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Nursing Research Term Paper

**Foreword**

Congestive heart failure (CHF) is a chronic medical condition that affects millions of Americans, especially older adults. Recent literature reveals that heart failure is the most common discharge diagnosis in patients older than 65 years (Anderson *et.al.* 2006). The complex nature of CHF makes it difficult for many patients to manage their condition adequately once they are released from the hospital to the home setting, resulting in frequent readmissions to the hospital, even within a matter of days after discharge. CHF places a burden of health care resources, with much of the cost attributed to prolonged and repeated hospital admissions (Wiliams *et. al* 2010). Research shows that one-fifth of Medicare beneficiaries are re-hospitalized within 30 days, and more than one-third within 90 days (Jencks *et. al.* 2009); nearly 90% of these readmissions are preventable, which translates into $17 billion, or nearly 20% of Medicare’s hospital payments (Centers for Medicare & Medicaid services, 2007). As a result of these costly readmissions, the Centers for Medicare & Medicaid Services have launched an initiative that focuses on the 30-day readmission rate for heart failure patients; Medicare and Medicaid will begin to cease reimbursing hospitals with higher than national average 30-day CHF readmission rates, which place many hospital facilities at risk of losing revenue. Reducing 30-day CHF readmission rates have become a national core measure.

During my clinical for my Leadership in the Management of Client Care course, I was given the task to do a presentation for the staff in the coronary care unit (CCU) at St. Luke’s Hospital regarding CHF and the reduction of 30-day readmission rates. During the course of designing the presentation, I had to review several research articles in an attempt to understand factors that may contribute to frequent hospitalizations of CHF patients, as well as potential interventions that help to reduce CHF readmissions. It was this process, alongside simultaneously learning about the different types of research methods in my Nursing Research course, that inspired me to find a true research experiment that had the potential to contribute to helping patients manage their CHF condition adequately, thus helping to reduce 30-day CHF readmission rates. It was on those grounds that led me to choosing this research article for my nursing research paper; the article is entitled, “Nurse-led self-management group programme for patients with congestive heart failure: randomized control trial” (Smeulders, *et. al.* 2010).

**Introduction**

The authors of this article begin their research study by conducting a literature review of congestive heart failure, and factors that affect patients diagnosed with CHF. The authors briefly describe how congestive heart failure affects society, specifically aging individuals, in a variety of ways; some of those ways include quality of life in regards to physical, social, and emotional functioning. CHF has also been found to considerably reduce patients’ life expectancies. As an intervention, patients with CHF have been encouraged to take responsibility for their day-to-day disease management (Smeulders *et. al.* 2010) by use of self-management programs, which are programs that promote self-management of chronic illnesses, and are usually operated by volunteers that have the chronic illness themselves. Even with the use of these self-management programs, it is found that many patients with congestive heart failure are not in adherence to their treatment regimen. Although emphasis is usually placed on dealing with CHF from a medical aspect, it is rarely found that self-management of CHF is emphasized from a psychosocial perspective; social and emotional problems may affect a patient’s management of their congestive heart failure, but no research literature was found to have addressed those social and emotional concerns, nor show its impact on patients’ adherence to CHF management.

The researchers then select a program to investigate its potential effectiveness on CHF management called the Chronic Self-Management Program (CDSMP). The CDSMP is operationally defined as a generic cognitive-behavioral group program that not only emphasizes medical aspects of self-management, but also gives patients tools to improve their social and emotional self-management abilities. The CDSMP has been shown to show short and long term statistical significance in outcomes such as self-rated health, self-efficacy, and the use of cognitive symptom management techniques in patients with different chronic diagnoses. However, the CDSMP efficacy hasn’t been explored through research with regards to CHF management. Since the CDSMP has been documented to effectively manage other chronic conditions by targeting medical, social and emotional aspects of those chronic illnesses, the research question becomes the following: *What is the effectiveness of the Chronic Disease Self-Management Program (CDSMP) on psychosocial attributes, self-care behavior and quality of life amongst patients with congestive heart failure who experience slight to marked limitation of physical activity?*

In this research study, the independent variable is the Chronic Disease Self-Management Program, while the dependent variable is the psychosocial attributes, self-care behavior, and quality of life amongst CHF patients who experience slight to marked physical activity limitations. Psychosocial attributes were operationally defined by the measurement of general self-efficacy expectancies (as measured by the General Self-Efficacy Scale), cardiac self-efficacy expectancies (as measured by the Cardiac Self-Efficacy Questionnaire), perceived control (as measured by a mastery scale developed by Pearlin & Schooler), and cognitive symptom management (measured by The Coping with Symptoms Scale). Self-Behavior was operationally defined by use of the European Heart Failure Self-Behavior Scale. Quality of life was operationally defined by assessing general quality of life (assessed by using RAND 36-item Health Survey), cardiac-specific quality of life (measured by using the Kansas City Cardiomyopathy Questionnaire), perceived autonomy (measured by use of a visual analogue scale with a 0-100 scoring range), and feelings of anxiety and depression (measured by using the Hospital Anxiety and Depression Scale).

The CDSMP is based on Bandura’s self-efficacy theory, which, although not mentioned in this article, is a part of Bandura’s Social Cognitive Theory; this serves as the theoretical framework for this research study. According to Bandura’s Social Cognitive theory, self-efficacy expectations are focused on people’s belief in their own capacity to carry out particular behaviors (Polit & Beck, 2010, pg. 204); people who are optimistic about their self-efficacy are able to deal with challenging tasks and remain committed to achieving goals, while those with weaker belief in their self-efficacy are unable to deal with challenges effectively. The researchers’ hypothesis in this study is that the CDSMP will increase self-management skills among patients with CHF, which might positively influence their self-care behavior, psychosocial attributes related to managing their chronic condition, and health-related quality of life (Smeulders *et. al.* 2010).

**Methods**

The researchers conducted this study using a two-group longitudinal, randomized controlled trial post-test-follow up between-subjects research design, conducted in six comparable hospitals with regard to clinical and outpatient facilities, in the Netherlands. The CDSMP class, led by a cardiac nurse specialist (n=18) and a patient with CHF both trained in the CDSMP protocol, consisted of six weekly group sessions, each lasting two and a half hours. In the CDSMP class, self-efficacy was encouraged by using four strategies: 1) Skills mastery (characterized by goal setting and action planning), 2) reinterpreting symptoms (symptoms management and alleviation of symptoms techniques), 3) modelling, and 4) social persuasion. Patients in the CDSMP class received the reference book, “*Living a healthy life with chronic conditions”* (Lorig *et. al.* 2000).

Twenty-one CDSMP classes were conducted over a 15-month period, from October 2004 to January 2006 in 11 consecutive cycles, with at least one CDSMP class in each cycle. Parallel control groups were conducted over the same window of time. Each cycle began with baseline measurements of the patients, followed by random assignment of the patients into two groups: the intervention group, which received the six-week CDSMP in addition to usual care, and the control group who received usual care, which consisted of regular check-ups with the cardiologist and / or the CHF nurse specialist at an outpatient clinic (Smeulders *et. al.* 2010). This process was performed with each of the six hospitals chosen for the study. Patients were randomly placed into the two groups using a computerized allocation procedure operated by an independent researcher who was blinded for the subjects’ characteristics. The participants in both the control and intervention groups were observed directly after treatment, and followed up six months and twelve months after treatment. An unequal randomization ratio was applied during recruitment for several reasons: a) group processes are found to be essential in operating the CDSMP, b) time was limited in each cycle to recruit, and c) the researchers had to factor in possible attrition from the CDSMP classes, which may have affected the group process needed to operate the CDSMP (at least eight subjects are required to participate in the classes). As a result, during each cycle, 59% of recruited participants were placed in the intervention group, with the remaining 41% allocated to the control group.

Study participants were selected based on a number of criteria. Patients were eligible to participate in the study if they: 1) visited the heart failure and/or cardiology outpatient clinics of the selected hospitals between July 2004 and November 2005, 2) fit the criteria for diagnosis of CHF based on a left ventricular ejection fraction of less than 40%, 3) were diagnosed with diastolic dysfunction, and were admitted to the hospital at least once as a result of cardiac decompensation, 4) were willing to give informed consent to participate, 5) were diagnosed with CHF for at least six months by the time the intervention period was to begin, and 6) could write, speak and understand the Dutch language. In addition to failure to meet the above criteria, patients were also excluded from the study if they were actively participating in other studies. It was mathematically determined by the researchers that 274 participants were needed for the study to achieve a statistical power of 80%; assuming 25% attrition, it was determined that approximately 360 participants needed to be included in the study.

**Results**

Of 717 eligible patients, 378 patients refused to participate for a variety of reasons. A total of 339 patients signed the informed consent for the study; however, only 317 patients moved on to the randomization process, due to 1) failure to complete the baseline assessment form, 2) death, and 3) failure to meet inclusion criteria. The patients were then randomly allocated to the intervention groups (n=186) and the control groups (n= 131). Baseline assessment of patients’ background characteristics in both the intervention and control groups showed that the groups were highly comparable; thus, the control groups was able to serve as a good counterfactual to the intervention groups. Both groups lost participants to follow-up due to attrition; however, the amount of patients was comparable in both groups (the intervention group lost 30 patients, while the control group lost 22 patients), so it did not significantly affect the study. Furthermore, fewer participants were lost to attrition than anticipated. A total of 264 patients finished the study, with 156 patients in the intervention groups, and 109 patients in the control groups.

The CDSMP’s effect on CHF patients’ psychosocial attributes were measured by assessing patients’ general self-efficacy, perceived control, and cognitive symptom management. Of these areas, the CDSMP was found to have a statistically significant effect on cognitive symptom management on direct follow-up, as evidenced by a p value of <0.0001. The statistical significance in this case means that there is a 0.01% chance that the CDSMP’s effect on cognitive symptom management occurred erroneously, or by chance. The effect size of cognitive symptom management, which helps us to quantify the differences between the intervention and control groups’ results, was medium (d=0.34). Significance of the CDSMP’s effect on cognitive symptoms management, however, did not extend to the six-month and twelve-month follow-up assessments.

Effects of the CDSMP on self-care behavior were found to have statistical significance with a small effect size directly after follow-up (p<0.008, d=0.18). Significant results weren’t seen in the six month and twelve month follow-ups. In terms of the quality of life outcomes, short-term significance was only found in the cardiac-specific quality of life category (p<0.005, d=0.06) although the control group scored better than the group that received the CDSMP classes on baseline, on direct follow up, and at the 6 and 12 month follow up intervals. Effects on the cardiac-specific quality of life category almost showed significance at the 6 month follow up (p< 0.052).

It was previously stated that the researchers’ hypothesized that the Chronic Disease Self-Management Program (CDSMP) would increase self-management skills among patients with CHF, which might positively influence their self-care behavior, psychosocial attributes related to managing their chronic condition, and health-related quality of life (Smeulders *et. al.* 2010). Based on the statistical results of this study, it would be fair to say that the CDSMP showed significance in improving self-care behavior in patients with congestive heart failure. It would also be fair to say that the CDSMP classes significantly improved a certain aspect of psychosocial attributes, specifically cognitive symptom management, and a component of health-related quality of life, which was cardiac-specific quality of life. While significance was noted in those areas, the CDSMP did not affect other psychosocial attributes (e.g. perceived control, general or cardiac self-efficacy), or health-related quality of life (e.g. mental general quality of life, perceived autonomy, symptoms of anxiety, or symptoms of depression).

**Conclusion**

No matter how rigorous a research study is, or how well it is designed to control confounding variables, every research study will have its share of limitations. Although evidence has shown the Chronic Disease Self-Management Program to be effective in promoting self-efficacy in patients with chronic diseases, the results of this study didn’t show the same level of effectiveness in promoting self-efficacy and self-management behaviors as it did with other studies in regards to chronic disease management behaviors. The CDSMP had significant short-term effects on cognitive symptom management, self-care behaviors, and cardiac-specific quality of life, but no long-term significance was noted on any psychosocial attributes, quality of life outcomes, or self-behavior outcomes. Furthermore, no significant effects were found with any of the other aspects of psychosocial attributes or quality of life indicators. For those reasons, at the time that this research study concluded, the CDSMP effects on self-management behaviors in patients with CHF showed no implications for clinical practice; that is, it was not recommended for large groups of patients with congestive heart failure. In order to evaluate why the results of the study didn’t fully support the researchers’ hypothesis, the limitations of the study must be assessed.

The first notable limitation of this study was the amount of participants that completed the study. The researchers initially planned to have a minimum of 274 participants complete the study to increase the effect size and power of the study’s ability to find long-term effects. A larger population of participants may produce more significant results.

Another limitation of the study was the lack of an objective method to measure physical functioning. The CDSMP’s effect on general quality of life (physical) almost showed significance on the direct follow-up (p<0.052). Self-reporting was used to measure physical functioning in this category; a more objective method to measure physical functioning may have yielded more significant results.

Another possible limitation to the study may be the “usual care” control that the CDSMP program was compared to. The article revealed that usual care in the Netherlands with regard to CHF is rated high. CHF programs exist throughout hospitals in the Netherlands, with CHF nurse specialists and outpatient facilities that are accessible to patients. Furthermore, the article reveals that nearly all patients in the Netherlands are covered by health care insurance (Smeulders *et. al.* 2010). The standard of usual care may be too high to be compared to the CDSMP and produce statistically significant results. Methodologically, the best possible test is between two conditions that are as different as possible, as when the experimental group gets a strong treatment and the control group gets no treatment (Polit & Beck, 2010, pg. 230). The CDSMP program was likely too comparable to the usual care control, thus affecting results.

Due to the fact that short-term statistical significance was found with certain aspects of psychosocial attributes, self-care behavior, and quality of life outcomes, the reasons why significance didn’t extend to the long-term follow-up periods need to be investigated. It may suggest that refresher classes of the CDSMP may be needed at intervals to further promote CHF self-management behaviors, which would likely increase compliance and produce more significant long term results. For this reason, this study requires further research.

References

Anderson, M.A., Levsen, J., Dusio, M.E., Bryant, P.J., Brown, S.M., Burr, C.M., & Brown-

Benn, C. (2006). Evdenced-based Factors in Readmission of Patients with Heart Failure.

*Journal of Nursing Care Quality, 21*(2), 160-167.

Centers for Medicare & Medicaid Services Medicare & Medicaid Statistical Supplement

(2007). <http://www.cms.hhs.gov/MedicareMedicaidStatSupp/>. Accessed November 17th,

2011.

Jencks, S.F., Williams, M.V., & Coleman, E.A. (2009). Rehospitalizations among patients in the

Medicare fee-for-service program. *New England Journal of Medicine, 360* (14), 1418-1428.

Lorig, K., Holman, H., Sobel, D., Laurent, D., Gonzalez, V., & Minor, M. (2000). *Living a*

*Healthy Lifestyle with Chronic Conditions: Self-management of Heart Disease, Arthritis,*

*Diabetes, Asthma, Bronchitis, Emphysema, and Others.* Bull Publishing Company, Boulder,

CO.

Polit, D., Beck, & C. T. (2010). *Essentials of* *Nursing Research: Appraising Evidence for*

*Nursing Practice* (7th ed.)*.* Wolters Kluwer Health / Lippincott Williams & Wilkins,

Philadelphia, PA.

Smeulders, E.S.T.F., Van Haastregt, J.C.M., Ambergen, T., Uszko-Lencer, N.H.K.M., Jannsen-

Boyne, J.J.J., Gorgels, A.P.M., Stoffers, H.E.J.H., Lodewijks-Van der Bolt, C.L.B, Van Ejk,

J.T.M, & Kempen, G.I.J.M. (2010). Nurse-led self-management group programme for

patients with congestive heart failure: randomized controlled trial. *Journal of Advanced*

*Nursing, 66* (7), 1487-1499.

Williams, G., Akroyd, K., & Burke, L. (2010). Evaluation of the transitional care model in

chronic heart failure. *British Journal of Nursing, 19* (22). 1402-1407.