based interventions provided by healthcare providers (e.g., RNs/CHWs) seem to be effective in helping people manage their chronic conditions in natural settings.



Implications

- This study has the potential to be a sustainable model practice in the community.
- A combination of physician extenders-running MCO and RN/CHWs running community wellness centers may be an answer to ascertain both higher quality standards and cost-containment for the management and control of chronic diseases in general and diabetes in particular.





Thank You!