
IMPROVING PUBLIC AWARENESS ON PERITONEAL DIALYSIS THROUGH PUBLIC HEALTH NURSES: A DOCUMENT REVIEW

Ridha Afzal¹, Syaifoel Hardy^{2*}, Isak Jurun Hans Tukayo³, Tri Yudha Sasmita⁴

1. Indonesian Nursing Trainers, Malang-Indonesia.
2. Indonesian Nursing Trainers, Malang-Indonesia.
3. Poltekkes Kemenkes Jayapura, Jayapura-Indonesia.
4. Lawang Public Hospital, Malang-Indonesia

*Correspondence: Syaifoel Hardy | Indonesian Nursing Trainers | saderun@gmail.com

Abstract

Introduction: Lack of understanding of peritoneal dialysis could be the main cause of the low number of its users in Aceh. To increase its awareness, public health nurses have a crucial role in public health services. This article aims to analyze the factors that cause the community's lack of understanding of peritoneal dialysis and offer solutions by refining the role of public health nurses.

Method: The study used a Document Review by SWOT Analysis with 2x2 matrix. The documents were extracted from Google Scholar, ResearchGate, Pubmed, and Semantic Scholar. The indicators and the inclusion criteria were respondent (public health nurses), research method (quantitative), year (from 2015 to 2020) and language (English and Indonesian). The keywords in the search were the roles of nurses in public health centers (Puskesmas), Aceh nurses, and peritoneal dialysis.

Results: The study screened 28 documents in which 23 documents met the eligibility and 16 documents that met the study selection were reviewed.

Conclusion: The study suggested that the Acehnese have the potential to develop the CAPD program through the Public Health Center (Puskesmas) nurses approach.

Keywords: Peritoneal Dialysis, Public Health Nurses, Aceh.

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INTRODUCTION

Aceh is one of the Indonesian provinces with the lowest number of CAPD users (IRR, 2018). The low number of CAPD users among Acehnese society cannot be separated from their lack of CAPD understanding, where public health nurses (PHN) have a crucial role as the front liner in public health services. The number of CKD patients reaches 0.1% in Indonesia (Putri et al., 2020), which means that there are around 2.7 million CKD patients in the archipelago. The number of HD patients in 2017 reached 30,831, yet only 2% of this number use CAPD (BPPSDM, 2018). In other words, there were only 61,662 patients using CAPD. The ratio of normal CAPD nurses: patients is 1:20 (Baxter, 2021b). Thus it takes total of 3083 CAPD nurses. Currently, there are 6,469 dialysis nurses (IRR, 2018). To increase public understanding of CAPD, the figure is not sufficient. There is no data yet on how many CAPDs exist at present. This weakness causes CAPD prospective users to have to go to health care centers to get services (Hermalia et al., 2019).

It is known that CAPD patients who undergo dialysis at home are very much needed, but few people understand the effectiveness of CAPD (Novelia et al., 2017). The number of cases of Chronic Kidney Diseases (CKD) has increased (IRR, 2018). This increase was not matched by the number of Certified Dialysis Nurses in Indonesia which only reached 25% of all existing Dialysis Nurses (Kemenkes, 2018). In addition, the number of CAPD units is only concentrated in big cities and is limited to 5 provinces in Indonesia (IRR, 2018). This shows that the distribution of nephrologists and CAPD nursing professionals is still very limited. Not to mention the geographical condition of Indonesia which consists of 17,000 islands (BPS, 2020). In general, the Government through the Ministry of Health has launched Puskesmas and Nusantara Sehat programs aimed at making remote areas access to health services, including in the Aceh region. At present, there have been no specific attempts to take care of CAPD patients in the Puskesmas program (Ahmad et al., 2018). Optimizing Public Health (Puskesmas) nurses (PHN) with basic CAPD training in the future will be very helpful as a solution to the handling of CKD, especially CAPD in the

rural areas, at least through public health education. CKD is said to be one of the major non-communicable diseases that cause death (Kemenkes RI, 2019).

Training empowers nurses' education (Chaghari et al., 2017). Afzal & Hardy (2021) in their research proposed optimizing the role of Homecare nurses through training demonstrates an example that nurses play a significant role as public health front liner. Various studies have shown that the empowering of nurses by providing them training in integrated health programs in Puskesmas is very profitable (Afrianti & Tahlil, 2017). Therefore, to answer the phenomenon where public awareness of CAPD is still low, especially in Aceh, research with a separate approach is significant of importance. This study analyzes the factors that cause the lack of understanding of the community in Aceh about CAPD and offers a solution through the involvement of PHN by using the SWOT Analysis method.

METHOD

This study analyzes the results of extensive literature reviews through electronic, and print media. The key words were the roles of nurses in Public Health Nurses (Puskesmas), Aceh Nurses, and Peritoneal Dialysis. The main documents were journals in English and Indonesian taken from Google Scholar, ResearchGate, Pubmed and Semantic Scholar databases. The supporting documents were from WHO, the Indonesian nephrologist association (PERNEFRI), Ministry of Health, Indonesian Dialysis Nurses Association (IPDI), BPPSDM, and other relevant institutions. The data was processed, and then analyzed using the SWOT Analysis Strategy with 2x2 matrix elements (Gurel, 2017) before being analytically described in the article. The study is the result of selected extracts from various sources which are then collected and assessed for relevance. Document extraction and review were carried out from January 2015 to December 2020.

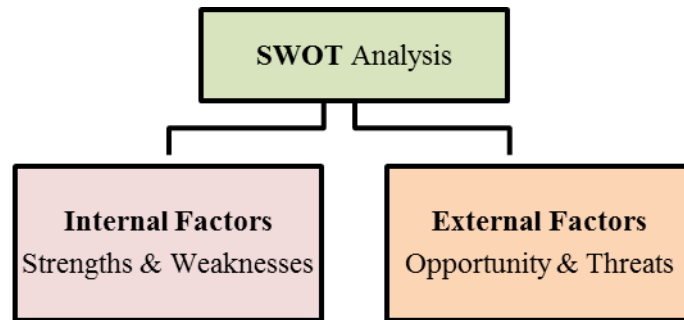


Figure 1: SWOT Analysis (Source: Gurel, (2017)).

Figure 1 was used as an instrument to help analyze the strengths, weaknesses, opportunities and treaths in the study. The analysis was devided into 2 groups, i.e. the internal and external fac tors as shown in Table 1 below.

Table 1: Component of SWOT Analysis

Items	Details
Organizational Strengths	Characters that give an advantage over others in the industry.
Organizational Weaknesses	Characters that place at a disadvantage relative to others.
Organizational Opportunities	External elements in the environment that gives benefits for the organizations.
Organizational Threats	External elements in the environment that could cause trouble for the organizations.

Source: Gurel, (2017).

RESULTS

The results of the study were obtainable after reviewing of 28 documents, of which 23 documents (82.1%) related to the roles of Puskesmas nurses, Peritoneal Dialysis, and Aceh nurses. The remaining 5

documents (17.9%) contained information on general health as well as Government policies and other institutions including the dialysis-related of the workforce. The selected documents which strongly met the key words were 16 documents as shown in the table 2 below.

Table 2: Documents Reviewed

No	Author, Year and Title	Language		Google Scholar	Sources		
		En	Ind.		Research Gate	Pubmed	Semantic Scholar
1	Ahmad, M. Langgeng, A.H., Andri, M. (2018). Evaluasi Kesehatan Dasar Basic Six Program Pokok Puskesmas Tombiano Kecamatan Tojo Barat Kabupaten Tojo Una-Una.		X	X			
2	Afrianti, N., Mudatsir, Tahli, T. (2017), Analisis Implementasi Program Pelayanan Kesehatan Peduli Remaja (PKPR).		X	X	X		X
3	Afzal, R., Hardy., S. (2021), Optimizing The Roles Of Homecare Nurses In Continuous Ambulatory Peritoneal Dialysis Nursing : A Document Review.	X		X	X		
4	Blomqwist, K. (2018). Design Training Successfully By Examining Your Target Group. E-Learning Industry.	X		X			
5	Chaghari, M., Saffari, M., Ebadi, A., and Ameryoun, A. (2017). Empowering Education: A New Model for In-service Training of Nursing Staff. Journal of Advances in Medical Education & Professionalism.	X		X	X	X	X
6	Figueiredo, AE., Bernardini, B., Bowes, E., Hiramatsu, M., Price, V., Su, C., Walker, R. and Brunier, G. (2016). A Syllabus for Teaching Peritoneal Dialysis to Patients and Caregivers. Articles from Peritoneal Dialysis International	X		X	X	X	X
7	Gurel, E. (2017). SWOT Analysis: A Theoretical Review. SWOT Analysis: A Theoretical Review.	X		X	X		X
8	Kong I.L.L. Kong, Irene L.P. Yip, Grace W.S. Mok, Soso Y.M. Chan, Candic M.K. Tang, Sharon W.Y. Wong, Rebecca B.T. Tsui, Wai-kay Tsang, Samuel K.S. Fung, Hilda W.H. Chan, and Matthew K.L. Tong. (2003). Setting up a continuous ambulatory peritoneal dialysis training program.	X		X	X	X	
9	Nobahar, M., & Tamadon, MR (2016). Barriers to and facilitators of care for hemodialysis patients; a qualitative study.	X		X	X		X
10	Novelia, E, Nugraha, E.R., Thabrany, H. (2017), Cost Effectiveness Analysis Between Hemodialysis and Peritoneal Dialysis,	X		X	X		X
11	Putri Eka, Alini, Indrawati, (2020), Hubungan Dukungan Keluarga dan Kebutuhan Spiritual Dengan Tingkat Kecemasan Pasien Gagal Ginjal Kronik Dalam Menjalani Terapi Hemodialisis Di RSUD Bangkinang.		X	X	X		

12	Saleh, MSM, Ali, JS, & Afifi, WM (2018). Nurses Compliance to Standards of Nursing Care for Hemodialysis Patients: Educational and Training Intervention.	X		X	X		X
13	Shahdadi, H., Balouchi, A., Sepehri, Z., Rafiemanesh, H., Magbri, A., Keikhaie, F., Sarjou, AA (2015). Factors Affecting Hemodialysis Adequacy in Cohort of Iranian Patient with End Stage Renal Disease. Global Journal of Health Science	X		X	X		
14	Sheikhaboumasoudi, R., Bagheri, M., Hosseini, SA, Ashouri, E., and Elahi, N., (2018). Improving Nursing Students' Learning Outcomes in Fundamentals of Nursing Course through Combination of Traditional and e-Learning Methods	X		X	X	X	
15	Suharyo, (2016). Otonomi Khusus Di Papua Dan Aceh Sebagai Perwujudan Implementasi Peranan Hukum Dalam Kesejahteraan Masyarakat.		X	X	X		
16	Wiliyanarti, P.F, Muhith, Abd., (2019). Life Experience of Chronic Kidney Diseases Undergoing Hemodialysis Therapy	X	X	X	X		X
Total		11	5	16	14	4	8

The table shows document languages are 11 are in English and 5 in Indonesian. Sixteen documents were extracted all from Google Scholar (100%), 14 (87.5%) registered in ResearchGate, 4 (25%) in Pubmed, and 8 (50%) in Semantic Scholar.

The statistics regarding CAPD nurses are not yet well recorded in Aceh province. The information includes the number of CAPD Nurses at Dr. Zainul Abidin Hospital (RSZA) in which 4 nurses out of 170 Dialysis Nurses who are certified throughout the province of Aceh (Hanafi, Pers.Comm. 2021). The total population in Aceh is 5,371,532 (BPS, 2020). The health ministry's data source said 6.2% of the Indonesian population suffers from kidney failure (IRR, 2018). The prevalence of chronic kidney disease ≥ 15 years increased from 2.0 per mile to 3.8 per mile (Kemenkes R.I, 2019). CKD patients must undergo therapy and treatment that require large costs (Suara.com, 2018). Of the 6.2% figure, many patients experience stage five chronic kidney failure (IRR, 2018). Thus, it is estimated there are 333,034 patients with CKD in Aceh.

So far, the distribution map of CAPD patients over 100 patients domination are in East Java (561 or 26.6%), DKI Jakarta (369 or 17.5%), West Java (288 or 13.7%) and Central Java (149 or 7.1%) in 2105 (Kemenkes, 2019,IRR, 2018). In 2021, an average of 6-8 CAPD patients is in each district in Aceh. This means that around 184 CAPD patients are present in all areas of Aceh, of which only 60 are active (Hanafi, Personal Comm, 2021). In 2018 there were 75 active CAPD patients (IRR, 2019).

Table 3: Map of population distribution in Aceh in 2020

District	Total
Simeulue	93228
Aceh Singkil	124101
South Aceh	238081
Southeast Aceh	216495
East Aceh	436081
Central Aceh	212494
West Aceh	210113
Aceh Besar	425216
Pidie	444976

Bireuen	471635
North Aceh	619407
Southwest Aceh	150393
Gayo Lues	94100
Aceh Tamiang	295011
Nagan Raya	167294
Aceh Jaya	92892
Bener Meriah	148175
Pidie Jaya	161215
Banda Aceh	270321
Sabang	34874
Langsa	176811
Lhokseumawe	207202
Subulussalam	81417
Total in Aceh	5371532

*Source: BPS, 2020

Table 2 shows that the most populous towns are Aceh Besar (7.9%), Pidie (8.3%), Bireuen (8.8), and North Aceh (11.5%). The least is in Sabang (0.6%).

Aceh has two CAPD service units, each is at Zainul Abidin Hospital (RSZA), and Cut Meutia Hospital, with 14 nephrologists, 16 internal medicine specialists, and 4 CAPD nurses at RSZA (IRR, 2018). Currently CAPD nursing training is still rare and there is only one Government-owned CAPD training institute in Jakarta (BPPSDM, 2018). Based on the above data, the following were the SWOT Analysis results:

Table 4: SWOT Analysis of Implementing the Promotion of CAPD in Aceh

Items	Details
Organizational Strengths	Aceh has 15 HD units, 14 nephrologists, 16 internal medicines specialists, 9 general practitioners, and 170 certified nurses.
Organizational Weaknesses	2 CAPD units, 4 CAPD nurses, 22% drop out (national figure), cause of death 42% due to cardiovascular (national figure), out of 100 dialysis procedures, only 2% CAPD users. Lack of training center.
Organizational Opportunities	Medical facilities are available throughout Aceh with good access to transportation (55 hospitals, 327 Puskesmas). Manpower is available to be developed. Local Government support. Conservative but open culture. Pervasive roles of public health nurses. Aceh is also an autonomous province.
Organizational Threats	Training agenda for CAPD not yet structured, bureaucracy, limitation of nurse specialist post with proper remuneration. Individual nurses' interest in CAPD. PHN roles regarding CAPD not yet specified in 21 Puskesmas program. It is under Epidemiological Surveillance of Non-Communicable Diseases.

The table shows regardless of its threats and weaknesses, Aceh has the potential in terms CAPD workforce, population, organizations and facilities across the province.

DISCUSSION

Nurses have broad roles seen from many perspectives (Kemenkes, 2019). Public understanding about CAPD is still very minimal in Indonesia. Aceh is an example to illustrate the level of public awareness of dialysis procedures, especially of CAPD. In general, Hemodialysis (HD) is much better known by the public. Understandably, that HD is more popular than CAPD (Novelia et al., 2017). Hemodialysis is a renal replacement therapy in end-stage renal failure patients (Wiliyanarti & Muhith, 2019). It causes various

complications which are the main reason for increased morbidity and mortality and have an impact on decreasing quality of life in hemodialysis patients (Nobahar & Tamadon, 2016; Shahdadi & Rahnama, 2018). Another obstacle is that patients have to provide rooms and special experts including dialysis-certified doctors as well as imported sophisticated machines and equipment (Hermalia et al., 2019). Patients have to attend HD centers (clinics and hospitals). These constraints make HD expensive, in addition to decreasing work productivity (Hermalia et al. 2018).

Meanwhile, CAPD patients perform dialysis on their own, so they do not need special machines and rooms in clinics/hospitals (Baxter, 2020). The Health Technology Assessment (HTA) Commission in 2015 conducted a study on the cost-effectiveness of HD and CAPD and the recommendations from the study concluded that CAPD therapy was more cost-effective than HD (BPPSDM, 2018). Therefore, as part of their roles as clinicians, general nurses need to understand the subject material which contains the basic foundation of CAPD nursing, that is rarely owned by them, especially those working in Puskesmas. The following is a SWOT Analysis related to efforts to take advantage of PHN's role in improving public awareness of the importance of CPD as the therapy of choice in the treatment of CKD in Aceh:

Strengths:

Aceh has 15 HD units, 14 nephrologists, 16 internal medicines specialists, 9 general practitioners, and 170 dialysis-certified nurses (IRR, 2018). These professionals are the greatest asset that Aceh has in developing the CAPD program. As is well known, CAPD is a renal replacement therapy that uses the patient's peritoneum as a semipermeable membrane (Baxter, 2021a). In simple terms, the general CAPD subject material that PHNs need to know includes general knowledge that CAPD is carried out independently by patients both at home and outside, without using any machine and only in certain circumstances it can be done automatically (Automated Peritoneal Dialysis) by using special equipment. Requirements (mandatory): patients with CKD stage 5 who have been diagnosed by a Hypertensive Renal Consultant (KGH) or Internist who has attended HD training and is deemed capable of carrying out CAPD; The patient has received intensive explanation and training regarding the CAPD procedure and its complications; CAPD can be done before or after HD treatment. The criteria: The patient is independent: can perform all CAPD procedures by him/herself and has no physical limitations, understands the principles of asepsis and antisepsis and can apply them well, the patient lives in a clean and healthy environment, and the patient can easily communicate directly with the doctor or CAPD nurse in the dialysis unit (by telephone, cellphone, etc.) (Kong et al., 2003). Above all, the Indonesian Association of Dialysis Nurses has standard procedures of CAPD that are useful for basic training (IPDI, 2017). These subjects and general information on CAPD, requirements for CAPD and implementation criteria can be provided to PHNs through short training by Acehnese professional resources owned are categorized as strengths. Syllabus of the training is available from many different sources (Figueiredo et al., 2016). Dialysis nurses can enrich PHNs' competencies regularly by providing basic CAPD nursing training.

Weaknesses

In Aceh, there are only 2 CAPD units, 4 CAPD nurses, 22% drop out (national figure) cases, cause of death 42% cases due to cardiovascular (national figure), and out of 100 dialysis procedures, only 2% CAPD users (IRR, 2018). They are lack of training center. The lack of CAPD units is due to the number of CAPD patients is not maximal. The minimum number of patients who are active and the occurrence of drop out taking place because education or health promotion in the community about CAPD has not been maximized. One of the obstacles is neither the unavailability of training centers nor the structured training programs. The weaknesses can be overcome by arranging Train the Trainer program for Certified Dialysis Nurses in Aceh before they deliver basic training to PHNs to enrich their training skills. The training can be done online which is cost-effective, especially during the Covid-19 Pandemic (Afzal & Hardy, 2021; Sheikhaboumasoudi et al., 2018). The problem is how to pay the remuneration to the nurses, as there is no operational funds for such activities provided urgently when the program does not exist. The possible solutions might be able to be addressed through sponsorship, but not within the short term.

Opportunity

Aceh has an area of 58,777 square kilometers, has a population of more than 5 million. Aceh has 55

hospitals and 327 health centers (Dinas Kesehatan Aceh, 2017). The entire Aceh region already has Medical facilities available throughout Aceh with good access of transportation. Yet, RSZA is the only referral hospital. Aceh Province has infrastructure that connects one town to another. This encourages smooth communication between regions or districts. As a special autonomous region, health programs in Aceh generally receive support from the local government (Suharyo, 2016). The people of Aceh are classified as conservative but they have historically an open culture (Pemda Aceh, 2004). This is evidenced by successful Puskesmas programs successful elsewhere that have also been successful in Aceh (Afrianti & Tahlil, 2017). This means that integrating projects of CAPD into Puskesmas's health promotion can also be carried out in Aceh. Concretely, this can be operationally conducted by approaching local governments, heads of provincial and local health offices, and other professional organizations. This pilot basic training project for PHNs in Aceh will receive support from many parties.

Threats

The minimum number of CAPD nurses, the absence of a CAPD training institution in Aceh are the main challenges faced in implementing the basic training program for PHNs (IRR, 2018). In addition to no previous program can be used as an example as proof of success. Besides, there is no research related to this program that can be academically accepted. The bureaucracy at the government level can also be a burden. Therefore, the first step that needs to be considered and very important is the preparation of a training program proposal (Blomqwist, 2018). The proposal plays a very important role as concrete steps in carrying out the programs. Basically, as long as the program is beneficial for the community, it can be integrated, for example, with Puskesmas's programs, Homecare nurses, or Nusantara Sehat. This is not only cost-effective, but it will also be realistic for its implementation to be approved. At the early stages, the kidney health program has not specifically been included in the Puskesmas program. Though it is not easy, it does not mean that it is impossible to integrate it. The Puskesmas program mentions the Surveillance for Non-Communicable Diseases program is ongoing. Therefore, CAPD promotion-related program for PHNs is possibly openings its door to be encompassed.

CONCLUSION

Various studies have proven CAPD is a successful alternative to replacement therapy for CKD. It is much more beneficial than hemodialysis. This positive message does not fully reach the public, especially CKD patients, so their awareness of CAPD is relatively poor. The fundamental problem behind this is the lack of utilizing frontline health care professionals who are directly involved in public health services at lower levels, viz Public Health Nurses. This article seeks to analyze the phenomenon in Aceh, that is the lack of public awareness of CAPD. Therefore, it is necessary to identify the causes and offer them solutions. The study uses the SWOT Analysis method as a recommended tool by previous research which has proven useful. The research recommends forming a structured program proposal as pilot project, though there is no guarantee of its success. Still, many studies have shown that carefully designed paper of health work-related program has been able to minimize risks. At least it is hoped that the results of the study can be utilized as an added value for future studies on similar subject.

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