Self-management as a determinant of quality of life in Thai patients with continuous ambulatory peritoneal dialysis: A cross-sectional study

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ABSTRACT

The current study aimed to determine whether certain variables, particularly self-management, were significantly associated with quality of life (QoL) among Thai patients receiving continuous ambulatory peritoneal dialysis (CAPD). A cross-sectional design was used to conduct the study. Data were collected from 92 patients undergoing CAPD at Banphaeo Dialysis Center, Bangkok using self-administered questionnaires and a body composition monitor. They were analyzed using descriptive statistics and multiple regression analysis. The results showed that the mean score for overall self-management capabilities was 3.36, indicating a good level of self-management, whereas the mean score for overall QoL was 63.16, indicating a fair level. Multiple regression analysis revealed that the diet and fluid restriction component of self-management was a significant determinant of the overall QoL and SF-36 general health QoL, that the medications component of self-management was a significant determinant of the overall QoL and end-stage kidney disease-specific QoL, and that the duration of CAPD treatment was a determinant of the SF-36 general health QoL.

Keywords: continuous ambulatory peritoneal dialysis; cross-sectional studies; peritoneal dialysis; quality of life; self-management

1. INTRODUCTION

In 2008, the Thai government launched the "PD first policy," which aimed to provide Thai patients with end-stage kidney disease (ESKD) covered under the universal health coverage system with free access to renal replacement therapy in the form of continuous ambulatory peritoneal dialysis (CAPD). After this policy was launched, the number of patients with CAPD increased continuously to 34,467 in 2020 (Chuasuwan & Lumpaopong, 2020).

CAPD can be manually performed by the patients themselves or their family caregivers at home with limited resources, and no advanced technology is required. This treatment uses fewer medical staff and is more cost-effective (Thaweethamcharoen et al., 2020). However, CAPD treatment has been associated with numerous limitations. Notably, patients may experience various dialysis-related symptoms, such as loss of appetite, abdominal distention, muscle cramps, itching, poor sleep (Akbal & Nural, 2021), and decreased cognition, sexual

dysfunction, or strained social and family relationships, which may lower quality of life (QoL) (de Oliveira et al., 2019).

Patients' perceptions of their QoL have been linked to several aspects including their physical, mental, and social functions. Several studies have demonstrated that patients undergoing CAPD have compromised QoL for the physical, psychological, social, and environmental subdomains (Sakulkoo et al., 2020). Currently, growing evidence has accumulated regarding factors affecting QoL in patients receiving dialysis treatments including CAPD. Most studies on QoL have focused on individual profiles, clinical characteristics (Sriyuktasuth et al., 2017), and socioenvironmental characteristics (Wichaisak et al., 2018) of patients undergoing CAPD.

Self-management plays an essential role in CAPD, a home-based treatment. This treatment approach encompasses five components including PD procedures, diet and fluid restrictions, medications, self-monitoring, and symptom management (Varitsakul et al., 2013). Proper self-management among patients undergoing CAPD enhances health outcomes by preventing disease and treatment complications, thereby increasing QoL. Existing studies have focused on examining the effects of a self-management program on the QoL in this population (Pungchompoo et al., 2020); however, considering that the aforementioned studies examined self-management as a whole, specific components of self-management that play a crucial role in contributing to QoL in patients undergoing CAPD have never been addressed. Very little is known about which specific self-management components impact the QoL of patients undergoing CAPD.

Furthermore, several other factors influence QoL in patients undergoing CAPD, including fluid status, which is an important clinical indicator. Noncompliance with dietary and fluid restrictions has been identified as the leading cause of fluid overload in patients undergoing PD. According to previous studies, the increase in fluid status has a negative impact on the QoL of patients undergoing hemodialysis (HD) and PD in many aspects (Ayala et al., 2019). However, all studies conducted in patients undergoing HD and PD failed to differentiate among PD modalities. Moreover, no study has investigated Thai patients undergoing CAPD. At present, telehealth plays a crucial role in improving patient outcomes. However, existing studies on patients undergoing CAPD have presented somewhat mixed findings. Some studies have reported significant changes in QoL (Li et al., 2014), whereas others have reported no significant changes in QoL scores among patients undergoing PD (Dey et al., 2016). Additionally, a majority of the available studies regarding the use of telehealth in patients undergoing PD including CAPD have been conducted abroad. In Thailand, one study did determine the effects of telehealth services on patient outcomes, with their findings showing no significant difference in QoL between CAPD patients who did and did not receive telehealth services, although some QoL domains did improve significantly (Sriyuktasuth et al., 2023). However, no studies to date have examined the association between telehealth services and QoL in Thai patients undergoing CAPD. Furthermore, the duration of CAPD treatment is another important factor affecting QoL. Patients who have been undergoing CAPD for an extended duration may experience more comorbidities and CAPD-related complications, resulting in decreased QoL. Existing studies have identified that the duration of dialysis treatment was significantly associated with QoL in patients undergoing HD and PD (Raoofi et al., 2023). However, only a limited number of studies have explored the association between CAPD duration and QoL.

Currently, several studies have explored the QoL in patients undergoing both HD and PD in Thailand and abroad; however, to the best of our knowledge, no study has focused on the influence of self-management and its individual components on the QoL of Thai patients undergoing CAPD. The specific components of self-management that contribute to the QoL of patients undergoing CAPD remain unclear. In addition, similar studies conducted in HD and PD patients in different contexts have inconsistent findings, thereby warranting additional study. The present study aimed to examine the association among self-management, fluid status, telehealth services, and duration of CAPD therapy on the QoL of Thai patients undergoing CAPD. The findings presented herein provide a scientific foundation for the development of more efficient interventions geared toward enhancing the QoL of Thai patients undergoing CAPD.

2. MATERIALS AND METHODS

This cross-sectional study was a part of a randomized controlled pilot study that sought to determine the effects of telehealth services provided through PD applications at Banphaeo Dialysis Center, Bangkok, Thailand (Sriyuktasuth et al., 2023). Among the patients included in the study, 52 received telehealth services, whereas another 52 received routine care. The outcomes were then evaluated after 6 months. All participants who had received the telehealth service for 6 months were included in the analysis. The study was approved by the Institutional Review Board of Mahidol University in Bangkok (COA: No. IRB-NS2018/455.1307).

2.1 Participants
All participants who participated in the telehealth service study for 6 months were recruited into the current study. The telehealth service study included a total of 104 patients aged 18 and above who used a smartphone with an Android operating system and were actively undergoing CAPD. Those who were bedridden and had cognitive impairment, psychiatric problems, or serious illnesses were excluded from the study. Eligible participants were randomly assigned to the telehealth service plus routine care group or the routine care group, with each group containing 52 participants. After 6 months, a total of 12 participants dropped out due to death (n = 9), loss to follow-up (n = 2), and a change in the dialysis mode to HD (n = 1). Therefore, the current study ultimately included 92 participants undergoing CAPD (49 receiving telehealth services plus routine care and 43 receiving only routine care). According to Maxwell (2000), the sample size for multiple regression analysis should include at least 10 participants per determinant. For the four determinants (i.e., self-management, fluid status, telehealth services, and duration of CAPD therapy), the total minimum sample size was 40. In this study, data were collected from 92 participants, indicating adequate power.

2.2 Instruments

The demographic characteristics of the participants were collected from the personal data form completed at the baseline upon inclusion into the telehealth service study. The clinical characteristics were collected from the medical records.

The peritoneal dialysis self-management scale (PDSMS) developed by Varitsakul et al. (2013) was used to assess self-management. This scale comprises 24 items with 5 subscales, including PD procedures, diet and fluid restrictions, medications, self-monitoring, and symptom management. Each item is rated on a 4-point scale ranging from 4 (*well performing*) to 1 (*poorly performing*). Possible scores range from 24 to 96. To interpret the level of capability of self-management in patients with CAPD, the mean scores are grouped into four categories including score 1.00–1.74 as *poorly performing*, score 1.75–2.49 as *quite poorly performing*, score 2.50–3.24 as *quite well performing*, and score 3.25–4.00 as *well performing* (Varitsakul et al., 2013).

The choice health experience questionnaire (CHEQ) developed by Wu et al. (2001), which had been back-translated into a Thai version by Aiyasanon et al., (2009), was used to assess QoL. This tool consists of 83 items with 25 domains, including 9 domains on general health (SF-36) and 16 domains on supplement SF-36 specific to ESKD. The maximum score for each item is 100. Possible scores range from 0 to 2,300. Converting data to percentage, 75%–100% indicates *good QoL*, 50% and less than 75% indicates *fair QoL*, and less than 50 % indicates *poor QoL*.

The reliability of the PDSMS and CHEQ was examined in 30 patients admitted at Banphaeo Dialysis Center, Bangkok, Thailand. The Cronbach's alpha coefficients for the PDSM and CHEQ were 0.81 and 0.91, respectively (Sriyuktasuth et al., 2023).

A body composition monitor was used to assess fluid status, which was reported as the overhydration value (OH value) in patients undergoing CAPD. OH values less than or equal to 2 L indicated normal fluid status, whereas values exceeding 2 L indicated fluid overload (Luo & Wang, 2011).

2.3 Data collection

Data were collected at the end of the 6-month telehealth project. The participants completed the PDSMS and CHEQ, and their clinical data were obtained from medical records. Moreover, fluid status was assessed by a clinical staff member who was trained to measure fluid status in patients undergoing CAPD using a body composition monitor.

2.4 Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences, version 18. The demographic characteristics of the participants were summarized using mean and standard deviation for continuous variables and frequency and percentage for categorical variables. For non-normal distribution, data were summarized using median and interquartile ranges. QoL determinants in patients undergoing CAPD were analyzed using multiple regression analyses. Statistical significance was indicated by p-values less than 0.05.

3. RESULTS AND DISCUSSION

3.1 Results

The characteristics of the study participants are summarized in Table 1. Among the included participants, the mean age was 51.9 years (SD = 12.87), 57.6% were male, 57.6% were married, 52.2% were unemployed, and 40.2% had completed primary school. The majority of them used the universal health coverage service (81.5%). More than half of the participants (55.4%) had received CAPD treatment for ≤2 years, with a median duration of 1.80 (IQR 1.00–3.87). The most common comorbidities were hypertension (98.9%) and dyslipidemia (47.8%).

Table 1. Participants' characteristics (n = 92)

Characteristics	Frequency (%) of the participants
Receiving PD telehealth service	
Yes	49 (53.3)
No	43 (46.7)
Sex	
Male	53 (57.6)
Female	39 (42.4)
Age (years)	
<30	5 (5.4)
30−45	19 (20.7)
46−60	44 (47.8)
>60	24 (26.1)
	(range 19−74 years, mean = 51.9, SD = 12.87)
Marital status	
Single	21 (22.8)
Married	53 (57.6)
Widowed/separated/divorced	18 (19.6)

Table 1. Participants' characteristics (n = 92) (continued)

Characteristics	Frequency (%) of the participants
Education level	
No education	1 (1.1)
Primary school	37 (40.2)
Secondary school	25 (27.2)
Diploma/certificate	15 (16.3)
Bachelor degree	11 (12.0)
Master degree or higher	3 (3.3)
Occupation	
Unemployed	48 (52.2)
Employed	44 (47.8)
Health service payment	
Universal coverage	75 (81.5)
Social security scheme	14 (15.2)
Civil servant medical benefit scheme	1 (1.1)
Self-payment	2 (2.2)
Duration of CAPD (years)	
≤2	51 (55.4)
>2	41 (44.6)
	(range 0.80–9.30 years, mean = 2.71, SD = 2.10, median 1.80, IQR 1.00–3.87)
Comorbidities[*]	
Hypertension	91 (98.9)
Dyslipidemia	44 (47.8)
Cardiovascular disease	17 (18.5)
Diabetes	6 (6.5)
Other	9 (9.9)

Note: [*]Some participants had more than one comorbidity

Table 2 shows the mean scores, standard deviations, and interpretation self-management levels. The participants reported that their perceived overall self-management capabilities were *good* (mean = 3.36, SD = 0.38). When considering the self-management components, the participants perceived that they could manage themselves the best during the PD procedure and medication, respectively.

Table 2. Participants' self-management and its components (n = 92)

Self-management	Possible range	Actual range	Mean	SD	Level
Overall scores	1–4	2.21–4.00	3.36	0.38	*Good*
Peritoneal dialysis procedure	1–4	2.20–4.00	3.62	0.41	*Good*
Medications	1–4	1.33–4.00	3.42	0.65	*Good*
Symptom management	1–4	1.00–4.00	3.16	0.74	*Quite good*
Self-monitoring	1–4	2.00–4.00	3.16	0.54	*Quite good*
Diet and fluid restrictions	1–4	1.75–4.00	3.01	0.55	*Quite good*

Table 3 shows the participants' fluid status. The participants had a total fluid volume (OH value) ranging from −2.20 to 9.20 L, with a mean of 3.35 L (SD = 2.44). This result indicated that two-thirds of the participants (66.3%) had fluid overload (OH value > 2 L).

Table 3. Participants' fluid status (n = 92)

Fluid status	Frequency	Percentage
Normal fluid status (OH value ≤ 2 L)	31	33.7
Fluid overload (OH value > 2 L)	61	66.3
(range = 2.20–9.20 L, mean = 3.35, SD = 2.44)		

The participants' QoL is summarized in Table 4. Notably, the participants reported that their perceived overall QoL was *fair* (mean = 63.16, SD = 13.93). For SF-36 general health domains, the participants reported they had a fair level of QoL in most domains. Only the social functioning domain (mean = 78.53, SD = 21.40) was at the *good* level.

The participants also reported that they had a *fair* level of QoL in most ESKD-specific domains. Only physical functioning (mean = 77.72, SD = 23.28), body image (mean = 84.34, SD = 21.29), and dialysis access (mean = 79.61, SD = 21.65) were perceived at the *good* level.

Table 4. Participants' quality of life (n = 92)

Variables	Possible range	Actual range	Mean	SD	Level
Quality of life	0–100	6.27–89.84	63.16	13.93	*Fair*
General health (SF-36)					
Physical functioning	0–100	0–100	58.21	23.81	*Fair*
Physical role functioning	0–100	0–100	46.47	43.63	*Low*
Pain	0–100	0–100	65.98	24.13	*Fair*
Mental health	0–100	0–100	67.91	16.71	*Fair*
Emotional role functioning	0–100	0–100	55.16	45.17	*Fair*
Social functioning	0–100	0–100	78.53	21.40	*Good*
Vitality	0–100	0–90	60.16	16.76	*Fair*
General health	0–100	0–95	47.17	19.88	*Low*
Health transition	0–100	0–100	70.11	24.37	*Fair*
Specific domains for ESKD					
Physical functioning	0–100	0–100	77.72	23.28	*Good*
Cognitive functioning	0–100	20–100	65.94	20.00	*Fair*
Mental health	0–100	0–100	72.39	17.83	*Fair*
Sex	0–100	0–100	53.11	41.45	*Fair*
Work	0–100	0–100	61.96	36.59	*Fair*
Sleep	0–100	0–100	58.17	22.75	*Fair*
Travel	0–100	0–100	70.92	27.05	*Fair*
Recreation	0–100	0–100	65.38	25.21	*Fair*
Finance	0–100	0–100	73.10	29.24	*Fair*
Freedom	0–100	0–100	60.43	24.56	*Fair*
Body image	0–100	0–100	84.34	21.29	*Good*
Symptoms	0–100	1.92–57.69	20.82	12.35	*Low*
Diet and fluid	0–100	0–100	65.49	25.10	*Fair*
General health	0–100	0–100	62.17	28.82	*Fair*
Dialysis access	0–100	0–100	79.61	21.65	*Good*
Dialysis quality of life	0–100	0–91.66	62.93	19.17	*Fair*

The correlation between self-management, fluid status, and QoL was determined using Pearson's product–moment correlation coefficient, whereas the correlation between receiving telehealth services, duration of CAPD therapy, and QoL was determined using point-biserial correlation, as presented in Table 5. Our results showed that overall self-management (r = .343, p < .01), PD procedure (r = .235, p < .05), medications (r = .347, p < .01), symptom management (r = .282, p < .01), and diet and fluid restrictions (r = .316, p < .01) were positively correlated with the overall QoL.

The duration of CAPD treatment (r_{pb} = .213, p < .05), overall self-management (r = .327, p < .01), PD procedure (r = .251, p < .05), medications (r = .299, p < .01), symptom management (r = .221, p < .05), and diet and fluid restrictions (r = .333, p < .01) were positively correlated with the SF-36 general health QoL.

Moreover, overall self-management (r = .306, p < .01), medications (r = .335, p < .01), symptom management (r = .289, p < .01), and diet and fluid restrictions (r = .258, p < .05) were positively correlated with ESKD-specific QoL.

Table 5. Correlation between the dependent variable (QoL) and independent variables (self-management and its components, fluid status, PD telehealth services, and duration of CAPD therapy) (n = 92)

	Overall QoL	General health QoL (SF-36)	ESKD-specific QoL
Continuous variables			
Overall SM	r = .343**	r = .327**	r = .306**
PD procedure	r = .235*	r = .251*	r = .188
Medications	r = .347**	r = .299**	r = .335**
Symptom management	r = .282**	r = .221*	r = .289**
Self-monitoring	r = .097	r = .086	r = .092
Diet and fluid restrictions	r = .316**	r = .333**	r = .258*
Fluid status	r = −.067	r = −.182	r = .032
Categorical variables			
Receiving PD telehealth services	r_{pb} = .026	r_{pb} = −.094	r_{pb} = .116
Duration of CAPD	r_{pb} = .179	r_{pb} = .213*	r_{pb} = .127

Note: QoL, quality of life; SM, self-management; PD, peritoneal dialysis; r, Pearson's correlation coefficient; r_{pb}, Point-biserial correlation.
*p < .05, **p < .01

The results of our multiple linear regression analysis (stepwise selection) for the identification of variables predicting QoL are summarized in Table 6. Self-management of diet and fluid restrictions (β = .238, p < .01), and medications (β = .280, p < .01) were identified as significant predictors of overall QoL. The duration of CAPD treatment (β = −.223, p < .01) and self-management of diet and fluid restrictions (β = .297, p < .01) were identified as significant predictors of the SF-36 general health QoL. Moreover, self-management of medications (β = .335, p < .01) was identified as a significant predictor of ESKD-specific QoL.

Table 6. Multiple linear regression analysis identifying predictors of QoL (n = 92)

Dependent variable	R	R^2	Adj R^2	F	p	Independent variable	B	SE	β	t	p
Overall QoL	.415	.172	.154	9.272	<.001	SM: Diet and fluid restrictions	1.502	.635	.238	2.364	.020
						SM: Medications	1.995	.716	.280	2.788	.006
General health QoL (SF-36)	.454	.206	.179	7.597	<.001	Duration of CAPD	−8.213	3.528	−.223	−2.328	.022
						SM: Diet and fluid restrictions	2.478	.832	.297	2.980	.004
ESKD-specific QoL	.335	.112	.102	11.369	.001	SM: Medications	2.281	.677	.335	3.372	.001

Note: QoL, quality of life; SM, self-management; Adj R2, adjusted R2; SE, standard error; B, unstandardized coefficient; β, standardized coefficient; F, F-test of the overall significance; t, T-test for linear regression

3.2 Discussion

The current study found that participants perceived their overall QoL to be at the *fair* level. This perception could be attributed to the long-term health conditions and life-long treatment experienced by the participants, which could have affected their physical function, mental health, sexual function, and social relationships resulting in a decrease in their QoL. These findings are consistent with those presented in the previous studies, which revealed that patients undergoing CAPD had a *fair* overall QoL (Sittisongkram et al., 2019).

When considering SF-36 general health domains of the general QoL, our participants scored highest in the social functioning domain but lowest in the physical role functioning domain. This finding can be attributed to the impairment of kidney function leading to increased uremia. This condition affects many body systems, including the cardiovascular and respiratory systems. Patients undergoing CAPD experience many uremia symptoms, such as fatigue, dyspnea, and high blood pressure. These symptoms contribute to an impairment of daily life activity. These circumstances can explain why patients undergoing CAPD experienced the lowest physical role functioning. These findings are consistent with those reported in a previous study, which also used the CHEQ (Thai version) to assess the QoL between patients with HD and CAPD in Thailand (Aiyasanon, 2009). Similar findings have been reported in other studies, which showed that patients undergoing PD had higher QoL scores in the social functioning domain than those undergoing HD. This suggests that the patients living with PD may have had more freedom than those undergoing HD. Our participants were able to perform PD procedures by themselves at their home or workplace. Unlike patients with HD, they had no need to travel to the dialysis center two to three times a week to receive dialysis treatment. Furthermore, our participants were able to travel or engage in other activities given that PD did not require advanced medical technologies. These circumstances can explain why patients undergoing PD had a better QoL in social functioning domain than patients undergoing HD (Hsu et al., 2020).

When considering the ESKD-specific domains of QoL, our participants scored highest in the body image domain but lowest in the symptoms domain. Most common symptoms included dyspnea, anorexia, nausea, vomiting, muscle cramps, and itching; however, these findings were inconsistent with a previous study, which found that the sex domain scored highest, whereas the freedom domain scored lowest (Aiyasanon, 2009). Moreover, our findings contradicted those reported in another prior study, which found that patients undergoing PD had a low QoL score in the body image domain due to the presence of the PD catheter on the abdomen (Tannor et al., 2017). This could be attributed to the fact that male participants (n = 53) outnumbered female participants (n = 39) in the current study and that nearly half (47.8%) of our participants were in the 46 to 60 age group, which could have had an effect on the changes in the participants' body image perceptions. Furthermore, many of our participants (66.3%) developed fluid overload, with all included participants suffering from other comorbidities. Hence, they experienced several symptoms, including anorexia, dyspnea, muscle cramps, itching, and numbness. The differences in individual health conditions and illness perceptions might have affected the QoL of our participants, which could explain why they scored lowest in the symptoms domain.

The participants reported quite good to good levels of overall self-management and its components. These findings are consistent with those presented in a previous study, which reported that patients undergoing CAPD had excellent scores in the healthcare domain and good scores in the everyday life domain. Despite using a different questionnaire from that used in the current study, a previous study also reported similar findings (Artiwitchayanon et al., 2015). This suggests that patients undergoing CAPD received proper training at the CAPD center after having initiated treatment. During follow-up visits at the CAPD center, the healthcare team, which included physicians, nurses, and a dietitian, also provided health education related to the disease and dialysis treatment to all patients and family members. In addition, some of them underwent retraining programs and home visits to ensure that they could manage themselves in many

dimensions related to the treatment. As such, the participants perceived their total self-management capabilities to be quite good to good.

Multiple regression analysis found that self-management in terms of diet and fluid restrictions was a significant determinant of both overall QoL and SF-36 general health QoL. Self-management in medications was also found to be a significant determinant of overall QoL and ESKD-specific QoL. This could be explained by the fact that the participants perceived their overall self-management capabilities, diet and fluid restrictions, and medications as *good*. Despite experiencing some difficulty, they perceived that they could manage their medications well and follow healthcare providers' recommendations to control their diet and fluid intake. Therefore, the participants perceived that they could care for themselves well enough to prevent complications, leading to a perceived better QoL. These findings are supported by the results presented in previous studies, which showed the perceptions of *good* self-management capabilities had a significant positive association with the QoL of patients undergoing PD (Pungchompoo et al., 2020).

Furthermore, our findings indicated that the duration of CAPD treatment was a significant determinant of the SF-36 general health QoL. This could be attributed to the fact that although an extended CAPD treatment duration could provide participants with more opportunities to adjust to the treatment, some participants might suffer from disease progression and deterioration of health due to long-term health and treatment conditions. Moreover, the survival rates might decrease with increased CAPD treatment duration. These circumstances might explain the reduced QoL of our participants. Our findings are consistent with those reported in a previous study, which reported that increasing the duration of PD treatment had a significant negative association with the SF-36 general health QoL in patients undergoing PD (Ören & Enç, 2013).

Interestingly, the current study found that receiving PD telehealth services, overall self-management, PD procedure management, symptom management, self-monitoring management, and fluid status were not significant determinants of the QoL. Regarding telehealth services, our findings are consistent with those reported in an experimental study, which showed no significant change in the QoL scores of patients who received telehealth (Dey et al., 2016); however, some studies did show that receiving telehealth could improve QoL, either overall or in sub-scales, in patients undergoing PD (Li et al., 2014). One plausible explanation is that the PD telehealth services used by the participants may be irregular. Moreover, the duration of PD telehealth services used in the current study was 6 months. It might be too short and may not enhance the QoL of the patients in the study.

Our study found that overall self-management and its components, including PD procedure, symptom management, and self-monitoring were not significant determinants of QoL among patients undergoing CAPD. These findings are inconsistent with those reported in previous studies (Pungchompoo et al., 2020). Although some studies have examined self-management and QoL in patients undergoing CAPD, their findings revealed that self-management, as a whole, had a significant relationship with several aspects of QoL (Chang et al., 2019). This discrepancy in results could be explained by the fact that most of our participants already perceived their ability to manage themselves in their daily lives as *quite good* to *good*. This

might have resulted from the training and retraining courses provided to them and caregivers at the dialysis center to ensure proper self-management of their condition. Hence, these factors might not have contributed to the QoL of the participant included herein.

The current study also found that fluid status was not a determinant of QoL. Our findings contradict those reported in a previous study, which found that fluid status had a significantly negative relationship with QoL in patients undergoing PD, especially in the effects of kidney disease, pain, and energy/fatigue aspects (Ayala et al., 2019). This discrepancy could be explained by the fact that although most participants had fluid overload due to several reasons; they might have perceived this to be a common problem in patients with kidney failure. They also received advice from healthcare providers on how to manage fluid overload effectively. Thus, fluid status may not have contributed to the QoL of our study participants.

According to current findings, nurses should provide self-management education and empower patients to perform proper self-management, particularly with diet and fluid restrictions and medications. Furthermore, studies have recommended that nurses collaborate with other healthcare providers to develop holistic care to enhance self-management. Self-management resources should also be provided as needed to support their healthcare. Moreover, nurses should pay special attention to patients who have been undergoing CAPD treatment for a longer duration and provide interventions to optimize their QoL.

Some limitations of this study need to be addressed. The participants were recruited from a telehealth study conducted among a highly selected group of participants with ESKD who received CAPD at a dialysis center in Bangkok, Thailand. This limitation restricts the generalizability of our findings to patients with CAPD having similar characteristics. To increase generalizability, more studies with larger sample sizes conducted in other settings are needed. Future research should consider incorporating additional determinants not examined in this study, including clinical characteristics and various components of telehealth services.

4. CONCLUSION

The current study provides evidence that patients undergoing CAPD had a *fair* overall QoL. After considering the SF-36 general health domains and ESKD-specific domains of QoL, it was found that the patients undergoing CAPD had a *fair* QoL in most domains. These findings also highlight the significance of self-management, particularly in the diet and fluid restriction and medication components, which were found to be significant determinants of overall QoL and subdomains among Thai patients undergoing CAPD. Therefore, healthcare providers should assess these self-management components and implement efficient interventions to improve them and optimize the QoL in this population.

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