

# Nursing technologies: repercussions on the quality of life of adolescents on hemodialysis

## Tecnologias em Enfermagem: repercussões na qualidade de vida de adolescentes em hemodiálise

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### ABSTRACT

**Introduction:** Studies have highlighted the repercussions of diseases, such as chronic renal failure, on people's quality of life, considering the implications of disease and treatment in various spheres. **Objective:** to evaluate the impact of a light technology as nursing care on the quality of life of adolescents with chronic renal on hemodialysis. **Method:** Convergent healthcare assistance action research on a dialysis clinic in Fortaleza/Ceará, in the period from March to May 2013. Eight teenagers in the hemodialysis program participated. Data production was divided into two stages (pre and post-development of the 8 workshops). Data were collected with the WHOQOL-bref questionnaire, consisting of 26 questions concerning four patient's domains: physical, psychological, social and environmental relations. Data were analyzed with the Statistical Package for the Social Sciences-version 15.0. **Results:** adolescents in the chronic renal dialysis program suffer changes in their quality of life. However, the technology implemented in the workshops had a positive impact, particularly, in the physical domain, followed by the psychological one. **Conclusions:** light technology favors the humanization of healthcare assistance through the reception, interaction, socialization and development of relations, contributing to a better quality of life.

**KEYWORDS:** Nursing; Renal Dialysis; Quality of Life; Nursing Care; Specialized Nursing Facilities

### RESUMO

**Introdução:** Estudos têm destacado a repercussão de doenças, como a insuficiência renal crônica, na qualidade de vida das pessoas, considerando as implicações da doença e do tratamento em diversas esferas. **Objetivo:** Avaliar a repercussão da tecnologia leve como cuidado de enfermagem na qualidade de vida de adolescentes renais crônicos em hemodiálise. **Método:** Investigação-ação convergente-assistencial realizada em uma clínica de diálise em Fortaleza, Ceará, no período de março a maio de 2013. Participaram dela oito adolescentes em hemodiálise. A produção de dados foi dividida em duas fases (pré e pós-desenvolvimento das oito oficinas). Os dados foram coletados pelo questionário WHOQOL-bref, constituído por 26 perguntas que abrangem quatro domínios: físico, psicológico, relações sociais e meio ambiente. Os dados foram analisados a partir do *Statistical Package for the Social Sciences*, versão 15.0. **Resultados:** O adolescente renal crônico em diálise sofre alterações na qualidade de sua vida, mas a tecnologia leve implementada nas oficinas repercutiu positivamente, especificamente, no domínio físico, seguido do psicológico. **Conclusões:** A tecnologia leve favorece a humanização da assistência por meio do acolhimento, interação, socialização e vínculo, contribuindo com a qualidade de vida.

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## INTRODUCTION

It is increasingly necessary to adopt an interdisciplinary approach to the care of patients with chronic diseases, since these conditions have many particularities. The chronic nature of a disease implies countless manifestations/changes that exceed the physiological sphere and have an impact on psychological, social and economic aspects and, consequently, on the patients' quality of life (QoL). structured technological equipment and knowledge, entering into technologies of relationships, meetings and subjectivity<sup>5,6</sup>.

Today, it is relevant to seek the incorporation of technologies that value people first in the health care process. This is a fundamental element for the improvement of health outcomes in care practice<sup>7,8</sup>.

The World Health Organization (WHO) defines QoL as the individual's perception of his or her condition of life in the context of the culture and codes of values under which he or she lives, in relation to his or her goals, expectations, standards and concerns<sup>1</sup>.

Concern for human QoL is relevant today because it includes a multidimensional concept involving different domains (physical, psychological, social relationships and the environment). Identifying these factors may contribute to the development of appropriate interventions based on the results obtained, especially in the case of more vulnerable populations<sup>2</sup>.

Studies have shown the repercussions of diseases like chronic renal failure (CRF) in people's QoL, considering the implications of the disease and treatment in various spheres. Despite advances in dialysis procedures that have extended patient survival, their complexity can bring about restrictions and profound changes in lifestyle, with a consequent impact on QoL<sup>3,4</sup>. These repercussions may become more evident when the disease manifests itself in adolescence, a phase of transition from childhood to adulthood that involves physical and hormonal changes. These changes influence different areas of an individual's life, affecting their body image, their self-esteem, the roles they play and their relationship with others.

Nursing can combine technologies in the area of health care, and it is important to prioritize light technologies (LT) as instruments to achieve integral and humanized care, based on dialogue, bonds and active listening between health care professional and patient in different settings<sup>5</sup>, including care for people with CRF on hemodialysis treatment.

Technology is not only about equipment. This becomes evident when it comes to CRF, since the approach is focused essentially on the use of "hard" technology (dialysis machines, norms and generalized routines). This seems far from the production of shared knowledge and from the co-responsibility of these people with their own care, in addition to an emotional approach, reception, and the involvement of professionals in a more comprehensive way, with an individualized and holistic perception<sup>6</sup>.

Technological advances have undoubtedly brought about access to new approaches to treatments, technical procedures and

resources, with clear improvements in health care. However, health work has particularities that require the use of appropriate technologies that go beyond.

With that in mind, this study aimed to evaluate the use of LT and its repercussion on the QoL of a group of adolescents with CRF on hemodialysis. Based on the above, we considered that the use of LT in the nursing care of adolescents in hemodialysis may have repercussions on their QoL.

## METHOD

This is a convergent-care study with a qualitative approach, performed in a dialysis clinic that maintains an agreement with the Unified Health System (SUS). The clinic is a reference center in the treatment of adolescents with CRF located in the city of Fortaleza, Ceará, Brazil. The research was conducted from March to May 2013<sup>9</sup>.

Eight adolescents with diagnosis of CRF undergoing the dialysis program participated in the study. Inclusion criteria were: be in the adolescence age defined by WHO - 10 to 19 years old; to have been doing hemodialysis for more than six months, so that they could have experiences regarding the dialysis process; to be part of the dialysis shift with the highest number of adolescents, to accept and be authorized by the parents or guardians to participate in the study. The group of adolescents that did dialysis in the second shift of Mondays, Wednesdays and Fridays was chosen intentionally.

Data production was divided into two phases (pre- and post-workshop development), involving the application of the QoL questionnaire before and after the workshops. Data on QoL was collected using the WHOQOL-bref questionnaire, a tested and validated instrument in several cultures, coordinated by the WHOQOL Group of WHO. This instrument is composed of 26 questions focusing on four domains - physical, psychological, social relations and the environment.

After the QoL instrument was applied, a weekly meeting was held for two months, in a total of eight sessions. Each meeting of the group was divided into three distinct moments, corresponding to the beginning, middle and end of the workshop. The meetings had the following stages: warm-up (start); development (presentation of the topic by the moderator, individual construction and sharing) and evaluation<sup>10</sup>. At the end of each meeting, the adolescents suggested topics for the next meeting and chose the one of greater interest.

In convergent-care research, the topic must emerge from the participants of the study and their daily lives so as to ensure it will be related to the problem situation. Topics are, therefore, chosen from problems noticed by the people who actually experience a given situation<sup>11</sup>. The meetings were scheduled to begin one hour after the beginning of the dialysis session and finish before the end of the hemodialysis treatment, considering the physiological and behavioral changes or complications typical of the dialysis process.



The methodological strategy we used in the workshops was graphic or imaginary representation through individually produced drawings. We also used songs and short stories. The manifestations (behavior, participation, interaction) were recorded in the field diary and in the individual records.

To analyze the information collected in the workshops we used the Morse and Field structuring process, presented by Trentini and Paim, consisting of four generic processes: presentation, synthesis, theorization and recontextualization<sup>12</sup>. Data collected through the WHOQOL-bref was analyzed with the Statistical Package for the Social Sciences (SPSS), version 15.0, and discussed in view of the central concepts and results obtained in similar studies, according to the literature.

The development of the study met the national and international norms of ethics in research involving human beings. It was

submitted to and approved by the Research Ethics Committee of the Federal University of Ceará (Protocol n. 203/11).

## RESULTS

The group of adolescents we studied was as follows: the subjects of the study were between 10 and 17 years old. Six of them were females and two were males; the level of education varied widely, but all of them were literate, two with incomplete elementary education, six with incomplete secondary education and, in relation to the time of dialysis, the average was 3.1 years. The summary of the LT development process proposed as nursing care is presented in the Chart, describing the group techniques and strategies used in its implementation in the daily care of CRF adolescents in hemodialysis.

The development technique proposed in workshop 1 was the catalog, with the purpose of bringing the group together and making

Chart. Descriptive summary of the workshops conducted with adolescents with CRF during hemodialysis.

Workshop	Objective	Technique	Material	Synthesis	Results
1	Introduction/ getting acquainted.	- Warm-up: "My clipboard" - Topic: "The catalog"	Glue, folders, cardboard, magazines, A4 paper, paper and wood.	Presentation of individual productions; elaboration of a panel called "The Group".	The adolescents participated actively and enjoyed expressing themselves verbally. We noticed that they felt different because of their CRF and that they endured great economic and social hardship.
2	Talking about dreams, affection and prospects.	- Warm-up: "Positive thinking" - Topic: "Gift"	White craft paper, color pencils, pens, colored brushes, crayons.	Production of drawings to express what the adolescents would like to receive and give.	Most participants addressed material questions about what they would like to receive, in addition to health, transplantation, arteriovenous fistula, tenderness, resuming their studies. Concerning to who they would like to offer a gift, they mentioned: mother (five), grandmother/ grandfather (two) and nurse/caregiver (one).
3	Discuss values, expectations and self-esteem.	- Warm-up: "Guess who?" - Topic: "Magic book"	Book, glue and mirror.	The adolescents told their stories, which were recorded in a panel so the group could refer to them.	Each participant told his or her story. They emphasized positive situations, but at times they spoke about obstacles and hardships due to the treatment.
4	Promote group integration and communication.	- Warm-up: "Brainstorming" - Topic: "Secret friend"	White craft paper, pens, color pencils, and crayons.	Discussion of the topics: reception, interaction, respect and team.	We strengthened the bond through graphic representations and exchange of information among the adolescents. This enabled a deeper discussion of topics such as reception, integrality, inclusion and collectivity.
5	Talk about values, feelings, respect for differences.	- Warm-up: "History of the name" - Topic: "Ladder"	White craft paper, pens, scissors, glue and wood paper.	Presentation of written productions; production of a panel called "The ladder of the group".	The adolescents had a hard time choosing the three things, in descending order, that they considered to be of greatest value in their lives. Overall, they reported aspects related to family, school and treatment. There were similarities among them, despite different orders of priority.
6	Addressing the drug topic.	- Warm-up: "Surprise box" - Topic: "The touch"	Shoe box, silk fabric, small sandpaper, steel wool, cotton, cold and lukewarm pads.	Expression of the sensations provided by the applied technique, when touching the materials, relating it to the drug topic.	Most of the objects they chose represented sensations with negative connotations: destruction, aggression, lies, addiction, loneliness, violence, fear.
7	Encourage verbalization and to provide integration.	1 - Warm-up: "The body talks" 2 - Topic: "Window to the soul"	White craft paper, pens, wooden box, small ball.	Group presentation through the addressed technique; meeting evaluation.	Deep-dive into some aspects/ perceptions about life, providing greater knowledge among the members, favoring approximation and interaction.
8	Evaluate what was worked in the workshops and the which represented for the adolescents.	1 - Warm-up: "Missing" 2 - Topic: "The backpack"	White craft paper, pens, box of wood, figure of a black and white backpack and color pencils, crayons.	Recap of previous meetings, Representation of the experiences. Presentation of individual productions; group discussion on the built panel.	They talked about the facts affectionately, highlighting the importance of dialogue, being able to express their opinions and know that it is possible to do something new in the period of dialysis.



the participants acquainted. In this first meeting, we noticed that the adolescents actively participated and enjoyed expressing themselves verbally, although they had a hard time speaking to the group, as this was not a common practice among them in this environment. We also noticed that they value their families and enjoy cheerful topics, but they also feel different because of their CRF. They face great economic and social hardships and reported facts related to family violence and financial difficulties.

In workshop 2, we used the “Gift” technique. The adolescents were asked to create a graphic representation of what they would like to gain, what they would like to give as a gift and to whom. Most of the participants chose material things they would like to gain, like a home, a car, clothes, makeup, shoes, a computer, a TV set, toys; and also things like health, a transplantation, arteriovenous fistula, affection, resuming their studies. Regarding to whom they would like to give a gift: five adolescents mentioned their mothers; one said his grandmother; one said his grandfather; and another mentioned the nurse who took care of her.

In workshop 3, we used the “Magic book” technique, which aimed to improve the adolescents’ self-esteem and their expectations, through life stories told by themselves. As the adolescents presented their stories, the group was interested and surprised. They told their stories in a calm, wistful, high-spirited way. They had good things to say, but at times they talked about obstacles and hardships because of the treatment. The whole group listened with attention and respect.

In workshop 4, the main technique we used was “Secret friend”. The purpose was to address aspects related to communication, group interaction and, consequently, to strengthen bonds through graphical representations and exchange of information on friendship between adolescents. This meeting enabled us to discuss topics such as reception, integrity, inclusion and collectivity.

The technique of workshop 5 was the “Ladder”, in which values and diversity were addressed. We observed that the adolescents were thoughtful/quiet, as if they were having difficulty or doubts choosing the three things in descending order that they considered of greater value in their lives. Overall, the group spoke about aspects related to family, school and treatment, verbalizing feelings and emphasizing affection. Next, we showed them a panel with the drawing of a ladder, the so-called “group ladder”. With the help of coordinators and professionals, the adolescents glued what they had written on their own ladders to the panel, in the same sequence. In the end, they were asked to speak about the differences and similarities between their ladders. We found out that most aspects were similar, differing only in the order of priority between them.

In workshop 6, “Drugs” was the topic we discussed through the “Touch” technique. The objective was to lead the group to make an association between the sensations caused by touching on the presented materials and the drugs. Most of the objects chosen represented feelings with negative connotations: destruction, aggression, lies, addiction, loneliness, violence, fear. However, one adolescent said that drugs have many negative effects on people’s lives, as they affect a lot of people around them, but

they must also cause good feelings, and that is why some people do not even think about the harm. In short, people get addicted and do drugs for some reason. After this comment, we began to close the session talking about drugs, their types and effects.

Workshop 7 had as its central technique the “Window to the soul”. Its objective was to take a deep dive into some aspects/perceptions of life, providing greater knowledge among the members in order to favor rapport and interaction. In this technique, the adolescents had to answer questions on various subjects in order to show opinions and tastes. All adolescents participated by sharing their opinions, adding to the answers of other participants and showing honesty and disinhibition even in more personal matters.

In the last meeting, we used a technique called “Backpack”. We asked the adolescents to remember all the meetings, what we had done, the topics, what they learned, in other words, what the experience meant to them. At the time of socialization, the adolescents talked about their backpacks. It was very interesting because they spoke in an affectionate manner, stressing the importance of dialogue, of being able to express their opinions and knowing that it is possible to do something new in the dialysis period. They highlighted that their individual thoughts often coincided with those of the group.

In response to the QoL instrument, Table 1 shows a comparison between the QoL indexes before and after the LT implementation to discuss the repercussions of these measures on the group.

Considering the factors that trigger changes in the QoL of adolescents on hemodialysis, we analyzed the domains and facets of the WHO-QOL-bref questionnaire. Then, we compared these domains before and after the workshops. We also analyzed the repercussions of the LT on the QoL of the participants based on these domains (Table 2).

## DISCUSSION

The limitation of the study was due to the sample size. In order to meet one of the inclusion criteria, data was collected during hemodialysis sessions, and this led to a small number of subjects in the sample. Furthermore, because it was a comparative study, we had to determine a fixed group.

**Table 1.** Data from the quality of life questionnaire (WHOQOL-bref) and the general health of adolescents on hemodialysis.

Variables	Before	After
How is your health?		
Poor	4	3
Neither bad nor good	4	3
Good	0	2
How would you rate your quality of life?		
Bad	3	0
Neither bad nor good	2	4
Good	3	4
How satisfied with your health are you?		
Very dissatisfied	1	0
Dissatisfied	3	3
Neither satisfied nor dissatisfied	2	4
Satisfied	1	1
Very satisfied	1	0



Table 2. Comparison between the means of quality of life domains in the groups before and after the workshops.

Domains	Before				After				p-value
	Min	Max	Mean	Median	Min	Max	Mean	Median	
Total scale	44.8	66.7	56.9	58.9	51.0	71.9	60.3	61.5	0.092
Physical	46.4	67.8	59.4	58.9	57.1	75.0	65.6	64.2	0.035
Psychological	45.8	66.7	55.2	54.1	45.8	70.8	58.3	58.3	0.071
Social relationships	25.0	66.7	47.9	50.0	33.3	66.7	54.1	50.0	0.345
Environment	18.7	62.5	41.4	40.6	28.1	59.3	46.0	48.4	0.073

The choice of the group approach was made based on the powerful nature of group therapy. During this process, each adolescent expressed their way of perceiving, feeling and reacting to the topics under discussion. Whenever they heard different ideas, they reviewed their own positions, encouraged by the dialogue that was established in the group.

Group approaches enable exchange relationships and promote the construction of knowledge and actions related to health and care processes, in addition to bringing group members closer together. They promote integration and the humanization of care; the sharing of perceptions, knowledge and experiences about the reality these patients experience<sup>13</sup>.

At each meeting, we noticed greater participation. The techniques favored interaction, disinhibition, initiative in the development of activities, improvement in mood and respect for their colleagues' answers. Changes in their clothes, personal hygiene and appearance (makeup, painted nails, tidy hair) were observed, indicating improvement in their self-esteem.

With this LT, we could create a space for the adolescents to express their thoughts and feelings and for us to observe behavioral changes and identify emotional responses associated with the experience of chronic kidney failure patients on hemodialysis and its impact on their QoL.

Concerning the evaluation of overall QoL using the WHOQOL-bref, a comparison was made before and after the workshops with the participants. In the "How is your health?" question, the adolescents gave answers that were not very different from their initial evaluation, with a trend toward neither bad nor good and poor. Regarding "How would you rate your quality of life?", there was a change from the negative axis to the positive axis, when the moments before and after the workshops were compared. This shows that the meetings made the adolescents think about QoL-related aspects and the factors that might affect them.

QoL has become a relevant criterion in the evaluation of the effectiveness of treatments and interventions in the health care area, since these parameters have been used to analyze the repercussions of chronic diseases in people's daily lives, showing the relationship between QoL, morbidity and mortality<sup>14</sup>.

QoL is a widely studied construct in several diseases and in CRF, because, due to its characteristics and treatment, it represents a permanent concern of health care professionals. It is an important aspect to be monitored in people with severe and impairing chronic diseases who undergo long and painful treatments and

present greater vulnerability to comorbidities, as is the case of patients undergoing hemodialysis<sup>15</sup>.

In the question of overall QoL assessment of the adolescents in the research, the instrument aimed to analyze how satisfied the adolescents were with their health. In this criterion, most respondents, either observed in isolation (before or after) or comparatively, gave answers that showed that they were not satisfied with their health.

We verified that the way each patient lives and handles their CRF is always unique and personal. It depends on several factors, such as psychological profile, health conditions, environmental and social aspects, family support and responses from health organizations. However, in this study, they all have in common the fact that they live with the dialysis treatment and are in an age group that is full of changes, i.e. the adolescence.

The discovery of a chronic disease and the need for dialysis may initially be viewed as a difficulty, causing physical and psychological distress to patients. Rapid change in living conditions, new limitations, coping with hemodialysis as a continuous need and the possibility of death may have a negative influence on their QoL<sup>16</sup>.

We observed that the means and medians before and after the workshops presented significant differences in some facets. These were related to the physical domain, which includes aspects such as: pain, need for medical treatment to lead their daily lives, energy to perform daily activities and to work, ability to move about and satisfactory sleep.

In the physical domain, the question with the greatest correlation related to the facet of pain and discomfort; in the psychological domain, it was the facet related to negative feelings and, in the environment domain, it was the facet related to physical environment. This fact demonstrates that these aspects, based on the comparative analysis, are perceived positively by the majority of the adolescents and contribute to a better QoL.

CRF, as a chronic condition, can affect children and adolescents, with impact on various aspects of their lives, both physical and psychological, due to changes in family routine and social interaction in the face of specific dietary needs, commitment to dialysis, invasive procedures, the constant use of specific drugs and hospitalizations due to frequent clinical changes. Thus, knowledge about the implications of the chronic condition provides support for health care professionals, especially the nursing team. It can base their practice on the demands presented by these patients, as well as help them implement strategies of quality care<sup>17,18</sup>.



Patients with CRF in dialysis face several stressors that affect their daily lives and, consequently, their QoL. The progression of the disease also has an effect on their life expectancy and attitude toward their condition, so they need strategies to meet these demands. In this regard, it is necessary to intervene not only in the social support, but also in the psychological and physical domains to improve the QoL of these adolescents in renal replacement therapy. The implementation of new therapeutic approaches that go beyond the technology of dialysis machines contributes to different ways of assisting and caring for chronic patients<sup>19</sup>.

In the context of chronic kidney disease, this becomes very clear, since the dialysis treatment affects all the dimensions addressed in the QoL instrument we used. This type of treatment negatively affects these facets, hence the importance of evaluating the QoL indexes to guide care actions and, with that, improve the nursing assistance to these patients.

In the comparison of the WHOQOL-bref domains, we noticed that when the results were analyzed in the minimum values, it became evident that the environmental domain received the lowest score when compared to the other domains. On the other hand, when the maximum values were analyzed, there was predominance of the physical domain. Therefore, in the mean between domains, there was a greater difference in the physical aspect when compared to the other domains after the LT workshops.

This may be related to the fact that CRF causes physical changes with which the person has to cope. The physical aspect is strongly influenced by the illness, since the symptoms of renal disease and its treatment directly affect the aspects related to the physical domain previously discussed. However, all other domains are also affected by the repercussions on the lifestyle, social relations and environment. Through the values of *p* we observed that the means of the physical domain differ, since the mean before (59.4) is lower than the mean after (65.6) ( $p = 0.035$ ). For the full scale and the psychological and environmental domains, this may be suggestive, and there is no conclusive evidence, as we can observe through the means ( $0.05 < p < 0.093$ ).

We found out that there was greater impact of the workshops on these three domains (physical, psychological and environmental) because they mainly addressed issues related to energy, feelings, self-esteem, information and health care. The domain of social relations did not have significant changes after the LT, and this may be due to the fact that in the questionnaire this domain includes questions regarding sex life, support from friends and satisfaction with personal relationships. In the group surveyed, most adolescents were below the age of 15.

The QoL assessment can help adolescents with CRF to recognize and overcome hardships even if not directly linked to the disease, to minimize demands on the health sector and to improve their personal satisfaction with their health, based on self-assessment and co-responsibility for their care.

Literature shows that a number of sociodemographic and clinical factors are associated with the QoL of patients on

dialysis. Knowledge of how factors are organized to determine the QoL of these individuals undergoing hemodialysis may favor proper planning of health actions to better serve this segment of the population. It can help to define what aspects of QoL can be affected and, based on this, plan/implement improvement strategies<sup>20</sup>.

Adolescence is a period of vulnerability, in which family support can influence the success of the treatment. Although QoL is a specific construct for evaluating aspects related to the repercussions of health, disease and treatment, from the point of view of young people, sociodemographic, psychosocial and family-related factors seem to influence QoL too. These results are important because they highlight the need to implement a treatment that has repercussions not only in the biological sphere but also in the psychosocial one, aiming at compliance with the treatment and improved well-being<sup>21</sup>.

The information acquired about the QoL of the individuals is essential for evaluating the interventions, as it will show the impact of the disease and the treatment on their lives. This process is made possible through the use of existing and validated instruments, based on health concepts. These are relevant sources of information about the patients<sup>21</sup>.

This data from the study allows us to make analyses and direct the attention of professionals to the aspects that, in the opinion of the group we studied, influence or modify their lives. However, this does not mean that the other dimensions can be overlooked. It is necessary to keep in mind the possibility of changes in the evaluation that each patient makes of his or her own life. After all, QoL is considered as the judgment of values in certain circumstances, that is, temporality and individuality are important and, therefore, the concept of QoL is flexible.

## CONCLUSIONS

The group activities conducted in the research process sought to evaluate their reach in the behavioral change of the assisted adolescents from the perspective of QoL. Through the proposed LT, we could see the benefits of the activities for the group.

This study enabled us to see that adolescents with CRF in hemodialysis undergo changes in quality of life, but that the use of LT in the workshops had a more specific repercussion on the physical, followed by the psychological domain, contributing to a better assessment of their QoL. The results indicate that the analyzed dimensions negatively influence the life of the members of the studied group, but that they were mutable when we applied the technology proposed during hemodialysis. This fact could be observed in the manifestations of the adolescents' behaviors.

This study reaffirms the need to strengthen professional nursing practices that overcome traditional models of care management and health care, as this will contribute to the implementation of a differentiated care practice that will enhance the QoL of adolescents with CRF.



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## Conflict of Interest

Authors have no potential conflict of interest to declare, related to this study's political or financial peers and institutions.



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