

Efficacy of chronic disease self-management among low-income Black males with behavioral health disorders: Pilot study

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Corresponding Author: Carol Collard • 520 Parliament Garden Way, Kennesaw, Georgia 30144 • 470-578-2448 • ccollard@kennesaw.edu**ABSTRACT****Background:** This study examined the effectiveness of Stanford University's Chronic Disease Self-management Program (CDSMP) among men living with co-morbidities of chronic physical health disease and behavioral health disorders.**Methods:** The study was conducted at a community-based, non-profit organization in partnership with a large suburban university. Two pilot studies were completed with the population of interest. Low-income adult males with behavioral health disorders were recruited to participate in the program provided by a local behavioral health agency. Facilitators trained in the CDSMP program administered it at the agency site, and participants attended weekly meetings. Descriptive data collected included health history, demographic information, and assessments of knowledge with the Chronic Disease Self-Efficacy Scale and the Chronic Disease Self-Management Questionnaire created by the Stanford Patient Education Research Center. Due to the small sample size, $n=12$, the Wilcoxon signed rank test was used to evaluate before and after differences in the sample.**Results:** For the participants, there were increases in overall activity, stretching activities, and equipment activities. Additionally, participants experienced a decrease in the number of days affected by poor physical or mental health. However, there was no significant increase in perceived self-efficacy, a factor in patient confidence and possibly compliance. Limitations included the small sample size, lack of a control group, and convenience sampling.**Conclusions:** Various aspects of the program were helpful to some participants, but cultural factors made other areas less compatible for this population. A larger study, utilizing a comparison group, could generate data relevant to hypotheses based on these observations. By collecting qualitative data, focus groups could contribute to understanding the experiences and needs of the participants. Development of a curriculum for self-management of chronic disease with a focus on intercultural competence is presently of interest.**Key words:** Chronic disease, behavioral health, self-management, self-efficacy<https://doi.org/10.21633/jgpha.6.405>**INTRODUCTION**

By improving health behaviors, self-efficacy, and health status, the curriculum of the Chronic Disease Self-Management Program (CDSMP) is effective in the self-management of chronic disease (Lorig, Sobel, Ritter, Laurent & Hobbs, 2001). Cultural adaptations made to the program for use with Hispanic populations produce similar results (Lorig, Ritter, & Jacquez, 2005). To date, however, there is little research on the efficacy of this treatment for populations of lower socioeconomic status (SES), formerly homeless adults, or individuals with behavioral health concerns. The purpose of the present study was to examine the effectiveness of implementing this curriculum for men who were formerly homeless and coping with chronic diseases and behavioral health disorders.

Prevalence of Chronic Disease

According to the World Health Organization, individuals experiencing chronic health conditions require ongoing, long-term support (2002). In general, systems for delivery of health care have focused attention on the treatment of acute problems (World Health Organization, 2002), which

often results in inadequate delivery of services to address chronic conditions. Globally, the prevalence rates of chronic diseases are increasing, and there is a need for changes in delivery of health care to address the rising rates (Tsiachristas, Hipple-Walters, Lemmens, Nieboer, & Rutten-Van Molken, 2010). An integrated and multidisciplinary approach to management of chronic diseases is a means of delivering adequate, long-term, patient-centered services (Tsiachristas et. al, 2010). Integrated care is a promising model of healthcare delivery that, to benefit the patients, focuses on collaboration and the sharing of information between professionals at different levels (Chouvara, Goulis, Labrinoudai, & Maglaveras, 2015). There are various definitions for integrated care, coordinated care, and disease management (Juhnke & Muhlbacher, 2013). For the purpose of this report, integrated care is defined as "the search to connect the health care system (acute, primary medical, and skilled) with other human service systems (e.g., long term care, education, and vocational and housing services) in order to improve outcomes (clinical, satisfaction, and efficiency)" (Leutz, 1999).

According to the National Center for Chronic Disease and Prevention, chronic diseases cause 7 of 10 deaths each year (CDC, 2017). Chronic illness is defined as "the irreversible presence, accumulation, or latency of disease states or impairments that involve the total human environment for supportive care and self-care, maintenance of function, and prevention of further disability" (Curtin & Lubkin, 1995). Of all health conditions, heart disease, stroke, cancer, diabetes, obesity, and arthritis are the most prevalent, expensive, and preventable (CDC, 2017). The United States Center of Health Statistics considers chronic diseases to be illnesses that last for more than three months, cannot be prevented by vaccines or cured by medications, and do not disappear (CDC, 2017). More than 117 million individuals are living with one or more chronic illnesses, and more than 70% of all deaths in the United States are due to chronic diseases (CDC, 2016).

Health Disparities

In the United States, health disparities, or differences in health status, encompass more than race and ethnicity; they occur across gender, sex, age, education, income, disability, geographic location, and sexual orientation (US Department of Health and Human Services, 2000) and they coincide with differences in SES.

Chronic illnesses account for at least 4 of the 15 leading causes of death for African Americans 45 years and older (Heron, 2016). Fried, Bernstein, & Bush (2012) found, based on the National Health Interview Survey for 2009/2010, that 28 percent of African-American adults of ages 45-64 reported two or more of the following chronic health conditions: hypertension, heart disease, diabetes, cancer, stroke, chronic bronchitis, emphysema, asthma, and kidney disease. Among adults coping with two or more chronic illnesses, African-Americans are disproportionately represented (Fried et al., 2012; McFayden, 2009). Those in poverty are more likely to report more than two chronic illnesses. In addition, 23% of adults of ages 45-64 either did not receive care or delayed care due to cost, and 22% did not purchase prescription drugs due to cost (Fried, et al., 2012). Hossain, Ehtesham, Salzman, Jenson, and Calkins (2013) reported that "African American men are 30% more likely to die of heart disease than non-Hispanic white men." Additionally, rates of diabetes mellitus were 1.6 times higher for African American adults compared to non-Hispanic whites (Hossain et al., 2013). Further, Hispanics are 1.9 times more likely than non-Hispanics to develop type 2 diabetes mellitus (Hossain et al., 2013).

Data collected through the National Health Interview Survey in 2012 found that men were more likely than women to have been told that they had coronary heart disease or hypertension (Blackwell, Lucas, & Clarke, 2014). Additionally, of survey respondents, men were more likely to have been told they had emphysema or COPD compared to women, who were more likely to have been told that they had asthma, sinusitis, or chronic bronchitis. Difficulties in physical functioning were higher for Black adults (18%) compared to White adults (14%) and Asian adults (9%), and adults in poor families were more than twice as likely to

have difficulties in each of nine physical activities (Fried et al, 2012).

SES, a primary determinant of health that influences access to and availability of resources (Stepanikova & Oates, 2017), affects health care (McFayden, 2009). Stepanikova and Oates (2017) note that, within racial groups, SES exacerbates stratification of health. Health improves with higher income and educational levels, as demonstrated through "stepwise gradient patterns" (Braveman et al., 2005). These SES patterns indicate that socially disadvantaged groups fare less well in health outcomes than their more-advantaged counterparts (Braveman, 2012; Stepanikova & Oates, 2017).

Relationship between Homelessness and Co-morbidity

African Americans are disproportionately represented among adults who are homeless (National Coalition for the Homeless, 2015) and those who are coping with chronic disease (National Caucus and Center on Black Aged, 2003). Chronic diseases prevalent among this subgroup are hypertension, diabetes, and HIV/AIDS (National Center for Chronic Disease and Promotion, 2016). In managing their health needs, homeless populations face various barriers, including lack of permanent housing and limited access to health care resources (Zlotnick, Zerger & Wolfe, 2013). Further, the stress of homelessness generally exacerbates health concerns (Culhane, Metraux & Hadley, 2002; Zlotnick, et al, 2013; Nickasch, & Marnocha, 2009).

The availability of supportive housing for formerly homeless individuals in recovery as well as those with mental health concerns reduces the burden on hospitals, jails, and mental health and other institutions, thus reducing overall societal costs of care (Henwood, et al., 2013). However, health outcomes for these individuals, after they are off the streets, are not likely to improve without changes in behavior, particularly regarding diet and medical compliance.

Self-Management of Chronic Disease and Behavioral Health

For those dealing with chronic illness, self-management programs are receiving increased attention for medical compliance in order to improve outcomes. With individuals living longer and with an increase in the numbers of individuals living with at least one chronic illness, there is a need for effective methods to manage these illnesses. Baby boomers, the largest generation in U.S. population history, have reached the age when most chronic illnesses become prevalent (Bodenheimer, Lorig, Holman & Grumbach, 2002). Use of self-management programs has resulted in limited success in two areas, internal/intrinsic and utilization of healthcare services (Bodenheimer et al., 2002). Internal and intrinsic results are those that affect emotional and/or psychological processes, and perception.

For patients, self-management of chronic disease has shown some success in relation to problem-solving skills and the ability to identify medical challenges (Bodenheimer, et al., 2002) and in improving motivation (Haslbeck et al., 2015). Motivation can be an essential factor for people dealing with

the challenge of medical illness (Charmaz, 1991). Motivation to change or feeling motivated to progress in the face of serious medical illness improves the possibility of consistency and, thereby, success. Self-management programs have shown effectiveness in improving patient knowledge (Haslbeck et. al, 2015) and perceived ability to balance the experiences in their lives. For those diagnosed with HIV/AIDS, Bedell (2008) found interventions that included self-management improved individuals' perceptions of their ability to balance health and other life activities, such as work.

Self-management of chronic illness improves areas that relate to utilization of health care. For patients, self-management programs have reduced incapacity (Fu, Ding, McGowan & Fu, 2005) and have shown success in improving utilization of health services (Drenkard et al., 2012). There have also been improvements in assisting patients with navigating the healthcare system and preparing them to collaborate with healthcare providers in treatment of their chronic illness (Lorig et al, 2001). Further, self-management programs appear to be cost-effective (Fu et al., 2006).

There is limited literature on the use of self-management programs for individuals with dual diagnoses of chronic illness and behavioral health. There are positive results in helping patients manage emotional concepts, such as fear and depression (Lorig, et al., 2001). Also, after participating in a self-management program, individuals diagnosed with serious mental illnesses improved in the areas of quality of life, depression, and fatigue (Lorig, Ritter, Pifer & Werner, 2014).

The Role of Self-efficacy in Behavior Change

The underlying premise for choosing a self-management curriculum along with the peer support is that the information obtained increases knowledge and confidence among participants. Bandura's (1982) theory of self-efficacy is based on the concept that behaviors, knowledge, and environment influence change. He further states (1997) that "a strong sense of efficacy in socially valued pursuits is conducive to human attainment and well-being." As various factors contribute to human behavior, Bandura (1997) acknowledges that individuals are "contributors to, rather than the sole determiner of, what happens to them." In choosing a course of action, individuals match what they know is possible with their beliefs about their own abilities. Higher rates of self-efficacy can increase coping skills and increase confidence in one's ability to resist relapse to unhealthy behaviors and habits.

METHODS

Design and Sampling Method

A quasi-experimental, pre- and post-test design was used to evaluate the perceived self-efficacy and health outcomes among low-income, adult males with behavioral health disorders. Permission was obtained to use the CDSMP designed by Stanford University to provide health education and peer guidance. For this study, IRB approval was received through the authors' institution. A partnership was

developed with a local non-profit organization, and permission was obtained to work with their client population.

Sample

Participants were recruited from among the members of a transitional housing facility located in downtown Atlanta that serves men dealing with unstable housing and with co-occurring disorders. The residents are housed for a period of 24 months. Flyers describing the study and educational program were distributed. Participants were predominantly middle-aged African American males, which was reflective of the general population of the facility. Of the sample participants, 75% (n=9) were African American and 25% (n=3) were Caucasian. In regard to education, 33% (n=4) had completed some high school, 25% (n=3) had a high school diploma, 25% (n=3) had completed some college, and 17% (n=2) had a college diploma. Chronic disease and mental health status varied. Among participants, reported health concerns included asthma, 25% (n=3); chronic obstructive pulmonary disease, 17% (n=2); high blood pressure, 33% (n=4), arthritis, 17% (n=2); and cancer, 17% (n=2). Mental health concerns included depression, 75% (n=9) and anxiety, 50% (n=6).

The study consisted of phase 1 (n=15) and phase 2 (n=7), which were conducted approximately six months apart. The sample consisted of 22 participants from both phases. Each participant was expected to participate in a minimum of four sessions. Due to attrition rates and the untimely death of one of the participants, data analysis was conducted on responses of the 12 participants who completed the program and the pre- and post-tests.

Data Collection

Prior to beginning the program, informed consent was obtained from all participants. Each completed the pre-test survey questionnaires, which collected background history and measured self-efficacy, and each attended weekly group sessions led by peer specialists trained in facilitating the CDSMP curriculum. For phases 1 and 2, the groups met for 2.5 hours each week for six weeks. At the beginning of each phase, participants were issued a program workbook "Living a Healthy Life with Chronic Conditions." Those completing four or more of the six sessions received a \$30 gift card.

For the pre- and post- surveys, the Chronic Disease Self-Efficacy Scale was used to assess perceptions of participants regarding their confidence in completing various activities related to their health. The Chronic Disease Background Questionnaire was used to examine changes in health outcomes and health-related behaviors. The pre- and post-survey responses were analyzed to measure program outcomes and effectiveness.

Data Analysis

For each variable on the background and self-efficacy questionnaires, analyses, conducted with SAS, version 9.2, were accomplished with data from the tests. Univariate and bivariate statistical analyses were completed. Because of the small sample size, n=12, the Wilcoxon signed rank test was

used to evaluate the before and after differences and to assess significant changes. Frequency statistics were accomplished to describe sample demographics and responses.

RESULTS

Regarding the physical activities of participants (Table 1), there was an increase in stretching activities ($p < 0.01$), an almost significant increase in equipment activities ($p = 0.06$),

and an increase in overall physical activity ($p < 0.05$). There was significant decrease in the number of days participants were affected by poor physical or mental health ($p < 0.05$). Analysis of self-efficacy data, however, indicated no significant changes in pre- and post- scores of reported confidence levels in ability to complete certain tasks. Although not a statistically significant change ($p = 0.15$), the variable for change in information about disease was more nearly significant than the other self-efficacy variables measured.

Table 1. Results

Variable	Pre-test Mean Score	Post-test Mean Score	P-value
Stretching Activities	20	48.8	0.0078
Equipment Activities	3.8	27.5	0.06
Overall Physical Activity (in minutes)	122.5	192.5	0.0186
Days Affected by Poor Physical or Mental Health	10.7	6.1	0.043
Information about Disease	6.8	8	0.1523

DISCUSSION

The present pilot study, which contributes to the literature on chronic disease and health care intervention methods in community-based practice, was conducted to evaluate the effectiveness of the CDSMP curriculum for a sample of low-income, predominantly African American, males. Inconsistent with prior research on the implementation of the CDSMP, participants did not improve in all health behaviors (exercise, cognitive symptom management, and improved communications with physicians) or in self-efficacy (Lorig, et al., 2001).

Primary limitations of the study are the small, non-randomized sample and the lack of a control group. A larger sample would have strengthened the statistical analysis of the tests performed, and it is likely that more changes in outcome measures would have been significant. Participants were recruited and selected through convenience sampling methods at a transitional housing agency that primarily serves individuals in recovery from addiction. As such, the sample is not completely reflective of the larger population of formerly homeless individuals with co-occurring disorders. Thus, the results cannot be generalized to the larger population, for which future studies are required to evaluate treatment methods for chronic diseases.

There are implications for clinical practice, teaching, and research. Previous research has demonstrated the usefulness of the CDSMP in a program involving permanent supportive housing (Henwood, et al., 2013), which demonstrates its usefulness with a chronically homeless population. Since the present study was implemented in a transitional housing program, future research, with use of this curriculum, should seek to understand the effects of permanency of placement and how this relates to various housing models and should address the effectiveness of CDSMP in a permanent, supportive housing model. Additionally, future research should assess the sensitivity of this curriculum and questionnaire measurements in working with formerly homeless populations. Such research should include the use of qualitative methods for data collection,

such as participant interviews, in conjunction with quantitative analyses.

CONCLUSIONS

Due to the small sample size, it is difficult to generalize the conclusions. Nevertheless, the findings support further exploration. The purpose of this pilot study was to evaluate the efficacy of a CDSMP for males with co-occurring disorders (medical and behavioral health). The results showed improvement in stretching, equipment activities, and overall physical activity but no significant change in the self-efficacy area of confidence in completing certain tasks. Self-efficacy, an element of self-management, can improve coping skills and increase confidence. For vulnerable populations such as males with housing instability, low SES, and co-occurring disorders, development of confidence and coping skills can assist with relapse prevention and increased stability and possibly with increased medical compliance. Sections of the CDSMP questionnaire and workbook reference activities, i.e., gym memberships, and use terms, that may not resonate with all populations, and these areas need to be explored. The cultural applicability, and flexibility, of programs such as the CDSMP are important as these aid their potential for success with multiple populations. The present pilot study was an initial step in determining the elements needed for cultural applicability. Future investigations should include a larger population, a control group, and focus groups to gather qualitative data about critiques and needed improvements.

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