



Original Article

Improving Quality of Care in Hemodialysis: a Content Analysis

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ABSTRACT

Introduction: Hemodialysis is currently the most common alternative treatment in patients with renal failure in the world. Today, despite the support provided by healthcare providers for these patients, they still express dissatisfaction with the quality of care and find it inadequate. However, there have been few studies investigating the needs of in-patients receiving hemodialysis care in Iran. Thus this research was undertaken to study the needs and demands of such patients.**Methods:** This qualitative research was conducted from June to November 2016 to investigate the view points of the patients, their families and health care providers about improving quality of care in dialysis unit. At first, the sampling was based on a purposeful sampling method. A total of 35 participants (patients, their families and health care providers) were interviewed. The interviews were analyzed via Graneheim & Lundman qualitative content analysis.**Results:** Data analyses led to the production of 700 primary codes, 54 subcategories and 27 secondary categories out which 4 main categories of modification of physical stressors, requirement of support and the requirement of improved quality of Health Care service and improved facilities and equipment requirement.**Conclusion:** Planning for modification of physical stressors, improved support of patients, enhancing the quality of care services provided by the treatment team, upgrading the facilities and equipment and the adoption of an interdisciplinary approach are all believed to improve the care services among in-patients receiving hemodialysis treatment.**Citation:** Hashemi MS, Irajpour A, Abazari P. Improving quality of care in hemodialysis: a content analysis. J Caring Sci 2018; 7 (3): 149-55. doi :10.15171/jcs.2018.024

Introduction

ESRD is associated with increased mortality and cardiovascular events.¹ In ESRD patients, optimization of quality of care is consequently a major issue, and monitoring of specific indicators is therefore mandatory.The quality of care cannot be put on scales, held against a measuring tape, or scanned with a device to analyze its composition. Hence, there are no direct measures of the quality of care, because the quality of care is a multidimensional construct. In many studies, the quality of care is surveyed with a quantitative method focusing on one aspect of the care.² These studies normally survey only one aspect of care with structures, processes, and outcomes of care indicators. Structure indicators refer to the availability of services or resources, for example, having psychological or nutritional patient counseling programs, the nurse-to-patient ratio, etc.Process indicators refer to the care that is actually being delivered, for instance, hepatitis B vaccination in seronegative patients. Lastly, outcome indicators involve the ultimate health status of the patient or the occurrence of (adverse) events after having received treatment. Example of observed outcome indicators is intradialytic hypotension.³

There have been a few studies conducted to assess the quality of care with indicators such as anemia(Hemoglobin (Hb,g/dl), the adequacy of hemodialysis(KT/V), bone metabolism(Phosphorus, Calcium ,PTH and 25(OH) Vit-D), nutritional

status(Albumin, Serum Bicarbonate and LDL-cholesterol), the status of vascular access(percentage of patients with catheters and arteriovenous fistula) and hemodynamic status(Blood pressure and Hemodynamics instability).⁴ The characteristics of these indicators do not show all aspects of care.These indicators merely predict clinical outcomes and sometimes insurance companies use them for paying salaries. The Centers for Medicare and Medicaid Services (CMS) and commercial insurers use clinical performance measures (CPMs) to assess the quality of care. In other words, to increase the motivation of staff to improve the quality of care, these indicators are used to assess the quality of care, and if these indicators are desirable, more wage is paid to the personnel.⁵ In order to provide better services, patients should be considered with comprehensive visibility. No single indicator provides a comprehensive picture of the quality of care.Today, despite the support provided by healthcare providers for the patients, the patients still express dissatisfaction with the quality of care and believe it to be inadequate.⁶ Studying the needs of the patients allows us to address screening of the patients, prioritizing their problems and preferences in an effort to improve the service provision.⁷ A review of the research undertaken in Iran showed that these qualitative studies essentially focused on "the lived experience of the patients under hemodialysis,⁸ "experiences of the patients receiving dialysis or kidney transplant",⁹ "supporting the patients receiving dialysis",¹⁰ "experience and perception of social

support by the patients and their families",¹¹ "the facilitative factors during the process of transition to hemodialysis",¹² "the process of transition to hemodialysis",¹³ "perceptions of the support sources for increased adaptability with hemodialysis in patients with renal failure",¹⁴ "perceptions of the nurses' support for increased adaptability with hemodialysis in hemodialysis patients",¹⁵ "the dimensions of adaptability model in patients receiving dialysis",¹⁶ "barriers and factors facilitating the care in patients receiving dialysis".¹⁷

However, the demands and expectations of the patients have not been fully studied yet. Therefore, this research is an attempt to find better care plans for hemodialysis patients through identifying the demands of the patients receiving hemodialysis by obtaining the viewpoints of the patients as well as the health care providers.

Materials and methods

A qualitative design with a conventional content analysis approach was used to collect and analyze data regarding the quality of care in hemodialysis. The objective-oriented sampling phase went on to the point of data saturation i.e. until all codes and categories had been completed and no piece of information remained requiring a definition or development of new codes. Each interviewee was assigned a pseudonym and the code of ethics was observed by securing informed consent, complying with the confidentiality of information and informing the participants about their right to withdraw from the study at any point.

Participants:

The participants comprised Iranian patients, from different economic and cultural backgrounds, aged over 18, with at least 3 months of receiving hemodialysis treatment who were willing and prepared to participate in the study and answer the questions. The participants included nurses (N=9), Nephrologist (N=4), clinical psychologists (N=4), social workers (N=2) and dietician (N=2) who had a minimum of 3 years' experience in hemodialysis wards, patients (N=9) and their family (N=6).

All participants were informed about the aim of the study, and were assured about the confidentiality of the study data, and signed the written informed consent prior to enrollment. All participants were informed about their voluntary participation, knowing their right to withdraw at any time, only authors were involved in data collection as well as data analysis. No names were used, and the results are analyzed and described in categories without identifications. The protocol of this study was approved by the ethics committee of Isfahan Medical Sciences University (IR.MUI.REC.1395.3.293).

In terms of ethical considerations, permission to conduct and record the interviews was obtained from the Ethics Committee of Isfahan University of Medical sciences. All participants were informed about the purpose of the study. They were informed that participation in the study was on a voluntary basis and they could refuse to participate at any time. Moreover,

the participants were reassured that their responses would be kept confidential and that their identities would not be revealed in research reports or in the findings published. Finally, an informed consent was obtained from each individual who agreed to participate in the study. The patients' interviews were conducted in a quiet, comfortable hospital room, but to interview the health care providers the researcher visited them in their offices, clinics or the hospitals in where they worked. The average age range of the participants was 41. The interviews lasted 50 (60-90) minutes in length, on average.

Some of the questions asked during the interviews were as follows:

- "Could you please tell me how this disease has affected your life?"
- "What problems and challenges you face while receiving care services?"
- "What would you change if you could change something to have better care services?"

As for the treatment teams, some of the questions asked were as follows:

- "How do you assess the services provided to dialysis patients?"
- "What solutions do you suggest to improve the services considering the conditions and available equipment?"
- "What care programs do you propose in line with your profession?"

The interview texts were analyzed by using qualitative content analysis in accordance with Graneheim and Lundman. Researchers used conventional qualitative analysis procedures in which no formal preexisting theory was used to guide data analysis. The subsequent steps were followed to analyze the data:

1. Having transcribed the interviews in a verbatim fashion, all researchers repeatedly read the text word by word to obtain a sense of the whole, and to gain a general understanding of what our participants were talking about.
2. Then, the first author divided the text into smaller parts, namely, into meaning units that were condensed.
3. Abstracting the condensed meaning units and labeling them with codes. Sorting the codes into sub-categories and categories (by comparing codes and appraising them to determine which codes seem to belong together, thereby forming a category. In other words, sorting the codes into subcategories and categories based on comparisons regarding their similarities and differences.
4. Finally, the underlying meaning, or the latent content of the categories, was formulated into themes.

Investigator triangulation was conducted to confirm credibility of the findings. Strategies for increasing credibility in this study were investigators with various perspectives, prolonged engagement with the data, immersion, triangulation, peer-check (people who had experience conducting qualitative research), negative case analysis and member checks.¹⁸

To ensure dependability and conformability, an audit trail, which consisted of the audio recordings, original

transcripts, observation notes, data analysis documents, and interview questions was developed to increase transparency of the research process.

Results

Data analyses led to the production of 700 primary codes, 54 subcategories and 27 secondary categories out which 4 main categories of modification of physical stressors, the support requirement (economic, mental-psychological, family, social and nutritional supports), the requirement of improved care services by treatment teams (improved medical and nursing services, enhanced interdisciplinary collaboration and infection management requirements) and improved facilities and equipment requirement. Table 1 displays the formulation of themes and categories.

1. The requirement of modifying the physical stressors during dialysis

Not only patients, but also nurses complained about dialysis complications and considered them as “a very serious issue”.

“Patients’ hypotension is a big challenge we face on a regular basis. The hypotension is at times so severe that we have to detach them from the machine. Consequently, the next time they come around, you see a patient who has put on weight which just makes it more likely for them to experience hypotension and muscular cramps”. (Nurse4)

2. The Requirement of improving the supports

2.1. The requirement of financial Support

The patients, physicians and nurses mentioned economic struggles as an influential factor on the adherence of the patients to the prescribed treatments (medicinal or nutrition related programs). Most patients could not afford appointments with physicians, administration of medicine and tests, insertion of vascular access tools (in-dwelling catheters and fistulas) or even the meals as directed by their dietician.

“Whenever I visit a physician’s office, I have to pay a sum of money. Visits, tests and medicines must be paid for after all. If all the patients were regularly paid for their steady jobs, there would be no problems. But how can you afford the medication and in-dwelling catheters when you are out of a good job” (Patient1)

2.2. The Requirement of mental-psychological supports

The patients complained about failure of both their families and the treatments to offer them mental-psychological supports. Most hemodialysis patients were suffering from depression and/or anxiety.

“Sometimes when I go home after the dialysis, I am engulfed by different thoughts and preoccupations. My mind is too busy to let me go to sleep. I am always hit by anxiety and stress” (Patient4).

2.3. The Requirement of nutritional supports

Some patients opted out of adhering to their prescribed diets as a result of financial problems, poor support on the family side, depression and lack of proper training.

“I believe the diet is one of the main problems of the people on dialysis. My blood phosphorus level is 13 mg/dL. I take 6 Sevelamer™ every day. They give 3 fish meals in hospital 3 times a week. However, when we go home, no one exactly

knows what we must have on our diet. Many families initially stick to the diet but will pull out later because of the lengthy process of the treatment or simply can’t afford the prescribed diet because of poverty or unemployment”. (Patient9).

2.4. The Requirement of social supports

Some people deny their disease or tend to get reclusive because of being concerned about the stigma, feeling weak as a result of being pitied, hating being pitied by others, the negative attitudes of the society toward their condition, missing out on social opportunities and nurturing beliefs that the society fails to show them a strong support”.

“We don’t visit others (friends, relatives) that much since they may find out about our problems or our condition. I am on twice-a-week run of dialysis. My children don’t want others to suspect I am being treated for dialysis. I am broke. However, my kids put up with me. Even my neighbors are not aware of this fact. I used to donate to charity, now I need their contributions”. (Patient5).

2.5. The Requirement of family supports

Some patients suggested that poor support on the family side was one of the reasons for their insufficient adherence to the treatment.

“For example, I have not been to a physician for about 2 years. I am physically too weak now to go to hospital or visit doctors regularly. Someone should take care of my tests and supply my medicines. When I see these things don’t matter to my family anymore, I prefer to ditch the treatment. When I see no one cares that I have to receive a kidney transplant, I stop thinking about it. I have given in to my fate. Most patients are in the same boat. Mr....situation is quite like mine. He decided to drop the treatment when he saw no one seemed to care about his health”. (Patient4).

3. The requirement of improving the Health Care Quality

3.1. The requirement of improving the nursing services

Low satisfaction with the care services provided by nurses was another notable finding. Most patients complained about the nursing services. Even some nurses rated their colleagues and their own skills and knowledge lowly and believed there must be training workshops for the nurses.

“I have no idea what to do when the Gambro (AK 96) machine has a glitch. I have no clue how to resolve the issue. As a matter of fact, I have not mastered this machine. For example, when distribution. Pearson Correlation analysis was used in other variables. The air detector alarm goes off, I panic or don’t know how to find the vein in patients who have received a kidney graft or I don’t know how to insert profiles in Fresenius machine, S model. (Nurse6)

3.2. The requirement of improving the nursing services

Irregular visits by patients and lack of an effective communication between the [patients and the physicians posed a big barrier to management of symptoms.

“Another problem is related to visiting the patients. They are not regularly visited by physicians. Physicians prefer to have the patients in their own private offices so that they can earn more. The patients are visited by specialists and then again by residents during evening and night shifts and that, I think, is enough. There is no need for more visits by physicians in their private offices. (Nurse4)

Table 1. Formulation of themes and categories

Themes	Subthemes	Codes
The requirement of modification of physical stressors	Managing the patients' symptoms	The requirement of managing the anemia The requirement of managing the Fatigue and weakness The requirement of managing the Nausea and Vomiting The requirement of managing the Sleep problems The requirement of managing the Shortness of breath The requirement of managing the Loss of appetite
	Managing the complications during dialysis	The requirement of managing the hypotension during dialysis The requirement of managing the cramp during dialysis
The requirement of improving the supports	Need for family support	Disturbed family relations Disturbed roles Disturbing the independence and integrity Poor adherence to the treatment due to inadequate support by the family
	Need for social support	Denying the infliction Getting isolated Decreased chances of social promotion
	Need for financial support	Unemployment Poor adherence to the treatment due to financial struggles Lack of financial means to support the family
	Need for nutritional support	The requirement of supporting the patients for acquisition of food supplies The requirement of closer diet adherence The requirement of enhancing the knowledge of the patients' about diets
	Need for mental-psychological support	The requirement of depression modification The requirement of anxiety disorders modification The requirement of enhancing the adaptability
Improving quality of health care service	Improving the Interprofessional Collaboration	Interprofessional education The need for legislation and regulations for improvement
	Improving the nursing services	Interprofessional Collaboration The requirement of training the nurses The requirement of training the patients The requirement of improving the facilities and equipment in the ward The requirement of observing manpower standards
	Improving the medical services	Lack of access to residents to prescribe medicine for the patients or manage the dialysis-induced symptoms and complications Lack of effective communications between patients and physicians Requiring the residents to improve and update their knowledge and information
	Improving the Infection control	The need for supervision and feedback about performance by head nurses and infection supervisors. The need to reform the physical space The requirement of training the patients The requirement of training the nurse
The need to improve the hemodialysis patient's comfort	Improving the ward equipment	Updating of hemodialysis equipment according needs and technology advances. Improving the quality of Sphygmomanometer and Weighing machine , Filter dialysis, dialysis set, powdered sodium bicarbonate and fistula needles Suffering and bothering for dialysis equipment malfunction dialysis equipment. Regular maintenance of machines and RO
	Improving the means and facilities	suffer of work place condition lack of cultural and welfare facilities

3.3. The requirement of infection management

Most patients believe that the nurses failed to observe the infection control standards and must be required to receive fresh training and change their attitudes.

"I was afflicted with hepatitis here. I got it because the nurses don't follow hygienic procedures. They connect a patient to the machine while still using gloves stained by the blood of other patients. Where else could I have got hepatitis? I don't go to barber's or swimming pools. I am a victim of the nurses' negligence and have paid huge bills to be treated for this so far. (Patient4).

negligence and have paid huge bills to be treated for this so far. (Patient4).

3.4. The requirement of enhancing interdisciplinary collaborations

Some nurses, physicians and psychologists who participated in this research felt that interdisciplinary collaborations were a requirement for better care services because of the complex nature of chronic renal failure and various other demands of such patients.

"I believe that interdisciplinary collaborations are one of the missing links in the care provision chain. I think that it is necessary to secure the services of a psychologist because of the mental struggles of these patients. The experience I have gained from the patients with chronic or refractory diseases tells me that giving psychological helps to patients can ease their tensions and stress. This, for sure, reduces the tension and stress of the nurses and the psychologists working with them". (Psychologist1)

4. The requirement of enhancing the hemodialysis patient's comfort

Some nurses stated that technical failures of hemodialysis machines and malfunctions of dialysis and RO equipment would lower the dialysis quality, increase the chances of blood clotting and leaking, improper monitoring of weight and vital signs which ultimately damages the quality of services. This shows the importance of improving the quality of dialysis equipment and machines".

"Some of these problems are because these machines are not maintained regularly. For example, when there is something wrong with the conduct mode of the machine, the operator switches off this mode. Of course when this mode is not available, it is practically impossible to administer dialysis to the patient. The Heparin pumps in many machines are broken and you have to administer Heparin manually. Most of the time, nurses forget the frequency of Heparin administration which just makes the blood clot on the filters and as a result the whole blood is wasted". (Nurse2)

Discussion

The results of this research indicated that financial struggles, mental-psychological issues, the requirement of modification of physical stressors, requirement of increasing adherence to the treatment protocols, the requirement of training patients and their families, the requirement of regular training and education of nurses and the necessity of upgrading and improving the equipment and facilities were the most important issues that need to be tackled if one wishes to enhance the quality of health care services for the patients.

Financial struggles and concerns are one of the most important problems encountered by hemodialysis patients. Many hemodialysis patients are not able to function properly because of physical weaknesses, fatigue, sleepiness, parenthesis (numbness of the limbs), xerostomia (dry mouth), pain, itching and malnutrition.¹⁹

Research suggests that out of hemodialysis patients who are in the working age range only 21% of Americans, 30% of Europeans and 55% of Japanese currently have a job.^{20,21} This has been vindicated in this research where many patients cited unemployment and financial troubles as their most important problem. It seems that expanding the insurance coverage so as to incorporate these services as well as providing the patients with unemployment benefits could reduce their financial problems. However, it should be noted that multiple issues such as operation of multiple insurance companies with insufficient coordination, lack of a universal insurance coverage for problems arising out of cost resources, huge premiums paid by the insured

individuals, problems related to insurance rates and failure of insurance companies and health centers to establish proper communication are among the main shortcomings of the current Iranian insurance structure. A number of solutions such as integrating health insurances based on regulations and a well-defined pattern, proper formulation of basic health insurance packages, clear definition of the dividing line between basic and complementary insurance covers, expanding insurance covers and formulation of regulations to stop the formation of any financial channels between the providers and receivers of care services have been proposed which could improve this situation.

The next problem reported by treatment team members was related to mental-psychological issues. These patients are particularly predisposed to depression because of a variety of factors such as economic pressures, unemployment, and failure to play their roles in family and society, decreased physical activity and cognitive disorders.²¹ Moreover, these patients become depressed as a result of their inability to get adapted to the prolonged treatment process. However, it should be noted that the patients believe that adaptation reduces their depression symptoms.^{9,22} This has been mentioned in a large body of literature. Many of the treatment team members who had participated in this research suggested that patients were experiencing heightened stress and anxiety. Chen et al., stated mental-psychological distresses as one of their main challenges. Many researchers indicate that anxiety-induced disorders intensify the chances of suicide,²¹ increase morning cortisol levels or 6-interlukine raises the possibility of infection,²³ higher levels of cytokines contributes to malnutrition and development of disorders in immune system²⁴ and consequently impact the life quality in the patients.²⁵ It thus seems that the high prevalence of stress and anxiety among the patients should be seriously considered for modification.

Many hemodialysis patients in Iran deny their condition which could be traced to cultural roots.²⁶ In a study performed by Nix et al., new patients diagnosed with renal failure stated that before their own affliction, they predominantly used to nurture negative attitudes toward hemodialysis patients and their families.²⁷ Many participants in this research reported fewer family and social gatherings and contacts and that they had become more reclusive, an issue which has been reported in several other studies as well.

Another notable issue was the patients' poor adherence to the treatment programs. Insufficient family support was reported by patients as an influential factor in this process. Although many patients depend on others for management of their affairs (attending the dialysis wards, meeting the patients and acquisition of dietary meals), family members and the friends tend to pay less attention to them over time which may result in their exclusion. Social support as an important social psychological factor has been defined as the facilitator of healthy behaviors which could improve the adherence of the patients to self-care programs and neutralization of unwelcome effects as well as mental pressures.²⁸ Patients

with poor adherence to treatment programs assessed their families' supports as "unsatisfactory" and even believed that family exclusions could intensify the complications and increase the mortality rates.

On the other hand, the treatment team members suggested that improved self-care and training the patients may enhance the adherence rates. Effective training of the patients and their families could bring about positive results such as decreased anxiety, improved life quality, assurance of continued care, higher satisfaction of medical and health services, better adherence to treatment programs and enhancing the self-care abilities.²⁹ Adoption of training policies should be considered for both the patients and their families by the authorities, considering the poor knowledge of the patients about their condition as well as their sub-standard adherence to treatment programs.

Conclusion

The results of this research indicate that the improved supports of patients (mental-psychological, family and dietary) can improve the quality of care in these patients but many problems associated with each other, a purely biomedical attitude can't resolve the problems of the patients. Resolving these issues requires a holistic attitude and interdisciplinary collaborations. WHO has defined interdisciplinary collaboration as "the contributions of various health groups with different specialties to provide the patients with the best care services. Interdisciplinary collaborations take place to insure that the audiences receive the best services from the most selected individuals, in the best possible place, in the fastest manner and with the fewest barriers."³⁰

Interdisciplinary collaborations can have many advantages including continuous care, cost-effective services, better information integration and time saving, improving the quality of services through achieving consistent, coordinated inputs across a variety of fields, a symbiotic relation between the care providers via mutual support and training, more comprehensive and better-informed care programs, increased productivity, enhanced professional satisfaction and mobility, reduced anxiety in care providers³¹, faster access of patients to services.^{7,32,33} improved care efficiency and clinical results of the patients,³⁴ improved physical, emotional and social performance of the patients,³⁵ better patients' performance in daily tasks,³⁶ lower rates of admissions, shorter hospitalization, decreased re-admissions and mortality rates³⁶ and finally higher life quality experience of the patients.³⁴ However, the results of several studies indicate that only interdisciplinary collaborations could provide patients with satisfactory services owing to the complex nature of chronic conditions.^{37,38} We hope that the adoption of interdisciplinary collaborations could contribute to providing hemodialysis patients with improved care services which ultimately enhances their satisfaction and quality of life. On the other hand, the results of this research could be used in the development of care programs for hemodialysis patients in countries with similar cultural, health and treatment conditions.

In this study, each of the categories represents one of the challenges of care in patients undergoing hemodialysis.

We suggest in future studies, the solutions of these challenges will be extracted from interviewing with health care providers and reviewing the literature. These solutions should then be put in the decision matrix.

Specialized panels survey them in terms of ease of implementation, cost effectiveness, timing, effectiveness, efficiency, acceptability, and compatibility with organizational values. Plans should be designed based on the decision matrix to improve the quality of care. The effectiveness of these programs must be evaluated by action research studies or clinical trials.

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Ethical issues

None to be declared.

Conflict of interest

The authors declare no conflict of interest in this study.

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