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Health education needs in chronic kidney disease patients with continuous ambulatory peritoneal dialysis therapy at Dr. Saiful Anwar Hospital, Malang: a qualitative study

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Abstract

Purpose: This study aims to describe the need for health education programs for Chronic Kidney Disease (CKD) patients undergoing Continuous Ambulatory Peritoneal Dialysis (CAPD) therapy at Dr. Saiful Anwar Hospital, Malang. **Methods:** This research employs a qualitative case study approach. Data collection was conducted through in-depth interviews and observations of 18 informants. **Results:** Patients with chronic kidney disease (CKD) undergoing continuous ambulatory peritoneal dialysis (CAPD) at Dr. Saiful Anwar Hospital in Malang have shared various experiences related to their treatment. For instance, these patients have expressed concerns about being advised against pregnancy. A notable advantage of CAPD therapy is that it allows for fewer dietary restrictions, enabling patients to consume a broader range of foods. However, many CAPD patients also experience feelings of sadness and depression related to their condition. To address these challenges, patients in CAPD therapy require regular health education. Education can be provided through both online and offline methods, with sessions planned every one to six months. Health education content: CKD patients undergoing CAPD therapy require additional content tailored to their specific needs, considering the duration of CAPD use. Novice patients need health education about psychological conditions. Meanwhile, intermediate patients need content about new types of CKD therapy, psychological treatment, vitamins and drugs, and lifestyle for CAPD patients. Long-time patients require content on mental and physical activity, as well as guidance on maintaining healthy bones and skin. **Conclusion:** CKD patients with CAPD therapy have a positive perception and require additional health education activities regularly. Health education content can be customized to suit the patient's condition and the duration of Continuous Ambulatory Peritoneal Dialysis (CAPD). The delivery of health education for Chronic Kidney Disease (CKD) patients undergoing CAPD therapy can be conducted through group sessions, individual consultations, or mass methods, including the use of patient WhatsApp groups.

Keywords: chronic kidney disease (CKD); continuous ambulatory peritoneal dialysis (CAPD); health education

INTRODUCTION

Chronic kidney disease (CKD) is a disorder of kidney structure or function that has been present for more than three months and can be accompanied by a reduction in LFG from 60ml/min/1.73m2 [1]. CKD is a serious health problem with an increasing prevalence [2]. The prevalence rate of CKD in 2018 in Indonesia reached 0.38% [3]. Meanwhile, in East Java, the CKD prevalence data 2018 amounted to 0.29% [3]. Kidney disease in End Stage Renal Disease (ESRD) requires renal replacement therapy (RRT) [4]. There are three ways of TPG: hemodialysis (HD), continuous ambulatory peritoneal dialysis (CAPD), and kidney transplantation [4]. CAPD is one of the therapies given to CKD patients in the form of peritoneal dialysis, which is performed in the patient's abdominal cavity and carried out 3-5 times per day [5]. The survival rate of CKD patients with CAPD therapy for five years is 52% [6].

In 2018, the number of CKD patients in Indonesia using CAPD therapy reached 2,106 patients [7]. This number continues to increase yearly, although the increase is not very significant. In the preliminary study results, it was found that approximately 280 patients with CKD underwent CAPD therapy in 2022. This aligns with the 2018 IRR data, which states that East Java Province has the first rank with the highest number of CAPD therapy patients in Indonesia, 561 patients [7]. Among the total CKD patients using CAPD therapy in East Java, Malang City has the largest number of patients. There are 360 CKD patients in Malang City at Dr. Saiful Anwar Hospital [7].

CKD patients with CAPD therapy have a better quality of life than CKD patients with HD therapy [8]. Currently, there are only 2% of CKD patients on CAPD therapy out of all dialysis patients [7]. This is due to various barriers, including Indonesia's geography, culture, regulations, INS A CBGs tariffs, public knowledge, and facilities and medical personnel [7]. CAPD therapy is a relatively cheaper treatment than HD therapy; the technique is more straightforward, and patients feel more comfortable living without an HD machine [6]. However, CAPD therapy patients at RSUD Dr. Saiful Anwar Malang tend to decrease every year due to death. Deaths from 2022 to early 2023 were caused by many factors, including peritonitis infection and a sudden decline in condition due to patients having comorbid diseases such as diabetes mellitus and hypertension. Thus, there are still many CKD patients on CAPD therapy who are unable to maximise outcomes. Therefore, public health initiatives are needed to prevent and delay the progression of CKD [2]. These efforts can be done with health education. However, based on the informant's explanation, there is no specific and regular health education program for CKD patients with CAPD therapy. Therefore, to prevent and delay the progression of CKD, health promotion in the form of health education is needed.

Health education for CKD patients is a strategy for communication and motivation to adopt healthy behaviours and improve their quality of life [9]. Strategies for designing and developing health education programs need to consider the patient's background to suit the patient's needs [10]. This can be done by adjusting the health education content required by patients. Therefore, further studies are needed regarding health education suitable for CKD patients.

METHODS

This research employs a qualitative case study approach. It was conducted in August 2023 at Dr. Saiful Anwar Hospital, Malang. In this study, a qualitative approach was implemented by collecting data through in-depth interviews and observations at the CAPD Poly and the community, specifically via the WhatsApp group of CAPD patients. The selection of participants was done using purposive sampling and inclusion criteria on 18 informants, consisting of 12 primary informants and six supporting informants. The validity test in this study was carried out by data triangulation and peer debriefing.

RESULTS

The informants in this study consisted of primary informants and supporting informants. The main informants were CKD patients with CAPD therapy, coded I-01 to I-12. Table 1 shows that the primary informants in this study were 12 CAPD patients, consisting of males and females with different city origins and durations of CAPD usage time. Some informants can still engage in activities like attending school and working. However, some informants have not been able to participate in the activities. During the interview activities, two informants had their families present to answer the questions, specifically informant I-02 and informant I-12. Informant I-02's mother accompanied him during the interview. For informant I-12, due to health issues, including hearing difficulties, he was assisted by his son during the interview process.

Table 1. Characteristics of key informants

Code	Age (years)	Gender	Jobs	CKD duration (years)	CAPD duration (years)
I-01	16	Female	Not in school	1	1
I-02	16	Male	School	3	2
I-03	30	Female	Unemployed	4	4
I-04	23	Male	Work	3	2
I-05	39	Female	Work	2	2
I-06	38	Male	Unemployed	3	3
I-07	37	Male	Work	6	5
I-08	48	Female	Unemployed	7	5
I-09	56	Male	Lecturer	12	2
I-10	52	Male	Work	4	3
I-11	65	Female	Unemployed	8	5
I-12	66	Male	Retirement	5	5

As shown in Table 2, supporting informants are health workers on duty at the CAPD Poli Dr Saiful Anwar Hospital, Malang, coded IP-01 to IP-06. Based on the research results, two themes were identified: the needs of CKD patients with CAPD therapy for health education and the content of suitable health education for CKD patients with CAPD therapy.

Table 2. Characteristics of supporting informants

Code	Age (years)	Gender	Jobs	Duration of work (years)
IP-01	35	Male	CAPD Nurse	5
IP-02	44	Female	CAPD Nurse	3
IP-03	35	Female	Nutritionist	7
IP-04	35	Male	CAPD Nurse	6
			Health educator	4
IP-05	43	Female	Doctor specialists in Internal Medicine	6
IP-06	47	Male	Doctor specialist in internal medicine with a subspecialty in kidney and hypertension	6

As shown in Table 2, supporting informants are health workers on duty at the CAPD Poli Dr Saiful Anwar Hospital, Malang, coded IP-01 to IP-06. Based on the research results, two themes were identified: the needs of CKD patients with CAPD therapy for health education and the content of suitable health education for CKD patients with CAPD therapy.

CKD patients with CAPD therapy need health education

Analysis and clustering on this theme were conducted, and four categories were obtained. These categories include patient experience with CAPD therapy, health education received by CKD patients undergoing CAPD therapy, identified health education needs, and the groups or communities of CAPD patients.

Patient experience with CAPD therapy

Based on the results of interviews that have been conducted, 14 expressions of grievances felt by CKD patients with CAPD were obtained, including uncomfortable CAPD devices, fatigue, limitations to activities while using CAPD, not being able to exercise, wrong information from health workers, often feeling colds, patients are not recommended to be pregnant, must carry fluids when the patient travels, three patients have experienced peritonitis infections, patients feel bored when making controls to the hospital, difficulty walking while using CAPD, having to make fluid changes outside the home, the patient's blood pressure is always high, and the fluid obtained by the patient is not profitable from the fluid released. This can be seen from the informant's statement below.

> *"...if I want to get pregnant, there are two risks, the doctor said, "this baby is tight, the mother is tight", who is willing to do that, you're confused..." (I-05, Female, 39 years old).*

CAPD therapy also has advantages for each patient suffering from CKD. Based on the results of interviews, six advantages were obtained for CKD patients with CAPD, such as no food restrictions and the ability to continue their daily activities, such as school and work. In addition, patients feel more comfortable and accessible with CAPD therapy, and they no longer need to be tied to hemodialysis machines. This can be seen from the informant's statement below.

> *"...CAPD is good because there are no food restrictions. Then after that, with HD, everything is restricted..." (I-01, Female, 16 years old).*

The psychological condition of the patient is an important thing that needs to be considered because this condition can affect the patient's enthusiasm for treatment. However, each patient has a different psychological condition. Based on the results of the interview, seven psychological conditions arose in CKD patients with CAPD therapy, such as feeling afraid, sad, bored, anxious, and envious, until some fell. This can be seen from the informant's statement below.

> *"...several times down, so when I was down, once I didn't want to be controlled, I didn't want to be given medicine. Because I felt hopeless..." (I-12, Male, 66 years old).*

Health education needs

Patients' perceptions of the need for additional health education certainly vary. However, based on the study's results, 12 informants reported a need for further health education to manage the patient's condition. This can be seen from the following informant statements.

> *"...yes, for his health, so that he can do what yes... for experience so that he is not too careless*

to eat this, do this, you know what I mean..." (I-02, Male, 16 Years).

This is in line with the results of interviews with supporting informants that CKD patients with CAPD therapy need to be given additional health education to prevent complications and other disorders.

Routine health education is necessary for patients. Based on the study results, informants perceived the need for routine health education. However, three informants stated that it does not need to be routine if it is done offline. The three informants agree that routine health education can be done online or through *WhatsApp* patient groups. This can be seen from the following informant statements.

"...yes, it is necessary, but how many times do you do it regularly, if every day you are bored, maybe once a month. Sometimes it's been two years, I forget, it's normal..." (I-05, Female, 39 years old).

The results of the above study align with the statements of supporting informants that health education needs to be carried out routinely in CKD patients with CAPD therapy. Health education needs to be done regularly, in the sense that it is carried out on a scheduled basis within a specific period. Based on the study's results, informants suggested that routine health education could be conducted either monthly at the hospital's designated time or every six months. This can be seen from the informant's statement below.

"...maybe for a certain period, for example, every six months..." (I-03, Female, 30 Years).

This aligns with the supporting informant's statement that routine health education can be done once every six months or once per year because CAPD Poly has not done it so far.

Health education content appropriate for patients with CKD with CAPD therapy

CKD patients with CAPD therapy are likely to experience malnutrition and infection and are at risk of complications. Therefore, health education is needed to prevent complications in CAPD patients. In this theme, three categories are obtained from the analysis results: the health education content that has been received, the health education content needed, and the patient's perception of the health education content received.

Health education content received

The study's results found that CAPD patients had received health education content on nutrition, physical activity, clean and healthy living behaviour (PHBS), CAPD procedures, problems with CAPD, and peritonitis infection. The following informant statements confirm this.

"...yes, infections were included in the meeting because there were people with infections, but not in-depth..." (I-09, Male, 56 Years).

Some of the health education content above is based on the statements of supporting informants. This includes health education content that CKD patients with CAPD therapy must be aware of, specifically nutrition and the danger signs of peritonitis infection.

Health education content required

Based on the study's results, it was found that CKD patients with CAPD therapy need health education content such as new types of CKD therapy, psychological aspects of patients, vitamins and medicines for CAPD patients, recommended physical activities, maintaining healthy skin and bones, other diseases and their effects on CAPD patients, and recommended lifestyle and exercise. This can be seen from the informant's statement below.

"...yes it can, it is always given, and psychological assistance must also be done. Yes, if you get bored, you are lazy, CAPD is lazy, and it keeps delaying..." (I-09, Male, 56 years old).

The statements of supporting informants provide some of the health education content needed by the main informant, regarding medicines, dos and don'ts, and psychological assistance for patients.

Patient perception of health education content

Based on the study's results, it was found that the health education content received by CKD patients with CAPD therapy was still less varied because it only discussed fluid replacement procedures and PHBS, and the content delivered was still lacking in depth. This can be seen from the informant's statement below.

"...yes, it was included in the meeting because there were people who got infected, but not in-depth..." (I-09, Male, 56 Years).

DISCUSSION

CKD patients with CAPD therapy need health education

Patient experience with CAPD therapy

CAPD patients have many experiences when using CAPD therapy, such as patient complaints, the benefits of using CAPD therapy, and the patient's psychological condition. Complaints felt by patients include limited

activity, easy fatigue, and are not recommended to become pregnant. This finding aligns with research by Musnelina et al. (2023) and Reza et al. (2019), which indicates that CKD patients undergoing CAPD therapy experience limitations due to declining physical function and increased fatigue [11,12].

CAPD patients are also not recommended to become pregnant by their doctors. This is supported by research by Cosimo & Franco (2009) and Luders et al. (2018) that CKD patients undergoing dialysis are not advised to get pregnant because they have a very high risk [13,14]. Female patients on dialysis have twice the risk of adverse effects on the mother and fetus. These include hypertension, preeclampsia, eclampsia, early rupture of membranes, placental detachment, premature birth, and maternal death [15]. Besides that, postpartum women also have an increased risk of peritonitis infection [16].

The second sub-category of the needs aspect of CKD patients with CAPD therapy for health education is related to patient benefits. The study's results also showed that CAPD patients felt the benefits of using CAPD therapy, including no restrictions in consuming food or drinks, still being able to move and feel more comfortable, and no need to be tied to a hemodialysis machine. This is in line with the research results by Reza et al. (2019), which show that CAPD patients can consume various foods and a larger number of drinks [12]. If CKD patients use CAPD therapy, their nutritional needs return to normal [17]. CKD patients with CAPD therapy who are of productive age can continue to carry out daily activities. In addition, patients are also not tied back to the hemodialysis machine because the blood-washing process is carried out through the patient's abdominal cavity [18].

Related to the category of psychological conditions of CKD patients with CAPD therapy, the results showed that CAPD patients felt sad, anxious, and down. This is in line with research that many CAPD patients experience depression at moderate levels of depression [19]. Depression in CKD patients with CAPD therapy is due to patients having negative thoughts about their next life [20]. The study of Lew & Piraino (2005). Also, it was explained that many patients feel anxious and hopeless about their lives. Meanwhile, if CAPD patients feel hopeless or depressed, it can worsen their quality of life [21]. Therefore, it is essential to maintain the psychological condition of CAPD patients so that they can be optimistic about improving their quality of life.

Health education needs

Based on the study's results, it was found that CKD patients with CAPD therapy had a positive perception of the need for health education. CKD patients with CAPD therapy need additional health education to maintain their health. This is in line with research by Grangier (2016) that the existence of continuous and increasing health education can help improve the quality of life and survival rate of CAPD patients [22].

Patients argue that they need regular health education, which can be delivered online or offline. The Decree of the Minister of Health of the Republic of Indonesia (HK.01.07/Menkes/642/2017) concerning National Guidelines for Medical Services for the Management of End Stage Renal Disease that health education regarding CAPD techniques should be conducted regularly with a duration of time of at least annually or more frequently if problems or complications such as peritonitis infection occurs [23]. Health education needs to be conducted early on in patients with CKD to determine the patient's preferences and psychosocial considerations to achieve CAPD success [24].

In addition to CAPD patients' positive perceptions of health education, they also need health education to be conducted regularly, ideally once a month or every six months. This is in line with research by Jaelani et al. (2023) that the duration of health education should be tailored to the needs of CAPD patients to achieve their independence [25]. Therefore, it is crucial to consider the specific conditions and needs of CAPD patients to provide targeted health education.

Health education content appropriate for patients with CKD with CAPD therapy

Health education content received

The content of health education received by CKD patients with CAPD therapy in this study varies in terms of nutrition, PHBS, procedures, problems in CAPD, and peritonitis infection. This is in line with research by Hiruy et al. (2021) that CAPD patients have a risk of experiencing malnutrition problems. Therefore, CAPD patients need health education about nutrition [26]. CAPD patients require health education on nutrition to enhance their knowledge, increase food intake, and maintain their nutritional status and condition [27,28].

The study found that health education regarding procedures and problems in CAPD therapy is also essential to be given to CAPD patients. This aligns with research indicating that the procedure for using CAPD and potential problems that may arise need to be explained to CAPD patients to prevent failure in CAPD therapy [29]. In addition to nutrition, PHBS, procedures, and issues with CAPD, peritonitis infections also need to be explained to CAPD patients to avoid complications. An explanation about peritonitis infection is necessary because it often occurs when

patients do not maintain good hygiene [30]. This is in line with the research by Sutrisno et al. (2019) that CAPD patients risk developing peritonitis infection if they do not perform therapy cleanly and adequately [31]. Therefore, CAPD patients are given health education about peritonitis infection and PHBS.

Health education content required

Based on the study's results, it was found that CKD patients undergoing CAPD therapy at Dr. Saiful Anwar Hospital require health education content on new CKD therapies, psychological aspects, and physical/exercise activities suitable for CAPD patients. Content related to psychological aspects in CKD patients with CAPD therapy is also essential. This is in line with research by Bazazzadeh et al. (2023) and Troidle et al. (2003), which states that psychological problems such as depression are common problems experienced by patients with end-stage CKD [19,32]. Therefore, special attention to the psychology of CAPD patients is needed to improve the quality of life of patients [33]. An understanding of the psychological aspects of CAPD patients is required as the development of CKD treatment technology is feared that the implementation of technical therapy can make patients afraid, panic, or feel burdened [19].

From the results of the above study, there were differences in the need for health education content based on the length of CAPD use and the age characteristics of the informants. Based on the length of CAPD use, novice patients who had used CAPD for one year needed health education content on psychological conditions. Whereas patients who have been using CAPD for 2-3 years feel they need content on new types of CKD therapy, psychological support, vitamins and medicines, and lifestyle for CAPD patients. Patients who have been using CAPD for 4 to 5 years or above need content on psychological conditions, physical activity, and how to maintain healthy bones and skin. For differences in health education content based on the age characteristics of informants, content on psychology is needed in the age categories of adolescents, pre-elderly, and elderly.

Patient perception of health education content

The study found that CAPD patients thought that the health education content received was not varied enough. In addition, the explanation of the content was felt to be lacking in depth. This is supported by research that CKD patients with CAPD therapy need health education topics or content that has been adapted to the views and needs of patients [34]. Therefore, it is essential to have various health education content to increase knowledge and improve the quality of life.

CONCLUSION

CKD patients undergoing CAPD therapy exhibit positive perceptions and require routine and additional health education activities within 1 to 6 months. The health education content needed by CKD patients with CAPD therapy can be adjusted based on the length of CAPD use.

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