

Improving Hemodialysis Patients' Quality of Life by Training them in Coping and Communicating Skills: an Interventional Study

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Abstract

Background and Objectives: Low quality of life in hemodialysis patients is a major factor leading to cardiovascular diseases and other important outcomes such as hospitalization and death. The present study attempted to examine the impacts of training intervention on perceived psychological health and quality of life among hemodialysis patients.

Methods: In this cross-sectional intervention study, 51 hemodialysis patients were examined using census sampling method. The Short Form (SF-36) Health Survey was used to assess psychological quality of life for these patients. For 7 patients with psychological health scores (1SD) lower than the mean score, a supplementary questionnaire (Hamilton rating scale for depression and anxiety) was administered by a psychologist, to confirm existence of and identify the type of a psychological disorder. Then a training course on coping and communicating skills was developed and implemented. The effect of training program on patients' targeted skills was examined by post-intervention administration of the Hamilton rating scale. T-test was used for comparison of the mean values between the two genders.

Findings: While women gained higher mean scores than men in role physical, role emotional, vitality, mental health, social functioning, and bodily pain, and men scored higher in physical functioning and general health. No significant difference in the dimensions of Quality of Life was found between the two genders, but in bodily pain ($P < 0.05$). After training, a 20% enhancement in the coping and communicating skills was achieved.

Conclusions: Training of hemodialysis patients can lead to improvement of their coping and communicative skills, thereby enhancing their quality of life. Hence this study recommends systematic inclusion of training-based Quality of Life improvement interventions as an integral part of a comprehensive hemodialysis patient treatment strategy.

Keywords: Quality of Life, Training Intervention, Chronic Kidney Diseases, Hemodialysis, Patient, Treatment

Background and Objectives

Given the changes in epidemiological occurrence of diseases and the shifting trend from acute diseases to chronic ones, the health research is shifting the focus from quantitative accounting of health in terms of such measures as mortality, toward emphasizing on the quality of life (QOL). Patient QOL has received considerable attention over the past decade [1]. As a multidimensional concept, Health-related Quality of Life (HRQOL) addresses such aspects of a patient's life as physical health, psy-

chological health, economic conditions, personal beliefs, and interaction with the surrounding environment [2].

Chronic Kidney Diseases (CKDs) such as kidney failure are among the most difficult-to-treat diseases, with an incapacitating nature. While dialysis and other types of renal treatment can mitigate the CKD to some extent, the disease and the side effects of the treatments often disrupts many daily life activities of the patients and imposes numerous limitations on their ordinary living, which negatively affect their QOL [1,3]. Reduced QOL in hemodialysis patients may affect different aspects of their personal lives. In terms of physical aspects, it can limit patients' capability in performing daily physical activities [3]. Economic conditions of these patients are affected by employment discrimination or loss of job, difficulties in finding an

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appropriate job, and discontinued employment (partly due to the frequent hemodialysis) [4]. On the other hand, CKD may lead to the patients' dependence on others, which reduce their self-confidence, and induce a sense of loneliness in them, which in turn, negatively influence the socio-psychological aspects of their life [5]. Familial, social, and psychological aspects of hemodialysis patients' life may be also influenced by fatigue, anxiety, and neurohormonal disorders [6].

On the other hand, low QOL among hemodialysis patients is a major factor contributing to the occurrence cardiovascular diseases and other important patient outcomes, including hospitalization and death [1]. In a study on 1,284 CKD patients, Rocco *et al.* identified a correlation between low QOL and deteriorated renal functions.

Given the chronic and incapacitating nature of kidney failure, the goal in treatment of patients with kidney failure should not only be to save their lives and removing specific clinical symptoms, but also to improve the patients' QOL [7]. To this end, it is required that comprehensive treatment models, tailored to the particular conditions of these patients and capable of addressing their QOL, are developed. Besides the traditional physiological therapies, such treatment models would include psychological health enhancement programs in the treatment procedure.

Given the above-mentioned necessity, similarly, an assessment of the treatment outcome and the health status of CKD patients should encompass evaluation of patients' satisfaction and their own feeling of their well-being, besides evaluation of physiological and clinical indices. Studies show that QOL assessment is helpful in fundamentally addressing the problems experienced by patients and revising treatment methods [1].

Concerning the need for devising and promoting such new treatment models, this study undertook development and evaluation of a training intervention, as a part of a mental health and HRQOL improvement program, aimed at improving the overall healthcare performance in CKD patients in the Iranian Imam Khomeini Hospital.

Methods

Setting and Population

Aiming at improving HRQOL among hemodialysis patients, a health improvement program was developed in the Dialysis Ward of the Iranian Imam Khomeini Hospital. The study population consisted of all patients referred to this hospital for hemodialysis, during 2012-2013. Given the small size of this population, a census-based ap-

proach was adopted. Inclusion criteria were age above 18, being capable of completing the questionnaire or being interviewed, being treated with dialysis at least twice per week, and willing to participate in the study. Individuals with acute diseases who required hospitalization were excluded from the study.

Survey Tool

The Short Form (SF-36) Health Survey was used as the measurement tool to assess patients' HRQOL. This survey is a general QOL scale, which has been translated and used in 50 countries, including Iran, to assess the health status as perceived by the patients. It has also been applied in determining healthcare policies and investigating treatment effectiveness [8]. The scale accounts for 36 items related to eight QOL dimensions, including physical functioning, limitations imposed on roles by physical problems (role physical), bodily pain, general health, vitality, social functioning, limitations caused by emotional problems (role emotional), and mental health, with the score for each dimension varying between 0 and 100 [9]. Reliability and validity of the Persian version of SF-36 have already been confirmed in an Iranian context [4].

Development of HRQOL Improvement Program

First, a smart web portal was launched for electronic collection of the questionnaire data [10]. Afterwards, in a meeting with the director of Hemodialysis Ward, the intervention was described and orientation and training sessions for the nurses of this ward were organized. Next, descriptions were provided on how to complete SF-36 questionnaire. After training, the nurses were asked to input the questionnaire data into a computer, calculate patients' mental health scores, and submit the data to the data collection section in the ward via the smart portal.

At the next step, a series of meetings were held with experts in the fields of nephrology and project executive sponsor to develop training packages before reviewing the results of HRQOL survey. In the first two sessions, different types of training media were discussed and some selected intervention models for training human resources from other countries were reviewed. In the third session, the steps required for developing the training package, identifying training needs, and preparing initial training contents were determined. Finally, in the last session, training contents most relevant to hemodialysis patients were identified by drawing on the available literature. In addition, the material for training of the target skills in patients such as coping and communicating skills was exclusively discussed during these sessions.

Table 1 Mean and standard deviation of QOL scores before training intervention

Eight dimensions of QOL	Mean (SD) (Female Patients)	Mean (SD) (Male Patients)	Mean (SD) (Total)
Role physical	24.19 (35.63)	21.15 (37.97)	22.78 (35.68)
Role emotional	58.58 (18.28)	52.92 (23.10)	56.89 (19.50)
Vitality/energy	38.39 (21.26)	33.85 (22.65)	37.11 (21.28)
Mental health	58.58 (18.28)	52.92 (23.10)	56.89 (19.50)
Social functioning	53.45 (26.25)	42.46 (24.60)	49.64 (25.71)
Bodily pain	46.61 (29.13)	36.23 (17.88)	43.09 (26.41)
Physical functioning	31.61 (26.78)	50.77 (32.32)	37.22 (29.16)
General health	37.26 (19.44)	38.46 (23.83)	37.67 (20.32)
Physical QOL score	23.10 (21.85)	30.47 (23.92)	25.15 (22.43)
Mental QOL score	60.45 (24.11)	50.74 (24.24)	57.33 (24.09)

After HRQOL survey, psychological state of seven patients with low HRQOL scores (scores less than 1 SD below the mean score obtained from HRQOL survey) was examined by a psychologist, by using Hamilton rating scale or performing structured interviews, in order to identify their possible psychological disorders (*e.g.* depression-anxiety). Once the disorders were confirmed in these patients, psychologists or trained medical practitioners tried to training them on issues such as stress management, coping strategies and communicating skills. Further, separate focused group discussions were held with the patients and nurses in order to identify the additional training needs, and these needs were examined later in

a specialized meeting with experts from the fields of psychology, nephrology, health education, and health-care improvement. The patients were introduced to a training course with a specific curriculum, approved in the above mention meeting.

Results

HRQOL Survey Results

We evaluated HRQOL of 51 CKD patients (68.6% male; 31.4% female) with the mean age of 58.73 ± 15.08 (M \pm SD), receiving hemodialysis treatments. Table 1 presents mean scores and standard deviations of HRQOL dimensions, separately for both genders. Table 2 describes

Table 2 Patients' scores in Hamilton's rating test for depression and anxiety before training intervention

Patient ID	Gender	Age (year)	Dialysis period (year)	Depression score	Anxiety score
1	Female	64	4	9	6
2	Female	58	6	17	14
3	Female	44	1	24	19
4	Male	61	5	15	8
5	Male	72	2	9	6
6	Male	40	5	14	9
7	Female	46	-	12	10

the results of Hamilton's rating test, carried out on seven patients with low HRQOL scores, to confirm their psychological disorder.

While women gained higher mean scores than men in role physical, role emotional, vitality, mental health, social functioning, and bodily pain, men scored higher in physical functioning and general health. The difference between the genders, however, was significant only in terms of bodily pain ($P < 0.05$). While physical HRQOL score of men was higher than that of women, mental HRQOL score for women was greater than this score for men (not significant). In addition, according to our analysis, women had a significantly higher index of adequacy (KTV) as compared with men ($P < 0.01$). However, no significant difference in mean serum creatinine index was observed between the two genders.

The Impact of Training

Of the seven patients with low mental health score, one died and six others were selected to take part in the training sessions. After training, the total number of the correct answers to the Hamilton's test increased from 40% to 60%. This shows that despite the difficulties in organizing the training sessions for hemodialysis patients, a remarkable improvement in the patients' coping and communicating skills is achievable.

Discussion

Our results identified no significant mean score difference between male and females in role physical, role emotional, vitality, mental health, social functioning. This observation is consistent with the findings of Santos *et al.* who found no relationship between hemodialysis patients' QOL dimensions and their gender [11]. Our observation, however, contrasts with the findings of Hadi *et al.* [12] in which males exhibited better conditions than women in terms of role physical, bodily pain, vitality, social functioning, and mental health. We also observed that the female patients complained significantly less about bodily pain as compared with the male patients.

In addition, a comparison of pre- and post-intervention Hamilton test results for the patients who received training indicates an improvement by 20% in their coping and communicating skills. Although the patients refused to answer the QOL questionnaire for a second time after the training, their QOL seems to have been improved as a result of their increased awareness about their disease.

Treatment of patients with renal insufficiency may

not only fail to save the lives of patients but may also lead to unfavorable social conditions such as depression, poverty and disability [1] if QOL is not addressed adequately. Hence, to improve health status in hemodialysis patients, inclusion of psychological health enhancement programs in the treatment procedure is often necessary. In this study we showed the usefulness of complementary mental treatment, with the focus on training, in promoting QOL in the hemodialysis patients. Our results, alongside with the results of several previous studies demonstrating the therapeutic impact of QOL improving on patient outcome, hence, recommend systematic inclusion of such HRQOL improvement interventions as an integral part of a comprehensive hemodialysis patient treatment strategy. Our study also suggests that the appropriate stage for effective introduction of training intervention is the stage four of CKD (GFR 15-29 ml/min/1.73m²), when the patient is being prepared for alternative treatment (dialysis or kidney transplant).

Conclusions

While training of hemodialysis patients aiming at improving their quality of life can be a difficult task, if offered insightfully, it would bring fruitful results in improving coping and communicative skills in these patients and enhancing their quality of life. Hence this study recommends systematic inclusion of training-based HRQOL improvement interventions as an integral part of a comprehensive hemodialysis patient treatment strategy. In addition, the results of the present study suggest the fourth stage of CKD (GFR 15-29 ml/min/1.73m²) as the best stage for introduction of training intervention, when needed.

Abbreviations

(CKD): chronic kidney disease; (ESRD): end stage renal disease; (GFR): glomerular filtration rate; (HRQOL): health related quality of life; (QOL): quality of life; (HSR): health system research.

Competing Interests

The authors declare no competing interests.

Authors' Contributions

HB conceived the study, coordinated provision of requirements, guided the study, and contributed to drafting and revising the manuscript. FR and FR equally contributed to development of the training program, contributed to development of the smart portal, collected the patients' data,

and participated in analysis and interpretation of the data, and contributing to drafting and revising the manuscript. MHM was involved in sessions and discussions on designing the training package. FA took part in psychological testing of the patients. All authors read and approved the final manuscript.

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