



Implementing Individualized Sedentary Education

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Introduction

Missouri Health and Senior Services (2019) reported 15,494 emergency department visits and 18,520 inpatient hospital admissions with a primary diagnosis of diabetes and 1,508 diabetes-related deaths with mortality rate increasing with age.

Evidence associates sedentary behavior time, compared to a lack of physical activity alone, with a stronger association with metabolic disease risk (Larsen, et al., 2015).

Inquiry, Purpose

Inquiry: In patients with type II diabetes or prediabetes, does individualized education to reduce sedentary behavior to less than eight hours daily decrease HbA1c and improve attitude and motivation in six-months at a primary care clinic.

Purpose: To determine if evidence-based behavior education Incorporating sedentary behavior reduction improves sedentary behavior, HbA1c, attitude, and motivation.

Synthesis of Evidence

Search: CINHALL, PubMed. Keywords: sedentary behavior and diabetes. Criteria: English language, type II DM or pre diabetes, past 10 years.

Evidence Table of Hierarchy, 30 studies

	Evidence-based Guidelines	LOE 1	LOE II	LOE III	LOE IV	LOE V	LOE VI	LOE VII
Studies	2	3	4	4	9	1	4	3

Melnik, levels of evidence for an intervention inquiry.

Themes: Motivation, sedentary behavior, attitude, and DM education positively impact control of diabetes

Theory, Change, EBP Model

Theory of Planned Behavior, Transtheoretical Model of Behavioral Health Change, Promoting Action on Research Implementation in Health Services (PARIHS) Framework

Methods

IRB, Design: IRB approved as not research, quality Improvement. One cohort, pre/post-test, pilot quasi-experimental.

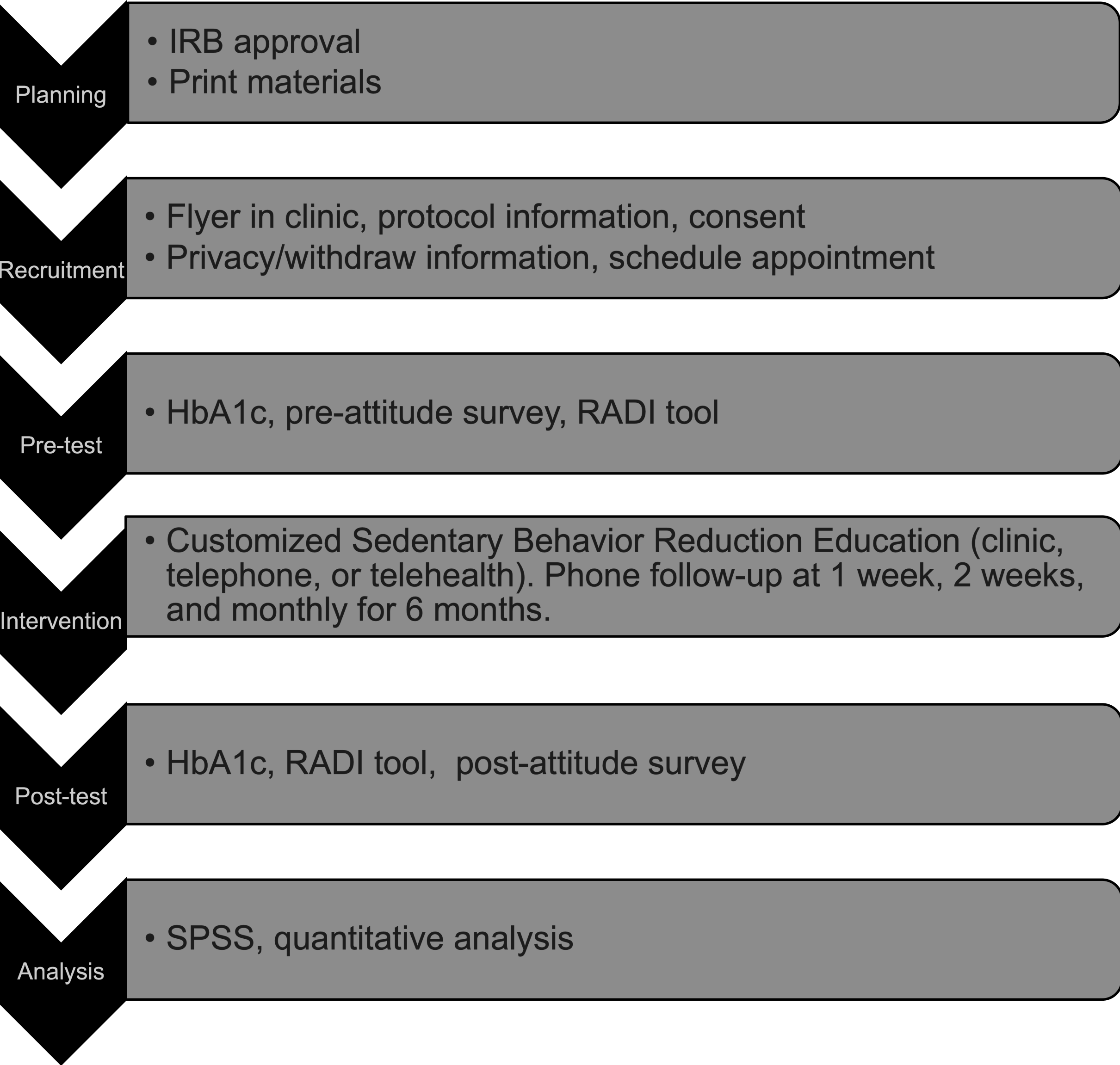
Settings, Participants, Time: Federally qualified health center primary care clinic in northwestern MO. Over the age of 13 with a diagnosis of type II diabetes or prediabetes. Six months.

Intervention: Individualized sedentary behavior reduction education provided by a nurse practitioner.

Outcomes, Instruments: pre/post HbA1c, sedentary behavior time (Rapid Assessment Disuse Index, RADI), attitude (perceived risk of sedentary behavior), and motivation

Analysis Plan: Descriptive statistics and Wilcoxon signed rank test.

Intervention Steps



Results

Twenty-seven patients enrolled in the project. Fifteen completed the education and pre/post surveys (55%)

Sedentary behavior time was significantly decreased pre to post education (p=.013, RADI scores)

Attitude (perceived risk) improved pre-post education.

Motivation was unchanged.

Initial HbA1c level ranged from 6.4 to 11.2. Two participants had a post HbA1c, and both decreased by 0.5. Thirteen post lab values were missing.

Pre/post Changes, N=15	
	Mean
Pre RADI	33.40
Post RADI	31.80
Pre attitude	2.67
Post attitude	2.53
Pre Motivation	3.60
Post Motivation	3.60

The RADI included three Likert questions: moving on foot, climbing stairs, and sitting as perceived for the past week, month, and year.

The attitude and motivation survey consisted of nine Likert questions including a question on motivation to change.

Intervention Provided

The planned intervention was provided without modifications to the education regarding sedentary behaviors. Revisions to the activity plans were made to better accommodate the exercise capacity of the participant.

Conclusion

Discussion

The educational interventional successfully decreased time spent in sedentary behaviors and increased perceived risk of sedentary behavior. Two participants had a post HbA1c, and both showed improvement. Incompletion of the lab was due to attrition, clinic closure, and COVID.

Validity & Limitation Threats: Small sample size (power 0.4 with medium effect, alpha .05, Wilcoxon signed rant test, two tail) and minimal ethnic diversity. Length was 6 months, and attrition was 44%, excluding post HbA1C.

Usefulness in Healthcare

Increasing awareness about the risks of sedentary behavior can improve chronic disease self-management and risk reduction through lifestyle modification.

Impact to Healthcare

This project could inspire future research to generate more customizable objective interventions to reduce sedentary behavior activity times.

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