
TREATING DEPRESSION AMONG END-STAGE RENAL DISEASE PATIENTS: LESSONS LEARNED FROM COGNITIVE BEHAVIORAL THERAPY CLASSES

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This study tested the feasibility and effectiveness of cognitive behavioral therapy (CBT) in alleviating symptoms of depression and improving quality of life for patients with end-stage renal disease (ESRD). Four ESRD patients in the experimental group attended four weeks of classes using CDs and group discussion to gain CBT skills, and six patients in the control group listened to the same CDs. While there were no significant changes in participants' depression or quality of life scores, patients expressed personal benefits from group interaction and from the information they received. Due to the many barriers to attending group classes for this population, it may be more advantageous to listen to the information while at dialysis and discuss with a social worker.

About 354,000 Americans are undergoing hemodialysis in clinics across the country (USRDS, 2010) to treat end-stage renal disease (ESRD). Chronic kidney disease brings a challenging regimen of dietary restrictions, fluid limitations, and a rigorous dialyzing treatment schedule three days every week. Depression is known as the most common psychological problem among patients with ESRD (Finkelstein & Finkelstein, 2000). Yet, depression has been underdiagnosed and left untreated in many ESRD patients (Kimmel & Peterson, 2005).

Depression can prevent patients from reaching treatment goals. The complex dietary needs of ESRD patients are difficult for patients to understand and to comply with under the best of circumstances. Patients with ESRD who suffer from depression often have increased difficulty adhering to the medication requirements to achieve optimal outcomes (Cukor, Rosenthal, Jindal, Brown, & Kimmel, 2009). Many studies found increased mortality among ESRD patients suffering from depression (Kimmel et al., 2001; Knight, Ofsthun, Teng, Lazarus, & Curhan, 2003).

While several studies have documented the prevalence of depression among patients with ESRD, few studies have been done to evaluate treatment options for depression in this population. Kutner (2001) suggests that effectively caring for depression is the very first thing that needs to be addressed when attempting to improve compliance in all other areas of dialysis treatment. The failure to alleviate depression could result in substandard compliance for patients.

Cognitive behavioral therapy (CBT) has been widely accepted as a successful treatment for people suffering from clinical depression (e.g., Cukor, 2007; Duarte, Miyazaki, Blay, & Sesso, 2009; Kutner, 2001). The principles of CBT include bringing into people's awareness the particular thoughts, beliefs, and misconceptions that are creating

dysfunctional emotions and behaviors in their lives. Some researchers have applied CBT to individual counseling with success (Cukor, 2007). CBT training can benefit people as they are empowered to challenge negative thinking patterns, apply the skills to new situations, and adopt more positive coping behaviors.

Social workers are equipped to educate and support patients as they learn CBT skills in order to better cope with the many challenges of dialysis and ESRD (Callahan, 1998). Evaluation of individual progress can be done in the context of the relationship social workers develop with the patient, family, and clinical staff as a part of their work in the clinic. Roberts and Johnstone (2006) report that patients with ESRD prefer to receive depression treatment from their nephrology social workers because rapport has already been established. Nephrology social workers who provided CBT treatment designed to combat negative thinking reported improvement in patients' moods and increased patient satisfaction (Johnstone, 2005). Johnstone explored the feasibility and effectiveness of applying CBT treatment to alleviate depression and improve quality of life for patients with ESRD.

LITERATURE REVIEW

Depression is documented as the most common psychological problem in patients with ESRD (Cukor, Peterson, Cohen, & Kimmel, 2006; Finkelstein & Finkelstein, 2000). Drayer et al. (2006) estimate the rate of depression to be somewhere between 6% and 34%, depending upon the assessment tools used. It has been difficult to accurately estimate the prevalence of depression because many symptoms frequently present in ESRD often confound with symptoms also associated with depression.

Cohen, Norris, Acquaviva, Peterson, and Kimmel (2007) suggest "compound depression" is more difficult to treat

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and can occur when depression is diagnosed along with another medical or psychiatric condition. Many of the more common symptoms associated with uremia in ESRD patients can mimic depressive disorders. Those symptoms commonly seen in both depression and ESRD include irritability, various cognitive dysfunctions, anorexia, insomnia, and fatigue (Cukor et al., 2006). This overlapping of symptoms produces a challenge for mental health professionals and often results in underdiagnosing depression in patients on dialysis.

Cohen et al. (2007) posit that some level of depression may be predicted by a change in roles and levels of physical functioning, along with the difficulty of coping with the challenges and demands of dialysis treatments. It is important to note that not all dialysis patients are depressed. Bombardier, D'Amico, and Jordan (1990) suggest that physical and psychological functioning of individuals with chronic illness varies widely. For many conditions, medical factors alone do not adequately account for the extent of illness-related dysfunction. Bombardier et al. (1990) further suggest that how patients cope with the stress and management of their disease may affect their level of adaptation to the chronic illness. Cukor and Friedman (2005) assert that there is a "bidirectional relationship between depression and various medical illnesses" (p. 2). It is not always apparent how the individual's perceptions contribute to the presence of depression. Cohen et al. (2007) make a strong case that screening for depression in ESRD patients is necessary to provide basic quality care.

Medical effects of depression in this population result in lower immune defenses, malnutrition, and lack of medication adherence (Cukor et al., 2006; Cukor et al., 2009). The effects of untreated depression can result in more hospitalizations (Unruh, Weisbord, & Kimmel, 2005) and higher mortality rates (Drayer et al., 2006; Lopes et al., 2004). McDade-Montez, Christensen, Cvengros, and Lawton (2006) demonstrated a relationship between higher levels of depression and withdrawal from dialysis treatment which is the most common cause of death among ESRD patients (Drayer et al., 2006). Cohen et al. (2007) assert that the effective treatment of depression has the ability to improve compliance with medical treatment plans and has an impact on mortality rates. Kutner (2001) reports that compliance is "one of the least understood yet most guessed-about topics in healthcare" (p. 326).

Drayer et al. (2006) demonstrated that depressed patients had lower quality of life scores than those who were not depressed. The effective treatment of depression in ESRD patients is likely to improve quality of life and increase longevity (Kimmel & Peterson, 2006; Unruh et al., 2005). Because psychological factors are important predictors of health issues, the treatment of depression can have a powerful impact on medical outcomes as well as psychosocial determinants that influence perceived quality of life.

There is much evidence regarding effective treatment for depression. Yet, only a limited number of studies have examined these interventions for the treatment of depression in dialysis patients. Patients who utilize dialysis may be reluctant to take medication for depression because they are often taking a number of pharmaceuticals and fear medications may impair kidney function. For many people who suffer from depressive symptoms, antidepressant medication may not be necessary to provide effective treatment. Cukor and Friedman (2005) report strong evidence that CBT may be valuable in treating depression with or without medication. Cohen et al. (2007) suggest that research should be done to evaluate the effectiveness of CBT in treating depression in people with ESRD.

Several studies suggest CBT can be used effectively to treat depressive symptoms in ESRD patients (Cohen et al., 2007; Cukor et al., 2006; Feldman, 2007; Kimmel et al., 2007). Feldman (2007) asserts that CBT is at least as effective as antidepressants, and better at preventing a relapse of depressive symptoms. A recent study in Brazil sought to determine the effectiveness of group CBT classes for patients with ESRD (Duarte et al., 2009). The intervention group consisted of 41 patients, while the control group of 44 patients received the usual treatment. Duarte et al. (2009) found a significant improvement in the patients' perception of quality of life after group CBT classes, compared to the control group.

CBT is a problem-focused approach which teaches skills necessary to battle depression and other unwanted negative thoughts. Once people learn the skills associated with changing negative thought patterns, they can apply the techniques to a variety of situations and experience empowerment over troubling emotions and thoughts. People often experience relief of depressive symptoms in as little as four to six weeks (Feldman, 2007).

STUDY PURPOSES

Given that little research has been conducted on applying CBT to depression treatment among ESRD patients in the United States, we did this pilot study by applying CBT in short-term, group classes and with individuals receiving dialysis. The purpose of this pilot study is twofold: 1) we wanted to test whether the patients would experience relief from depressive symptoms and improved quality of life after receiving short-term CBT; and 2) we intended to reveal and discuss the issues during the implementation of CBT among ESRD patients.

METHOD

This pilot study adopted a quasi-experimental design with 4 patients in the experimental group and 6 in the control group. Random assignment of research patients was not possible in that ESRD patients would be more likely to consistently attend classes if they were allowed to choose the group that best fit their schedules. Both experimental and control groups were provided with the Stepping Back

into Life (SBIL) audio educational material developed by the National Kidney Foundation (NKF) (National Kidney Foundation, 2011; Weiner, Kutner, Bowles, & Johnstone, 2010).

The research protocol was approved by the Arizona State University's Internal Review Board and the human subject offices for the dialysis clinics. Study participants were recruited from 3 Southwest area hemodialysis clinics. The opportunity to attend CBT classes was discussed at patient support groups for 3 months prior to when the first classes were offered; names and contact information were voluntarily provided by 21 patients who expressed interest (see Figure 1).

Eligible participants were given the opportunity to choose which day and time to attend classes. It was believed that this would result in more consistent attendance. Three days and times were selected for CBT classes, but only 13 participants, with 6 in intervention group and 7 in control group, participated the first week. Participants signed an informed consent form which explained the purpose and expectations of the study, along with their rights as participants. The second week, all 6 participants continued, however 2 intervention group members stated that they would have forgotten to come if they had not been reminded. During the third week, 2 participants in the intervention group dropped out of the study. One patient in the control group was excluded, based on a professional intervention in the form of a referral to a psychiatrist as part of his transplant protocol. This left 4 participants in the intervention group and 6 patients in the control group who were able to complete assessments. Our analysis was based upon the data from the 10 participants.

As seen in Table 1, the intervention group consisted of 2 men and 2 women. Participants ranged in age from 50 to 62 years old. This group of patients listened to all three NKF Stepping Back into Life CDs and completed the assessments. Three members had a diagnosis of diabetes mellitus in addition to ESRD. The intervention group patients had all been on dialysis treatment 4 years or less with an average of 2 years of receiving dialysis treatment. The control group consisted of 6 ESRD patients (2 men and 4 women) who had been identified as experiencing depressive symptoms. Participants' ages ranged from 43 to 78 years old. The control group had an average of 2.25 years on dialysis. The control group listened to the same CDs during treatment at the hemodialysis clinic, but did not participate in the group classes. Participants in these groups were provided the same care by the clinic that other patients received.

The classes consisted of four sessions for one hour each week. The facilitator of the classes used the CDs to impart information to the class and to provide consistent presentations from one group to another. The classes were designed to help patients to be more aware of their thought processes and to be able to change dysfunctional thinking patterns. Homework was assigned at the end of each class, and was reviewed at the beginning of the next class.

Classes were held at the hemodialysis clinic. In the first class, participants learned about the importance of "belongingness" and interacting with others to help prevent and overcome depression. In the second class, participants learned how to use problem-solving skills and communication tools to empower themselves. They were encouraged to educate their loved ones about their disease and need for increased support. The third class helped participants get in touch with their "self-talk" in order to reduce negative thought patterns that interfere with treatment goals. Participants were encouraged to focus on more positive ways of perceiving themselves in order to combat the effects of depression. The final class included a summary of the first three classes. Participants reviewed the skills they learned, and were encouraged to express what had been helpful, and how they planned to continue developing the skills, and problem-solving techniques they had learned.

All participants were asked to complete demographic information, including gender, age, presence/absence of diabetes, and length of time on hemodialysis. The CES-D 10 was used to measure each patient's level of depression. It asked participants to rate each statement on a 4-point scale from "0 = Rarely or none of the time (less than 1 day a week)" to "3 = All of the time (5 to 7 days a week)" (Irwin, Artin, & Oxman, 1999). The total score ranged from 0 to 30, with high scores indicating higher levels of depression. The Cronbach alpha of this scale obtained on this sample was .77 at baseline and .76 at post-intervention. Quality of life in patients with ESRD was measured by the Kidney Disease Quality of Life (KDQOL) survey, which is a multidimensional assessment instrument (Lopes et al., 2004). KDQOL provides a breakdown of the patient's assessment in five areas: physical symptoms, mental functioning, burden of kidney disease, symptoms and problems, and the effects of kidney disease on everyday life. The score ranges from 0 to 100, with higher scores indicating better coping and perception of quality of life.

FINDINGS

The effectiveness of the classes was examined by comparing the observed scores before patients participated in classes and two weeks from the conclusion of treatment. Scores from the control group were compared to the scores from the intervention group to determine if group classes had an impact on the effectiveness of the treatment. The small sample size in this study prevented us from drawing meaningful conclusions from statistical analyses. We limited our discussions to the observed changes in CES-D scores and KDQOL scores among the participants (see Table 2).

CES-D score changes were not significant in either group. The control group experienced an overall 2-point decrease in depression scores. The patients in the intervention group had higher scores after the intervention which indicates a higher level of depression than before the intervention. This may be more a result of denial before engaging in the group classes, as opposed to actually becoming more depressed.

One patient, whose score at baseline was 12 and at post-test was 22, explained that he became aware of his feelings and believed that he needed an antidepressant at that point in his life. He was grateful for the group interaction and information from the classes for helping him come to this conclusion.

The higher a KDQOL score, the better the patient coped in that particular area. Quality of life was not changed in a significant way either. Both groups remained constant on their quality of life scores over the 6 weeks, except that the intervention group seemed to experience improvement in the burden of kidney disease score, from 42.19 at baseline to 57.81 at post-test. This implies that the patients may have decreased their frustration with the demands of kidney disease due to the intervention.

DISCUSSION

This pilot study represents an initial effort to test a CBT intervention on depression for ESRD patients. Listening to the CDs during dialysis may be a better approach with this population, as there are many barriers preventing patients with ESRD from coming to a class. The barriers included lack of transportation, conflict with medical appointments or dialysis times, hospitalizations, and illness. Those who may benefit from the information the most may be unable to overcome these barriers. Also, a great deal of time was spent recruiting, organizing, and reminding patients to attend classes. A social worker's time may be better spent working individually with patients who are identified as experiencing depressive symptoms or who have low mental functioning or burden of kidney disease scores on the KDQOL.

While quantitative data may not reflect significant benefits from participating in CBT classes, patients' comments and experiences may indicate otherwise. Participants integrated the information from the program into their lives and expressed that it helped to learn new coping skills. One woman decided that she had enjoyed playing chess in the past and could enjoy it again, even though she had kidney disease; she bought a chess set and began playing chess with her husband. Another woman decided she wanted to volunteer at a local hospital, and pursued that as a goal. Two men who met in the class exchanged phone numbers and continued their friendship. Another woman was encouraged to ask questions about dialysis treatment, and found new understanding about the time necessary for her to be on dialysis.

Similar reports were expressed by the individuals in the control group. One man used the information to foster better communication with his wife. Another woman expressed that she would like to listen to the CDs again to retain more information. One participant gave her family permission to push her to get out of the house more often, because she now understood the value of social connections and activities in counteracting depressive symptoms.

IMPLICATIONS AND CONCLUSIONS

In light of the outcomes of this study, we would like to share a few lessons learned. Since this population is burdened with long hours in dialysis treatment and a variety of other medical appointments, group classes may not be practical. Recruiting for classes was time consuming and yielded few participants. Nephrology social workers may consider using this type of material for monthly support groups instead of organizing four consecutive weeks of classes. The group benefits include social support and connection with others who understand living with kidney disease, as well as hearing how others apply their coping skills.

Patients were very willing to listen to the CDs during dialysis treatment. It may be better to suggest patients listen to the information while at treatment, and process the information chairside with a social worker. Social workers may provide individual CBT to help improve depressive symptoms and increase patients' perceptions of quality of life. When patients have low scores on the KDQOL, especially in mental functioning or burden of kidney disease, teaching patients CBT skills may be a valuable intervention.

Relative to the prevalence of depression in patients with ESRD, evaluation of valid treatment options for this vulnerable population has been limited. The personal application of this knowledge can have a profound effect on empowering patients and relieving depressive symptoms in those with ESRD. Although our pilot study has not fully discovered the benefits of CBT, it remains promising that CBT allows patients with ESRD to regain control during a crucial time in their life. The benefits of learning CBT may not be measurable in a few weeks. Future research should use a long-term research design to assess the impact of learning and applying CBT skills in groups and one-on-one with a social worker.

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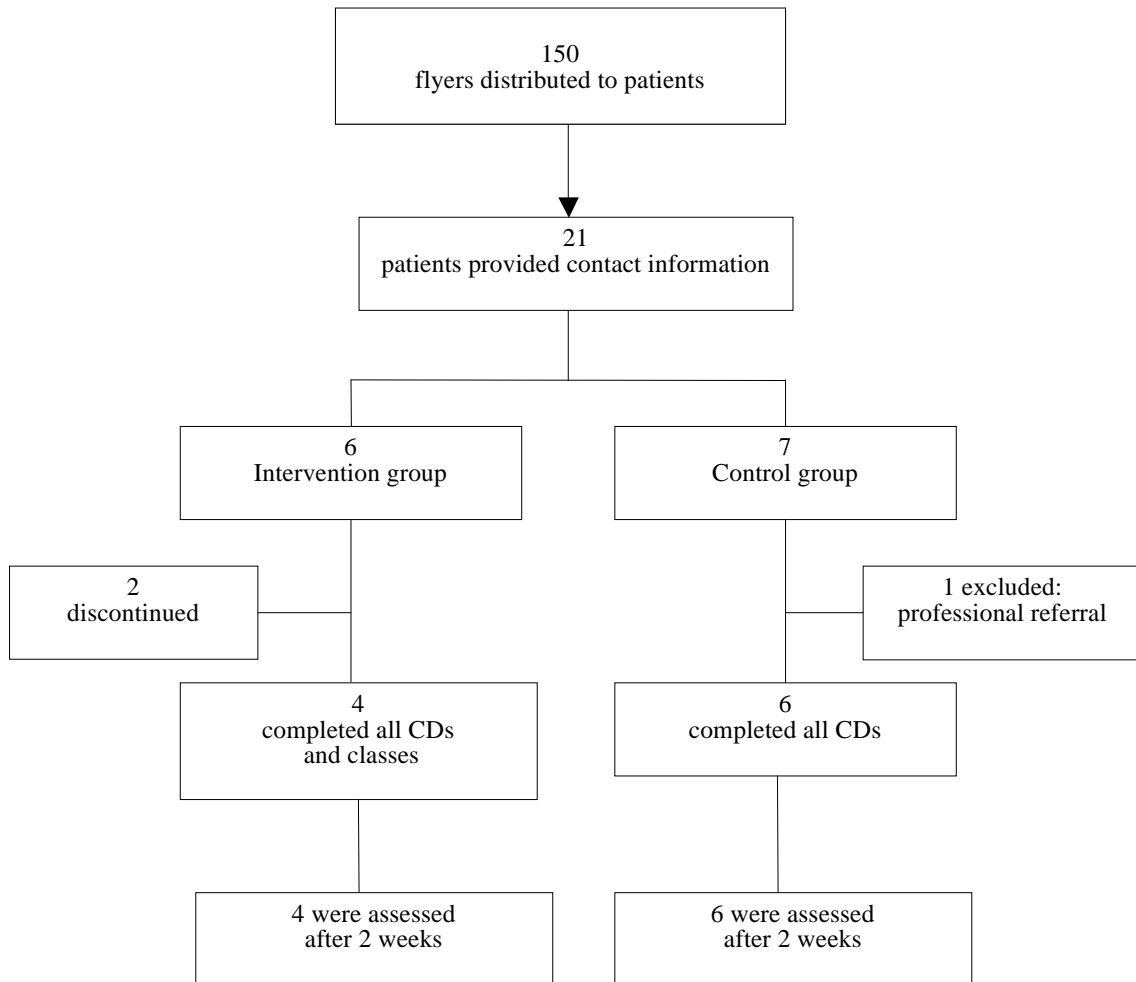
Figure 1. *Flow Chart of Study Participants*

Table 1. *Baseline Characteristics of Study Participants*

| Characteristics | Intervention Group (<i>n</i> = 4) | Control Group (<i>n</i> = 6) |
|----------------------------------|------------------------------------|-------------------------------|
| Gender | | |
| Males | 2 | 2 |
| Females | 2 | 4 |
| Age range (years) | 50–62 | 43–78 |
| Race | | |
| Caucasian | 1 | 3 |
| African/American | 0 | 2 |
| Latino | 2 | 1 |
| American Indian | 1 | 0 |
| Average time on dialysis (years) | 2 | 2.25 |
| Presence of diabetes | 3 patients | 3 patients |

Table 2. *Observed Mean Values of the CES-D 10 and KDQOL According to Time of Study Evaluation and Group*

| Characteristics | Intervention Group (n = 4) | Control Group (n = 6) |
|-----------------------------------|-----------------------------------|------------------------------|
| CES-D 10 score | | |
| Baseline | 12.25 | 18.50 |
| After 6 weeks | 18.00 | 16.50 |
| Symptom/problem score | | |
| Baseline | 80.21 | 62.15 |
| After 6 weeks | 75.00 | 62.50 |
| Effects of kidney disease | | |
| Baseline | 56.25 | 48.96 |
| After 6 weeks | 54.69 | 42.71 |
| Burden of kidney disease | | |
| Baseline | 42.19 | 33.33 |
| After 6 weeks | 57.81 | 26.04 |
| Physical component summary | | |
| Baseline | 38.15 | 32.58 |
| After 6 weeks | 38.30 | 34.04 |
| Mental component summary | | |
| Baseline | 42.29 | 33.70 |
| After 6 weeks | 40.51 | 37.17 |