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Effect of a nurse case management intervention for hypertension self-management in low-income African Americans

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1. Introduction

Poor health outcomes of chronically ill low-income adults are costly in both fiscal and human terms. One-third of Americans have hypertension and < 50% of those have their disease controlled, which costs the US $51 billion annually in medical care and productivity [13]. African American adults have the highest rates of hypertension in the world (> 43%) with high rates of exacerbations and complications [28, 10]. Low-income African American adults face life situations complicated by limited resources, high environmental and social risks, a high burden of stress and limited access to healthcare, all of which contribute to a substantial risk for multiple chronic conditions [10, 11, 19]. These factors may also contribute to a low sense of trust in the healthcare system, low self-efficacy regarding self-management behaviors to control hypertension, poor chronic disease management and costly sequelae [6, 19]. Thus, new intervention models and systems of care that are consumer-driven must be developed to improve outcomes. Client self-management of chronic diseases has emerged as a key factor in improved health outcomes [8]. We tested the effect of an innovative Ecological Nurse Case Management (ENCM) intervention on perceived stress, self-efficacy, self-management behaviors (SMB), and health status of low-income, chronically ill, African American adults. We hypothesized ENCM would reduce stress and increase self-efficacy and positively impact health status. We expected that that clients receiving this intervention would show decreased blood pressure (B/P), body mass index (BMI) and waist circumference (WC).

2. Methods

2.1. Design, setting and sample

This study was a two-group randomized clinical trial pilot study with repeated measures over six months. Potential participants were identified by health care providers in a free community medical clinic serving primarily low-income African Americans. With > 160 persons with hypertension seen per month across three locations, this clinic provided excellent access to the target population. It was operated by a local major health care system and run with a large cadre of interprofessional volunteer providers, medical Residents and health professions students. Three paid staff, a medical director, nurse clinic manager and pharmacist, provide leadership for clinic services. Services included primary care and some limited specialty medical service; individual health education; dental, vision and social worker services; and health promotion classes. The study primary investigator (PI) had participated in collaborative partnership activities with the clinic over the past 25 years. The clinic administrator supported and facilitated the study activities with the clinic staff.

Clients were eligible for enrollment if they were African American, aged 30–65 years, receiving treatment for hypertension with antihypertensive drugs, and spoke and wrote English. Exclusion criteria were clients with acute or terminal condition (e.g., Myocardial infarction, terminal cancer), psychiatric diagnosis (e.g., schizophrenia or cognitive impairment), or other conditions that would limit participation in the study. Eligibility was confirmed and written informed

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consent obtained from all participants at their baseline visit. The study was approved by the University Institutional Review Board (IRB) (#15.225) and registered at clinicaltrials.gov.

2.2. Procedure

Flyers about the study were posted at the three clinic sites with a contact number so clients could call the PI to ask about study enrollment. Clinic staff also screened clients and referred those meeting the study inclusion criteria to the PI. When further client interviews by the PI or Research Assistant (RA) confirmed that all inclusion criteria and no exclusion criteria were met, the study protocol was explained and clients were given the option to join the study. Following completion of informed consent, clients were randomized to either treatment group or control group (1:1 ratio). Randomization was carried out by a computer random-generator program. Clients in the treatment group received the ENCM intervention and those in the control group received usual clinic care. Usual clinic care was defined as medical care routinely received in the free clinic. The control group were offered six months of free ENCM services at the University nurse-managed health centers when the study was completed.

Immediately after enrollment, the PI or RA collected baseline study data. The PI or RA made follow-up appointments with each subject to repeat the same measurements at about 1, 3, and 6 months of the study, which are common intervals for return visits for hypertension management. Gift cards of $20 from a local discount store were provided for both groups at each measurement visit to improve client retention. The interventionist, a community health nurse prepared with a Bachelor's degree; over 14 years of experience; and ENCM intervention training, contacted the subjects in the experimental group for ENCM intervention visits either at the time of their enrollment or via a later phone call. The intervention group participants were asked to visit with the intervention nurse at least once a month.

2.3. Intervention

The Individual and Family Self-Management Theory (IFSMT) [20] provided the framework for this study which examined the impact of an innovative ENCM intervention for low-income African American adults on multiple variables related to the IFSMT 'Context' (gender and perceived stress) and 'Process' (self-efficacy), and 'Proximal' and 'Distal' 'Outcomes' components. The 'Proximal Outcome' was hypertension SMB and the 'Distal Outcomes' related to hypertension health status including, B/P, BMI and WC. The IFSMT 'Intervention' component was operationalized by the ENCM. A full description of the intervention is registered at clinicaltrials.gov. The ENCM (Fig. 1) intervention relies on an assumption that given the proper tools (i.e. knowledge, skills and support) individuals can learn to better self-manage their symptoms on a day to day basis and better utilize the health care resources available to them. ENCM is grounded in an acknowledgment of individual/family strengths and resilience. The intervention is individualized to each client. Clients are valued as managers of their own care and promoted to become experts in self-care. Mutual Self-Management Goal Setting, which is key to establishing trust and retaining clients, and Client Choice Points, such as self-management preferences and visit place and times, are the primary components of the ENCM intervention.

The ENCM intervention is non-linear, though it follows a basic sequence through the course of the client visits. At the first visit in this study, the interventionist asked the client to identify three goals to improve her/his health in which she might be of assistance. Client-interventionist dialogue refined the goals to be achievable in 6 months. This practice was a key component of the ENCM intervention, termed 'Mutual Self-Management Goal Setting' (Fig. 1). The interventionist then initiated a holistic health assessment, inclusive of a health history encompassing information on SMB, support systems, stress management/coping skills, spiritual/cultural beliefs, and past experiences with the health care system. She followed each client's lead regarding the depth of the discussion in the initial visit. Full holistic assessments were completed with each client in subsequent visits.

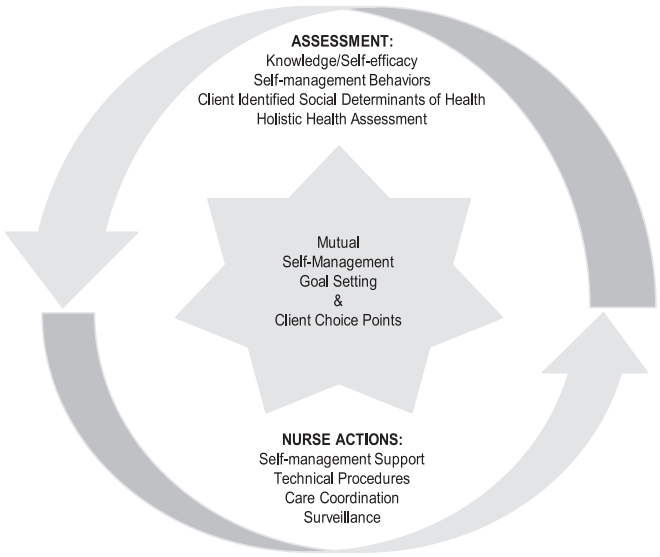

Fig. 1. Components of the ecological nurse case management intervention. © 2014 Bev Zabler

The interventionist nurse provided any or all of four primary nurse actions targeting specific problems identified by the client and nurse in the visit and individualized to the client. These actions included: self-management support, inclusive of both health education and behavior modification; technical procedures; care coordination; and/or surveillance. Multiple strategies and options were discussed at the visits and the nurse consistently elicited and respected client's choices. At the end of each intervention visit, collaborative plans were made for subsequent appointments for which the client chose the venue and desired time. Monthly appointments for the next 6-months were agreed to for the minimal intervention dose. Clients could choose more frequent visits or phone calls. After the initial intervention training, the PI conducted weekly intervention fidelity checks with the interventionist nurse, who completed a 'Branching Simulation' [16], compliance checklist and either case reviews or documentation audits.

2.4. Measures

We used surveys to measure variables related to the IFSMT components of 'Context' (Stress) and 'Process' (Self-Efficacy), and the 'Proximal Outcome' of Hypertension SMB. The surveys for perceived stress [7, 21], self-efficacy [22], hypertension self-management [12] have each been validated for use in low-income African American populations. The reliability Alpha coefficients of these scales among our subjects were 0.81 for perceived stress, 0.89 for self-efficacy, and 0.92 for hypertension self-management. We measured the IFSMT Distal Outcome of Health Status by B/P [18], WC [29] and BMI from height and weight [17] based on standardized procedures. For example, we measured B/Ps three times on the left arm unless contraindicated, with the subject in a sitting position, after a 30-min rest. The PI or RA conducted the measurements at study enrollment (baseline) and at 1, 3, and 6 months.

2.5. Participants

We achieved 96.7% of our recruitment target goal, enrolling 59 (Table 1) of a targeted sample of 61 participants determined by a priori power analysis, and realized an 83.1% retention rate at the end of six months. At baseline, the 59 non-Hispanic Black participants in the study has an average age of 53.73 years (SD = 6.67) and 63% were women.