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The Effects of Mindfulness on Depression in Dialysis Patients

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Abstract

Problem: Depression is a prevailing global health issue and a typical complication of dialysis patients. This quality improvement project's purpose was to evaluate mindfulness on depression in dialysis patients, aged 18-93, who are on dialysis and participated in a mindfulness program over three months.

Methods: A descriptive, prospective, and retrospective design was used to assess depression pre- and post-implementation of a mindfulness telephone line over three months. A convenience sample of twenty adults aged 18-83 who use this hemodialysis center on Monday, Wednesday, and Friday was utilized. The Iowa Model is the framework selected to guide the implementation of this quality improvement project.

Results: A total of 20 hemodialysis patients (n=20) participated in mindfulness and had pre-and post-PHQ-2 and well-being scores analyzed. The results of pre-and post-PHQ-2 mean score were (M=.90, SD=.788) (M=.35, SD=.48. The mean of the well-being score decreased from (M=2.3) to (M=1.5). All tests were based on an alpha of 0.05. Results revealed statistical significance. Post PHQ-2 resulted in ($p<.001$) and well-being ($p<.005$).

Implications for Practice: Mindfulness meditation has a favorable influence on depression in dialysis patients. Telephone-based mindfulness can reduce depression and well-being scores in the dialysis population. Consistent use of mindfulness can further improve depression scores.

The Effects of Mindfulness on Depression in Dialysis Patients

Depression is a prevailing global health issue. A typical complication of dialysis, it is significantly associated with increased morbidity and mortality in kidney disease patients (National Institute of Mental Health (NIMH), 2018; World Health Organization (WHO), 2021). Depression is associated with symptoms that affect how one feels, thinks, and functions during daily activities (Centers for Disease Control and Prevention [CDC], 2022; NIMH, 2018; WHO, 2021). It is estimated that depression affects 3.8% of the world's population and is present in nearly 30-50% of dialysis patients (Othman et al., 2019; Rigas et al., 2022; Sohn et al., 2021). About 558,060 people in the United States with chronic kidney disease require dialysis (National Institutes of Diabetes and Digestive and Kidney Diseases [NIDDK], 2021).

Chronic kidney disease (CKD) is recognized as a public health problem worldwide (Chopra et al., 2021; Moosavi-Nejad et al., 2021; Othman et al., 2020). Globally, the prevalence of CKD is approximately 13% and is predicted to double by 2030 (Lv & Zhang, 2019; Rigas et al., 2022). It is estimated that 15% of adults have CKD in the United States (CDC, 2021). CKD is characterized by the damage that occurs to the kidneys accompanied by a glomerular filtration rate (GFR) of less than 60 for 3 months ("What Is the Criteria for CKD," 2023). As time progresses, the kidneys lose the ability to filter and clean the blood allowing extra fluid and waste to accumulate in the body. Renal disease is often asymptomatic in early stages, and nearly 90% of individuals are unaware that they are affected leading to end-stage renal disease (ESRD) (NIDDK, 2021). Chopra et al., 2021; Hernandez et al., 2018; Nassim et al., 2021; Ng et al., 2019).

ESRD is acknowledged as the final stage of chronic kidney disease. The kidneys are unable to filter effectively, and once 85-90% of kidney function is lost, dialysis or a renal transplant is necessary to preserve life (National Kidney Foundation, 2022; John Hopkins Medicine, 2022). More than 360 people begin treatment for kidney failure daily (CDC, 2022),

which is expected to increase rapidly. A global problem, renal disease is extremely costly. Medicare costs for CKD are about 87 million dollars while ESRD costs are 37 million dollars annually. In addition, NIDDK posits that almost 786,000 United States adults suffer from ESRD with 71% on dialysis.

Dialysis is classified as a process that removes toxins and waste from the body by filtering blood with a dialyzer (NIDDK, 2018). The process of being dialyzed may be overwhelming and can lead to a diminished quality of life. Extensive illness burden, lifestyle change, and increased medical debt are commonly seen as contributing factors to depression in kidney disease patients (Moosavi-Nejad., 2021; Razzera et al., 2022; Shirazian et al., 2017; Sohn et al., 2017; Zegarow et al., 2020 Lack of treatment adherence and health conditions frequently lead to increased hospitalizations and poor well-being. The average person receives dialysis for three to four hours, three days a week; dialysis patients with depression are at an increased risk of suicidal behavior and increased mortality (Al Saireh et al., 2018; Chopra et al., 2021; Hernandez et al., 2018; Nassim et al., 2021; Ng et al., 2019).

As aforementioned, depression affects ESRD patients as a result of disease burden. Generally, pharmacological interventions and nonpharmacological strategies are employed in addressing symptoms of depression. Within the last decade, the use of nonpharmacological approaches to improve depression has increased tremendously. Several studies on alternative and complementary psychological interventions such as mindfulness has provided evidence that positive outcomes can be achieved for depressed dialysis patients (Moosavi-Nejad et al., 2021; Ng et al. 2019 Othman et al,., 2020; Razerra et al., 2022). Mindfulness, identified as a state of awareness and present-moment focus has tripled as an intervention to treat depression (CDC, 2018).

In an urban, Midwestern hemodialysis clinic, there is no active protocol to evaluate and address depression. The purpose of this quality improvement project is to evaluate mindfulness

on depression in dialysis patients. The aim is to assess depression in adults aged 18-83, who are on dialysis and participated in a mindfulness program over three months. The question of the study is: In an urban, Midwestern hemodialysis clinic, what is the impact of a mindfulness program on depression using the PHQ-2 in dialysis patients aged 18-83 over three months? The primary outcome is mindfulness participation and PHQ-2 scores, the secondary outcome is well-being scores.

Review of Literature

The literature review consisted of using PubMed, CINAHL, Medline, and APA PsycInfo. Key terms and phrases applying Boolean operators included *Mindfulness Intervention AND Depression AND Dialysis Intervention, Mindfulness AND Depression AND Dialysis, Psychosocial AND Depression AND Dialysis OR Hemodialysis, CBT AND Depression AND Dialysis OR Hemodialysis, Mindfulness AND Dialysis, AND Mindfulness and Depression*. To begin keywords produced 4,953 results. In refining the search, 126 articles were selected. Inclusion criteria consisted of publications on hemodialysis patients, mindfulness, depression, and studies with participants 18-83 years of age, which were published between 2017-2022 and peer-reviewed. Exclusion criteria included studies published before 2017, participants 17 and younger, older than 83, articles not peer-reviewed, home dialysis patients, and studies excluding mindfulness. Publications were reviewed for relevance with duplicates being removed resulting in a total of 10 peer-reviewed publications for final review.

Each article was critically appraised with a focus on review articles that had a level of evidence from 1 to 3. To begin articles were reviewed, analyzed, and evaluated to determine if there was sufficient evidence to contribute to the topic. Criteria for critical review included significance and contribution to the field, as well as the use of evidence. The review of the literature focused on the prevalence and effectiveness of depression in hemodialysis patients. After reviewing the literature, themes identified were the influence of mindfulness on depression

in dialysis patients, depression in dialysis patients, and the benefits of mindfulness in dialysis patients.

Depression in dialysis patients

Dialysis-dependent patients suffer from depression at higher rates than the general population (Othman et al., 2021; Zegarow et al., 2020). Likewise, studies like Nassim et al. (2021) and Rigas et al. (2022) reported why hemodialysis patients are more susceptible to depression. Unwelcomed lifestyle changes commonly lead to decreased quality of life, and an increased risk of mortality in this population. In general, hemodialysis patients have a substantial need for mental health services and psychosocial treatments. (Moosavi-Nejad et al., 2018; Ng et al., 2019; Razzera et al., 2022).

The influence of mindfulness on depression

The practice of mindfulness is a growing health trend that can improve depression (Ng et al., 2019; Othman et al., 2019; Zegarow et al., 2020). Characterized as being aware of elements of the present moment, mindfulness practices bring awareness to internal and external experiences, increased behavioral and cognitive flexibility, and tolerance of unpleasant situations (Razzera et al., 2021). The studies reviewed were closely related and shared a theme of evaluating the effects of mindfulness on depressed hemodialysis patients. Ng et al. (2019) studied mindfulness as a treatment for depressive symptoms among dialysis patients, and the results revealed efficacy. Originating from Buddhist/Eastern origins, mindfulness educates one about awareness using a nonjudgmental mentality toward the present moment. It entails becoming in tune with inner thoughts and feelings. Mindfulness enhances mental, emotional, and physical well-being by improving stress management (Bennett et al., 2017; Nassim et al., 2021; Sohn et al., 2017; Razzera et al., 2022; Rigas et al., 2022).

Considering the high symptom burden of kidney disease, actions should be taken to improve health outcomes. In a study by Amini et al., (2019), the use of mindfulness therapy was

used as an intervention to reduce depression. The trial compared depression scores of individuals receiving 15-20 minutes of meditation exercises to a control group using no meditation exercises. Findings revealed a significant reduction in the mean score of symptoms of depression in the sample of the treatment group compared to the control group. The study was simple, low cost, and enhanced the mental status of patients undergoing dialysis in eight weeks. The authors determined that using a larger sample size would be beneficial for future studies.

Benefits of mindfulness

Multiple studies found that practicing mindfulness can result in a decline in depression symptoms and be advantageous for hemodialysis patients (Chopra et al., 2021; Hernandez et al., 2018; Moosavi-Nejad et al., 2021; Ng et al., 2019; Othman et al., 2019; Razzera et al., 2022; Rigas et al., 2022; Sohn et al., 2018). Moosavi-Nejad et al. (2018), acknowledges that patients undergoing dialysis have a below-average health level. This project addressed the benefit of a mindfulness program on patients' general health during dialysis. The findings showed this study was able to positively impact physical factors, depression, sleep disorders, impaired social function, and social relationships of the patient. Additionally, the patient's condition improved using mindfulness techniques. Given the sustainability of the outcome, this technique can be used as a useful alternative treatment. A key concept, Igarashi et al. (2020) explored the influence of meditation on psychosocial and physiological factors in dialysis patients noting that this continues to be an area of interest due to favorable outcomes. The authors revealed how meditation produced positive outcomes in dialysis patients. Limitations of the study entailed a 27% dropout rate during the second period of the study.

Comparably, Sohn et al., (2018) evaluated mindfulness meditation in ESRD patients on hemodialysis. The study was able to connect Cognitive behavior therapy (CBT) to favorable patient outcomes. Significant improvements were noted using a scoring system that indicated patients rated a higher quality of life after implementation. This study differed from others in that

anger management was incorporated into the CBT program. The strengths of the study were effectiveness and feasibility. The authors recommend using a considerably larger sample size with long-term monitoring for further research.

Razzera et al. (2022) analyzed six RCTs with the study purpose of examining the influence of Mindfulness-based Interventions (MBI) on CKD patients receiving hemodialysis. The researchers found MBI may be utilized as a supportive therapy for patients in this population.

In hemodialysis patients, depression continues to have an undisputable influence on the quality of health. (Hernandez et al., 2018; Ng et al., 2019; Othman et al., 2020). The aim of Hernandez et al. (2019) trial examined the acceptability and feasibility of a mindfulness-based positive psychological intervention in dialysis patients with depressive symptoms. The study was used to determine if positive psychological interventions have an impact on depressive symptoms. This study confirms that the internet-based mindfulness intervention showed significant improvement in depressive symptoms of hemodialysis patients over a period of five weeks. The significance of using the mindfulness program was seen with a p-value of 0.04. This study adds to the growing body of research that indicates psychological interventions are successful at reducing depressive symptoms.

Lastly, Nassim et al. (2018) set out to compare Brief Mindfulness Interventions (BMI) against an active control (Health Enhancement Program [HEP]). This was the first study to focus on the long-term effects of MBI on patients undergoing dialysis. This investigation critically examined psychosocial interventions for depression and anxiety in dialysis patients. BMI and HEP led to significant decreases in depressive symptoms. Results of the study indicate how both a BMI and HEP are effective at reducing depressive symptoms. Noted strengths were sustained improvements at six months and statistically significant improvements at one year.

As seen throughout the literature, mindfulness implementation with hemodialysis patients supports positive outcomes. Promising results were seen in hemodialysis patients' overall quality

of life but specifically a decline in depressive symptoms after mindfulness-based approaches were practiced.

Quality improvement framework

The Iowa Model is the framework selected to guide this quality improvement project toward evaluating the effectiveness of mindfulness and assessing the rate of PhQ-2 scores in dialysis patients in a dialysis setting. This model is used in healthcare settings to guide and improve healthcare outcomes (Buckwalter et al., 2017). Depression has been identified as a major health concern in dialysis patients and stakeholders met to address the issue. The above literature provided evidence that mindfulness-based interventions can be an effective intervention strategy to reduce depressive symptoms. The evidence delivered was sufficient to support a pilot study for a practice change.

Methods

Design

This quality improvement project used a descriptive, prospective, and retrospective design. This project collected data over twelve weeks, from February 2023 to May 2023.

Setting

This project occurred in an outpatient hemodialysis clinic in a metropolitan city in a midwestern state. Part of a larger healthcare organization, this urban clinic treats approximately forty-five predominately African Americans aged 18-83 patients six days per week. The clinic staff consisted of a manager, three nurses, and five certified clinical hemodialysis technicians.

Sample

This project utilized a convenience sample of adults aged 18-83 who use this hemodialysis center on Monday, Wednesday, and Friday. Individuals who are not having dialysis at this clinic on Monday, Wednesday, and Friday were excluded. The project used a convenience sample of twenty patients.

Approval Processes

Formal, written approval was sought and obtained from the participating clinic's healthcare system Chief Medical Officiate (CMO) in Appendix A). Permission from the Doctoral committee members and the university Institutional Review Board (IRB) will be obtained.

Data Collection/Analysis

Collected data was de-identified, coded, and protected by a distinctive alphanumeric descriptor (Appendix B). An encrypted file stored the master list of participants' identifiers, and names with telephone numbers. A meeting with nurses and other facility stakeholders transpired. The presurvey was administered to patients before project implementation and the post-survey was given after the project was completed.

Descriptive data included an identifier, age, length of dialysis, PHQ-2 score, patient referral, well-being score, other comorbidities, and mindfulness participation. All information required for data collection was on the pre-and post-survey. The anticipated analysis of the data will be the utilization of a two-tailed paired sample t-test.

Procedure

A team of key stakeholders included the director of operations, the medical director, the clinic manager, and the facility staff. Meetings were held biweekly with some being held as telephone conferences to best determine how to implement the pilot program of mindfulness while the patient is dialyzed. The PI consulted with another doctoral student who completed a mindfulness intervention and had information on how to access free, public-domain mindfulness audio clips. This setup and plan to activate the electronic telephone management system with audio clips were discussed and approved. The supplements of the PHQ-2 screening were discussed and a plan developed for obtaining the screening was also approved.

Before implementing the mindfulness-based telephone system (Appendix D), the doctoral student assisted in developing a health and wellness survey to assess depression and the severity

of depression (Appendix C) to be administered with the Phq2 depression screening. The participants were notified by fliers (Appendix E) and upon registration about the telephone-based mindfulness intervention. In the post-implementation, the participants were given another health and well-being screening survey and asked the same set of questions. Data received was transferred to the data collection tool for analysis (Appendix B).

Results

Patient Demographics

Twenty adults (*N*=20) who received dialysis on Monday, Wednesday, and Friday were included and participated in this study. The age of participants ranged from 41 to 83, with a mean of 62.40 years (SD = 11.72). Only three (*n*=3) patients did not participate in telephone-based mindfulness, a non-English speaking patient, an elderly individual with dementia who could not comprehend mindfulness instructions, and a patient who refused participation. Among the participants, 60% (*n*=12) were female and 40% (*n*=8) were male. The race of most participants was African American 80% (*n*=16) and 20% (*n*=4) were White, other races were not represented. Twenty percent (*n*=4) of participants reported being on dialysis for less than 12 months, 20% (*n*=4) were on dialysis between 12-36 months, and 60% (*n*=12) were on dialysis for greater than 36 months. While all participants reported coping with additional health issues besides kidney failure, 30% (*n*=6) reported 1-2 comorbidities, 35% (*n*=7) reported 3-4 comorbidities, and 35% (*n*=7) reported five or more. Out of those who participated in telephone-based mindfulness, no patients 100% (*N*=20) had a score that required a referral to the social worker.

Statistical Analysis

All collected data were entered into Excel and transferred to IBM SPSS Version 28 for statistical analysis. Participants called the telephone-based mindfulness telephone line a minimum of 28 and a maximum of 36 times. 36 was the total number of calls possible for each patient. Weekly calls ranged from a minimum of 46 to a maximum of 56 calls over three months. 60

(*n*=60) was the total number of possible calls for the week. Patients were less likely to call the mindfulness telephone line during the final week of the project, overall (*n*=46) calls were placed during the last week. More calls were placed on Wednesday (*n*=240) than on Monday (*n*=223) or Friday (*n*=224). The total number of calls that could be placed from February to May was (*N*=720), however, there were (*n*=687) calls placed. A two-tailed paired-sample t-test was conducted to compare pre- and post-mindfulness PHQ-2 and well-being scores after mindfulness implementation. The results of pre-and post-means of PHQ-2 scores (M=.90, SD=.788) (M=.35, SD=.489) reflected a decline. The means of well-being scores decreased from 2.3 to 1.5. All tests were based on an alpha of 0.05. Post PHQ-2 resulted in ($p<.001$) and well-being ($p<.005$). Scores revealed a downtrend when compared to the baseline score. It appeared that mindfulness positively influenced PHQ-2 and well-being scores in dialysis patients since scores decreased. Results statistically support that mindfulness is useful in reducing depression screening scores in dialysis patients.

Interestingly, comorbidities appeared to influence PHQ-2 scores. 75% (*n*=5) of patients with five or more comorbidities scored a two on the PHQ-2 screening tool. Call volume had a modest impact on scores. 75% (*n*=5) had a low call volume of 30 calls or less. Among the five patients (*n*=5) who had the lowest calling scores, 10% (*n*=2) of patients had a decrease in PHQ-2 scores, however, 20% (*n*=4) of patients with a low call volume had a change in well-being scores. Patients with a high call volume were recognized as calling the mindfulness-based telephone line 35 to 36 times over three months. 15% (*n*=3) of patients recognized as having a high call volume had a change in PHQ-2 scores. None of the patients with the highest call rates had a change in well-being scores, however, these patients initially scored a zero on the well-being survey. PHQ-2 score changes were reflected in patients with high and low use of mindfulness, despite most of the PHQ-2 score changes occurring in patients with neither high nor low use. Most patients called in the morning or afternoon.

Discussion

The PHQ-2 is a validated, quality measure tool that is clinically effective for assessing depression. An evidence-based pilot, this quality improvement project aimed to assess depression in adults aged 18-83, who are on dialysis and participated in a mindfulness program over three months. Throughout the extent of three months, mindfulness-based telephone calls were monitored with results revealing mindfulness showed a statistically significant difference in PHQ-2 depression screening scores ($p<001$) and wellness scores ($p<.005$). The mean PHQ-2 decreased from 0.9 to 0.35 among participants.

A major limitation identified during this study was distraction. Mindfulness involves being aware and observing the present moment while accepting one's thoughts, feelings, and sensations. While a quiet space is not mandatory for meditation it may be more impactful. At the clinic, when there is a problem with the dialysis machine or an individual's safety is threatened, the dialysis machine alarm. This loud warning alert can be disruptive causing the person to lose focus. The telephone-based mindfulness is brief, five minutes in length; therefore, it may be challenging to return to the prior level of focus if alarms are continuously blaring. Another distraction was medical professionals. Physician rounding occurs on Monday as well as patient lab draws. This occasionally resulted in a hectic morning for patients and staff. The least number of calls were placed on Mondays (n=223).

Staff reminder was yet another barrier. The staff provided verbal reminders to encourage and remind patients about mindfulness while they were dialyzing. Staff reported these reminders occurred twice daily, in the morning and afternoon. The limitation of staff reminders pertains to the common activities of dialysis patients. Most patients reported sleeping, listening to music, or watching television during dialysis sessions. Thus, the reminder may be inaudible if the patient is doing any of the latter. Provided that the individual misses both reminders, they may not remember to practice mindfulness that day.

Another limitation was the homogeneity in the race demographic. The majority of patients who participated in the study were African Americans. The lack of heterogeneity in the sample size limits the generalizability of the results to other ethnic groups. Despite the limitations, findings from the present study can allow a greater understanding of the effects of mindfulness.

Results from this quality improvement project and the study by Amini et al., (2019) indicated that there are benefits to using mindfulness therapy as an intervention in depression. The studies compared depression scores of dialysis patients who used mindfulness. Findings for both studies revealed a significant reduction in the mean score. Similarly, Hernandez et al. (2019) study used a pre- and post-pilot trial design to discover if positive psychological interventions were effective at showing improvement in depressive symptoms through the use of mindfulness meditation. The two studies were effective at showing improvement in depressive symptoms through the use of mindfulness. Both studies also had a significant P value.

Based on findings from this quality improvement project, telephone-based mindfulness can lessen depression scores in dialysis patients. As aforementioned, continuing mindfulness in patients with depressive symptoms can improve patient outcomes. Through the use of mindfulness, depression symptoms can decrease, pharmacological use can lessen, and suicide rates can decline. Through the identification and mitigation of depression that accompanies dialysis patient health outcomes can improve. This study differs from previous studies in the fact that it was telephone-based, the PHQ-2 depression screening and a wellness screening tool were utilized, and staff provided reminders. A strength of this project was a 95% participation rate. The fact that the mindfulness telephone line was not able to detect the length of calls was identified as a weakness because patient participation in the entire mindfulness session was unknown.

This quality improvement project put on display the benefits of mindfulness on depression screening scores in dialysis patients. On this basis, recommendations for future studies

include implementing on a wider scale. The goal is to continue offering mindfulness. Offer mindfulness in varying environments and diverse populations. Furthermore, since a common barrier to mindfulness was distractions, it may be worthwhile to select a specific time to practice mindfulness. This can assist in assuring all participating patients call the telephone line during dialysis.

Conclusion

Depression is a widespread health problem that is commonly recognized in dialysis patients. At this dialysis clinic, there is no active protocol to assess and attend to depression. This quality improvement project was implemented to assess the impact of a mindfulness program on depression over three months. A decrease in PHQ-2 and well-being scores due to practicing mindfulness suggests that mindfulness should be continued. Since there is a positive influence on depression scores positive outcomes can be achieved. Future investigations should focus on reducing distractions, a variety of options to provide reminders, and diverse populations.

The aim of this quality improvement project was met by identifying that mindfulness has a positive influence on PHQ-2 and well-being scores. Mindfulness did improve wellness scores and decrease PHQ-2 depression screening scores which can result in better mental health outcomes for patients.

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Appendix A

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MEDICAL CARE

05/10/22

UMSI. Internal Review Board,

In my role as medical director at Fresenius *Medical Care*, I have given permission for Nakeia Saddler to complete their capstone project at this facility. The proposal on The effect of mindfulness on depression in dialysis patients has been accepted and approved for implementation. In event that changes are made to the proposed project, the facility will need notification immediately.

Fresenius Medical Care does not have its own IRB and is not affiliated with any IRB at other institutions. I understand that *Nakeia Saddler* will submit for and receive approval from the UMSI. Internal Review Board prior to beginning their project. I look forward to seeing how the project on The effect of mindfulness on depression in dialysis patients will help with the challenges of depression chronic kidney disease patients endure.

Sincerely,

Donovan Polack
Medical director
Fresenius Medical Care Bridgeton
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Appendix B

Patient demographic

Identifier	Age	Race Black=1 White=2 Hispanic=3 Asian=4 Other=5	Length on dialysis <12 months = 0 12-36=1 >36= 2	Phq2 score (points) 0-2=0 3-4=1 5-6=2	Referred N=0 Y=1	Well-being score (points) <5=0 5-7=1 8-10=2	Other comorbidities 1-2=1 3-4=2 >5=3	Mindfulness N=0 Y=1 5 min
1000 A	35	1	1	0	0	0	1	0

Appendix C

Health &Well-being screening tool

Health and Well-Being Screening Tool

Date: _____ Phone number _____ Age_____
ID#:_____

Race: **African American Caucasian Hispanic Asian Other**

PhQ2 Score _____ **Referred: Yes or NO** Health and Well-Being Score _____

Patient Health Questionnaire- 2 (PhQ2)

*Please respond to the answer mostly best describe your **mood** and **health and wellness***
Over the last *2 weeks*, how often have you been bothered by any of the following problems?

Not at all	Several days	More than half the days	Nearly every day
0	1	2	3

1. Little interest or pleasure in doing things: 0 1 2 3

2. Feeling down, depressed, or hopeless: 0 1 2 3

Health and Well-being Screening

How long have you been on dialysis? _____

Over the last 4 *weeks*, how often have you been bothered by any of the following problems?

Yes	No
1	2

1. During the past 4 weeks, has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

1 2

2. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

Accomplished less than you would like?	1	2
Were limited in the kind of work or other activities.	1	2

3. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

Accomplished less than you would like?	1	2
Were limited in the kind of work or other activities.	1	2

Have you ever been told you have any of the following? Check all that apply:

High blood pressure _____ Diabetes _____ Heart disease _____ Asthma _____

Arthritis ____ Chronic Obstructive Pulmonary diseases _____ Cancer _____

Sleep Apnea _____ Stroke ____ Lupus _____ Liver disease _____

Sickle cell disease _____ GERD _____ Other _____

Adapted from Kidney Disease and Quality of Life (KDQOL™-36)

Thank you for completing these questions!

Appendix D

Breathing Meditation (5:31)

Find a relaxed, comfortable position
Seated on a chair or on the floor, on a cushion
Keep your back upright, but not too tight
Hands resting wherever they're comfortable
Tongue on the roof of your mouth or wherever it's comfortable.
And you can notice your body
From the inside
Noticing the shape of your body, the weight, touch
And let yourself relax
And become curious about your body
Seated here
The sensations of your body
The touch
The connection with the floor
The chair
Relax any areas of tightness or tension
Just breathe
Soften
And now begin to tune into your breath
In your body
Feeling the natural flow of breath
Don't need to do anything to your breath
Not long not short just natural
And notice where you feel your breath in your body
Or in your nostrils
See if you can feel the sensations of breath
One breath at a time
When one breath ends, the next breath begins
Now as you do this you might notice that your mind might start to wander You might start thinking about other things
If this happens this is not a problem
It's very natural
Just notice that your mind has wandered
You can say "thinking" or "wandering" in your head softly
And then gently redirect your attention right back to the breathing
So we'll stay with this for some time in silence
It might be in your abdomen

It may be in your chest or throat
Just a short time
Noticing our breath
From time to time getting lost in thought and returning to our breath See if you can be really kind to yourself in the process
And once again you can notice your body, your whole body, seated here Let yourself relax even more deeply
And then offer yourself some appreciation
For doing this practice today
Whatever that means to you
Finding a sense of ease and well-being for yourself and this day [bell rings]

Appendix E

Visual reminder