Effectiveness of Community Health Workers (CHWs) in Coordinating Diabetes Self Management Education (DSME) for High-need Appalachian Clients

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Abstract

Objective
Examine effectiveness of CHWs in supporting a nurse-led DSME intervention among clients who are characterized by high rates of poverty and poor education.

Methods
Study Population/Research Design: New Kentucky Homepage clients (3,217) ages 18-65+ from a 26-county study area who were diagnosed with diabetes during pregnancy were not willing to sign IRB consent were eligible to participate. Women professional they were diabetic, could speak English, and were 30.6% (983) of clients who had been told by a health professional they were diabetic, could speak English, and were processed prior to study starting date July 1, 2011. The clients (3,217) ages 18-65+ from a 26-county study area who were able to enroll on a first-come basis up to a limit of the sample size for clients who had been told by a health professional they were diabetic, could speak English, and were 30.6% (983) of clients who had been told by a health professional they were diabetic, could speak English, and were processed prior to study starting date July 1, 2011. The clients (3,217) ages 18-65+ from a 26-county study area who were able to enroll on a first-come basis up to a limit of the sample size for clients who had been told by a health professional they were diabetic, could speak English, and were processed prior to study starting date July 1, 2011.

Demographic and background variables included age, gender, marital status, education, income, federal poverty level, health insurance status, visit to diabetes educator, and New Vital Sign (NVS) test of health literacy level.

Pretest and posttest measures included: A1C, Weight (pounds), Height (ft., in.), Diabetes Knowledge Test (DVT), Diabetes Empowerment Scale – Short Form (DES-SF), and the Summary of Diabetes Self-care Activities (SDSCA) Measure.

CHW Research Training
CHWs were trained in the methods of the Improving Diabetes Outcomes (I DO) Phase I research project in a hands-on environment in a computer lab. Active supervision and monitoring were possible throughout the research project. Graphics and algorithms of the type depicted were developed to aid the CHWs throughout the research process from screening, through enrollment of clients, and the administration of the pre/post measures. A hot-line process was established to quickly resolve issues and to share the results of frequently asked questions (FAQs) with all CHWs, principal investigator, and other study personnel.

Data Collection and Quality Control
Special attention was given to the optimal role of CHWs can play in field research with high rates to reach and enroll clients. Web-based data management enabled active monitoring of adherence by CHWs to the research design, study progress, and problem solving by the PI and Regional CHW Supervisors.

• Online Database (DB) Controls for Accurate Data Entry
  • Proper sequencing of research measures is enforced by DB
  • Intervention cannot commence before pretest measures
  • Posttest measures must come after intervention
  • Data input by CHWs validated for range and type
  • Cannot enter text in numeric field
  • Dates entered cannot be in future or distant past

• Most input fields are required to be filled
  • Cannot enter text in numeric field
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  • Intervention cannot commence before pretest measures
  • Data input by CHWs validated for range and type
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• In Region CHW Supervisors
  • Gather questions and issues from CHWs
  • Work with data management staff to assess problems and update procedures
  • Disseminate solutions and best practices to CHWs

Kentucky Homepage CHW Characteristics

- Age, mean (SD), y: 49.3 (10.5)
- Annual Income, mean (SD): $31,393 ($15,817)
- Employed Kentucky Homepage, mean (SD), y: 8.1 (9.1)
- Lived in Service County, mean (SD), y: 34.4 (19.2)

Source: 2010 Survey of Kentucky Homepage CHWs

Limitations of Study
There are two major limitations. The first is the lack of randomization in the selection of study subjects. Enrollment was voluntary by clients up to the limit of the sample size for clients who had been told by a health professional they were diabetic. Second is the dropout rate of clients from the initial sample and after the first DSME session, which was worse than the dropout rate of clients not to keep appointments for travel expense. Efforts were made to lessen the effect of travel expenses for the intervention group by providing gasoline payment cards and meals during the nurse-led DSME.

Discussion
A program to lessen diabetes in this population has the opportunity to focus on modifiable behavioral risk factors that can be prevented or lessened and improved glycemic control through DSME. Based on CDC data from 2008, it was estimated that 22.5% of adults aged 20 in Kentucky’s diabetes belt counties had type 2 diabetes, 32.3% were obese, and 36.1% were physically inactive. It is not surprising that 71.8% of IDO clients, who are characterized by these risk factors, report their health as fair (39.5%) or poor (32.3%).

One obvious approach to lessening these problems would be concentrated and sustained DSME led by Certified Diabetes Educators (CDEs). Given the shortage and mis-distribution of CDEs and the long time that it takes to become a CDE, we recommend much greater use of CHWs linked with CDEs in DSME throughout Kentucky and more effective coordination with primary care physicians in our 68 diabetes belt counties.

I DO Phase II research is in progress Statewide with a random sample of 600 each for intervention and control groups.

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