Social Workers Explore Possible Risk Factors for Depression in New Hemodialysis Patients

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BACKGROUND RESEARCH AND LITERATURE REVIEW

Beginning in 1976 (Federal Register, 1976), when social workers became a mandated part of the renal team, nephrology social workers have been looking at ways to improve assessment and intervention provided to End Stage Renal Disease (ESRD) patients. Maximizing patients' functioning and overall well-being have become priorities for nephrology social workers who work in dialysis settings (Kutner, Curtin, Oberly, & Sacksteder, 1997). Research suggests that level of depression is associated with increased risks of mortality and hospitalization is ESRD patients who are maintained on hemodialysis (Lopes et al, 2002). Other research indicates that although little is known about depression in new dialysis patients, depressive symptoms are very common (Watnick, et al, 2003). In recent research conducted, depression among dialysis patients was significantly associated with lower quality of life and Caucasian race (Watnick, et al, 2003). If other patient characteristics could be linked to depression, this would allow social workers to quickly determine which new dialysis patients are at higher risk for developing it.

One nephrology journal forecasts a growth rate of 7.1% for dialysis patients in the United States to the year 2010 (Xue, Ma, Louis, & Collins, 2001). Unfortunately, as the number of patients in dialysis facilities continues to grow, many social workers have found themselves placed in the role of financial counselor and transportation expert. There is a trend among forward-minded nephrology social workers to educate department heads and facility directors that this is not the most efficient use of Medicare dollars (King, 2003). This vision calls for an expansion of nephrology social workers' ability to function in their intended role, namely, providing psychological counseling and emotional support to patients and families (King, 2003). Because depression in hemodialysis patients is common and potentially life threatening, it is an area of particular concern to nephrology social workers. While nephrology social workers struggle to find the time to adequately meet the emotional needs of their patients, it would be helpful to know of certain patient characteristics (risk factors) which place new hemodialysis patients at higher risk for depression. This would enable the social worker to more quickly assess and provide needed intervention.

The literature review revealed associations between depression and gender, age, ethnicity, level of education, medical insurance, perceived health and perceived stress (Segrist; Mollaoglu, 2004; Thomas et al, 2003; Lesser et al, 2005; L.A. Health, 2001; Rintala et al, 2005). The purpose of this project is to examine the prevalence of depression in new hemodialysis patients and to explore the interrelationship of these psychosocial and demographic factors and how they relate to the level of depression in these patients. These variables were chosen because of the cited connections to depression in our research and because of the relative ease with which information on these variables can be obtained. One aim of this study was to be able to quickly identify which new hemodialysis patients may be at higher risk for depression. Therefore, the variables used must, again, be information that is fairly easy to obtain. It is our hope that, as a result of this study, nephrology social workers will have an expanded ability to detect factors which could place a new dialysis patient at higher risk for depression.

HYPOTHESES

This study examined the prevalence of depression symptoms in new hemodialysis patients and the interrelationship between depression and eight patient demographic and psychosocial variables.

Hypothesis 1: A lower level of formal education is associated with higher levels of depression in new hemodialysis patients.

Hypothesis 2: The absence of medical insurance is associated with higher levels of depression in new hemodialysis patients.

Hypothesis 3: A lower level of perception of their own lifetime health is associated with higher levels of depression in new hemodialysis patients.

Hypothesis 4: A higher level of patient-perceived stress related to dialysis is associated with higher levels of depression in new hemodialysis patients.

METHODOLOGY

This study focused on new hemodialysis patients who receive dialysis treatment from one of the six Saint Alphonsus Nephrology Center facilities. Five of the six facilities are located in the state of Idaho and comprise five of the seven total dialysis facilities within the state of Idaho to date. The sixth facility in the study is located in Ontario, OR, 15 minutes across the Idaho border. All facilities in this study are located in rural areas. The Boise facility is located in the largest and least rural area with a population of less than 200,000. All newly admitted hemodialysis patients (three months or less on dialysis) age 18 and over who were capable of giving informed consent and who were able to complete without assistance the Beck Depression Inventory-Fast Screen for medical patients were eligible for the study. Out of convenience and continuity, those patients not able to complete the BDI-Fast Screen due to language, literacy, visual or mobility barriers were not included in the study.

We used the Beck Depression Inventory-Fast Screen for medical patients to assess the patients' levels of depression. The BDI-Fast Screen is a seven-item self-report instrument that screens for depression in adolescents and adults. It consists of seven items extracted from the 21-item Beck Depression Inventory-II (Beck, Steer, & Brown, 1996). The BDI-Fast Screen measures the severity of depression that corresponds to the psychological or nonsomatic criteria for diagnosing major depression disorders as listed in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 1994). It was specifically developed for evaluation of symptoms of depression in patients reporting somatic and behavioral symptoms that may be attributable to biological and medical problems (Beck, et al., 2000). We chose this instrument because the BDI-Fast Screen for medical patients has a high validity and reliability score; it was specifically developed for medical patients; it can be easily completed; and because it was found to be positively correlated with the diagnosis of a DSM-IV mood disorder (Beck et al., 1997; Cicchetti, 1994).

For the administration of the BDI-Fast Screen, we decided to have workers who were unfamiliar with the patients administer the BDI-Fast Screen. By doing this we hoped to maintain confidentiality and establish uniformity of administration. There was concern that patients might want to use that time with their social worker to discuss other unrelated issues or would be reluctant to provide honest answers to the questionnaire to someone they know. The patients were asked individually whether or not they would like their BDI-Fast Screen scores to be given to their social worker. Two social workers and one peritoneal dialysis nurse conducted the surveys during the patients' dialysis treatment time. Again, we chose this time to maintain similarity of circumstance and environment for the patients during the survey. The social workers conducted the surveys in the Boise, Nampa, Twin Falls, Burley, and Ontario facilities. Due to the distance of the Pocatello facility, and travel to that facility not being cost effective, a peritoneal dialysis nurse conducted the surveys in that facility.

All surveys were initiated using a scripted introduction and a request for participation. At that time, patients were given information regarding the nature of the research; the time it would take to complete the survey; and the monetary incentive of $10 they would receive upon completion of the survey. Interested patients signed a consent form, completed the BDI-Fast Screen, and completed an eight-item questionnaire to obtain information concerning their ethnicity, years of education, age, sex, medical insurance status, time in months they had to prepare before starting dialysis, lifetime health and stress level related to their dialysis experience (Appendix A). They were then informed of their BDI-Fast Screen score and the level of depression it indicated. They were then given the option of having the surveyor pass that information on to their social worker for further assessment, education, and intervention. Patients were then given the monetary incentive and asked to sign a form stating they received the money. The results of the questionnaire and BDI-Fast Screen were then correlated to identify possible related factors to patients' depression levels.

RESULTS

Seventy patients completed both the questionnaire and the BDI. The results of the questionnaire and BDI are shown in **Table 1**.

Table 1. Results of Questionnaire and BDI

n = 70 Ethnicity	n	%
White	60	85.7%
Hispanic	5	7.1%
Native American	5	7.1%
Black	0	0.0%
Other	0	0.0%
Average Years of Education: 12.42		
Average Age: 63.48		
Sex	**n**	**%**
Male	39	55.7%
Female	31	44.3%
Medical Insurance	**n**	**%**
Insured when dialysis started	63	90.0%
Not insured when dialysis started	7	10.0%
Average time in months between learning of the need and starting dialysis: 10.97		
Average lifetime health score: 7.15		
Average dialysis stress score: 5.79		
BDI Score Ranges	**n**	**%**
Minimal	23	32.9%
Mild	42	60.0%
Moderate	3	4.3%
Severe	2	2.9%
Average BDI Score: 3.63		

Based on the sample size, no tests of significance were run for Ethnicity, or Medical Insurance Status. It was found that, in the sample, there was no significant relationship between sex (r^2=.054; p=.329; n=70), age (r^2=-.192; p=.053; n=70), or time in months to prepare for dialysis (r^2=-.082; p=.25; n=70). There was a significant negative relationship between how a person rated their lifetime health and their depression levels (r^2=-.338; p=.002; n=70). There was a significant positive relationship between how stressful a person rated their dialysis experience and their depression levels (r^2=.455; p=.000; n=70). There was also a significant interaction effect: lower health ratings coupled with higher stress ratings significantly increased the depression scores (r^2=.244; p=.021; n=70).

DISCUSSION

The average BDI-Fast Screen score in this study was 3.63, indicating that one-third of the respondents fell into the category "minimal symptoms of depression" (*BDI Manual*, 2000). Though the remaining two-thirds did have some level of depression, 60% of those fell into the "mild symptoms of depression" category (BDI manual, 2000), leaving only 7% of patients experiencing moderate or severe levels of depression.

These results echo other studies that concluded that depression symptoms in new hemodialysis patients are very common (Watnick et al, 2003). The percentage of patients with depression symptoms in other studies ranges anywhere from 25%–62% (NKF KDOQI, Mollaoglu, 2004). Depression rates of 30%–50% have been reported in dialysis patients who use self-reported measures of depressive symptoms (NKF KDOQI). What is not known from these past studies is the level of depression found (mild, moderate, severe). Overall, it appears that estimates of the prevalence of depression in new hemodialysis patients have varied substantially, depending on differences in methods and criteria used to define depression.

This study examined eight psychosocial and demographic items to see how they correlate with depression symptoms. Of the eight, only two are statistically significant. First, there was a significant negative relationship between how the respondents rated their lifetime health and their depression level. Those who rated their lifetime health as being overall "fairly healthy" typically seem to have more positive attitudes in general, possibly leading to lower depression levels. Likewise, those who rated themselves as having poor lifetime health seemed to have a tendency to see many things in "the glass is half empty" manner in general, thus leading possibly to higher levels of depression.

Second, there was also a significant positive relationship between how stressful the respondents rated their dialysis experience and their level of depression. This mirrors a 2005 study by Rintala et al in which stress was found to be related positively to depressive symptomatology. A study by Rubin et al in 1993 gives one possible physiological explanation of this. According to their research, "if stress continues and a person is unable to cope, there is likely to be a breakdown of bodily resources. It is in this stage that there may be a reduction of the levels of epinephrine and norepinephrine in the brain, a state related to depression" (Rubin, Paplau, & Salovey, 1993).

In this study, responses to these two questions, "on a scale of 1–10 rate your lifetime health" and "rate the level of stress you have felt in starting dialysis," were found to be linked to levels of depression in new hemodialysis patients, especially when used together. Lower health ratings coupled with higher stress ratings significantly increased the depression score. Based on these findings, asking new hemodialysis patients these

two questions may prove valuable in early assessment of their risk for developing depression.

Depression is a major health risk for hemodialysis patients. It is linked to increased mortality and hospitalizations (Peterson et al, Goodkin et al). If left untreated, it may worsen over time and lead to unwanted outcomes. Even mild levels of depression should be promptly addressed and treated to curtail the possible negative impacts on patients' lives. These study findings provide a foundation upon which social workers can build to maximize positive patient outcomes through early risk assessment for depression.

LIMITATIONS OF FINDINGS

Several limitations of this study should be noted. The small number of participants in some of the groups (ethnicity, uninsured) made it impossible to achieve statistical significance. Larger studies in these areas will need to be conducted before generalizations can be made.

There is also concern regarding the degree to which the study sample is representative. For instance, new dialysis patients unable to independently complete the BDI-Fast Screen due to language, literacy, visual, or mobility barriers were not included in this study. Typical dialysis populations *do* include patients who do not speak or read English or who have visual or mobility impairments. Therefore, the sample in our study is not completely representative of the typical dialysis population. Also, our sample included only participants from one part of the country. Therefore, social workers should use caution when generalizing these findings to other regions.

Additionally, several patients (n = 10, 12%) who were asked to participate in the study declined to do so for unknown reasons. This excluded a significant number of potential participants from the study.

Another important limitation to this study is the reliance on self-reporting to determine depression levels. Although the validity of this particular self-report questionnaire is high, like other self-report assessments, it cannot be validated at 100%.

SUMMARY

This investigation explored the relationship between depression and gender, age, level of education, ethnicity, medical insurance, perceived health, perceived stress, and amount of time patients knew dialysis treatment would begin prior to their first treatment. The following is a summary of findings for each of the four research hypotheses tested in this study:

Hypothesis 1 (not supported). There was no significant relationship between depression and a lower level of education in new hemodialysis patients.

Hypothesis 2 (not supported). There was no significant relationship between depression and absence of medical insurance in new hemodialysis patients.

Hypothesis 3 (supported). A lower level of perceived lifetime health is associated with higher levels of depression in new hemodialysis patients.

Hypothesis 4 (supported). A higher level of perceived stress related to starting dialysis is associated with higher levels of depression in new hemodialysis patients.

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Appendix A

QUESTIONNAIRE

First four questions to be completed by interviewer

1. Circle which one below best describes your ethnicity:

   White
   Hispanic
   Native American
   Black
   Other

2. How many years of education have you had? (please circle)

   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 20+

3. Did you have medical insurance when you started dialysis? ☐ Yes ☐ No

4. How many months before starting dialysis did you know you were going to start dialysis? (please circle)

   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 30 36 42 48 54 60 60+

Next two questions to be completed by the patient

5. On a scale of 1–10 (1=unhealthy, 10= very healthy) how would you rate your health during your lifetime? (please circle)

   1 2 3 4 5 6 7 8 9 10
   Unhealthy Very healthy

6. On a scale of 1–10 (1= not stressful, 10= very stressful) how stressful has it been for you to start dialysis? (please circle)

   1 2 3 4 5 6 7 8 9 10
   Not stressful Very stressful