

# Application of Fluid Management Booklet in Fluid Balance Requirements in Patients with Chronic Kidney Disease in Dr. Soeradji Tirtonegoro Klaten General Hospital

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## Abstract

**Background:** Hemodialysis patients have difficulty managing fluids and dietary restrictions which result in a high risk of death and an increase in health care costs. Patients who had difficulty managing hemodialysis fluids reached 81,4% and difficulty following diet as much as 74.6%, this was because they did not get an understanding of how strategies could help them with restrictions fluid. **General Objectives:** Able to apply nursing care to patients who experience chronic kidney failure. **Method:** Descriptive method with a case study approach, namely the scientific method that is data collection. The nursing care includes assessment, diagnosis, fluid management intervention, implementation, and evaluation. The diagnosis that appears in cases of chronic kidney failure in Dr. Soeradji Tirtonegoro Klaten to Mr. J include hypervolemia, ineffective peripheral perfusion, unstable blood glucose levels, and impaired physical mobility. Meanwhile, Mr. H include hypervolemia, ineffective peripheral tissue perfusion, and acute pain. **Result:** Patient Mr. J after being treated for 6x8 hours with a diagnosis of hypervolemia, ineffective peripheral perfusion, risk of infection, and impaired mobilization resolved. Then on the diagnosis of blood sugar instability in the patient Mr. J partially resolved, because the blood sugar value when it still reached 218mg/dL, with complaints of drowsiness, dizziness, weakness decreased. Then in the patient Mr. H after being treated for 9x8 hours with nursing diagnoses of hypervolemia, ineffective peripheral perfusion, risk of infection, and acute pain partially resolved, because there was still pharmacological therapy when the patient went home on discharge planning. Then in the diagnosis of bleeding risk, the criteria are resolved. **Conclusion:** the results of the implementation show that the information booklet is effective in increasing the knowledge of hemodialysis patients about fluid management for preventing complications from hemodialysis and can be used effectively in hospitals and in the community.

**Keywords:** Chronic Kidney Failure, Fluid Management Booklet, Nursing Care.

## INTRODUCTION

Non-communicable diseases (NCDs) are the main cause of death almost throughout the world. WHO shows that of the 57 million deaths that occurred worldwide in 2008, almost 36 million were caused by non-communicable diseases. Non-Communicable Diseases are also experienced by younger people. The proportion of causes of death from NCDs in people aged less than 70 years, namely, cardiovascular disease is the largest cause (34.1%), followed by stroke (10.9%), diabetes mellitus (8.5%), chronic kidney failure (3.8%), cancer (1.8%) (Riskesdas, 2018).

Chronic renal failure is a condition where the estimated or measured glomerular filtration rate (GFR) is  $<60$  mL/min/1.73m<sup>2</sup> existing for  $\geq 3$  months with or without signs of kidney damage. Another definition of chronic renal failure is the presence of signs of kidney damage with or without a decrease in GFR present for  $\geq 3$  months as evidenced by the following, regardless of the underlying cause such as albuminuria, hematuria after exclusion of urological causes, structural abnormalities (eg on renal imaging tests ) and pathological abnormalities (e.g. kidney biopsy) (Kidney Health Australia, 2020).

The World Health Organization states that chronic kidney failure causes the deaths of 850,000 people every year. So it can be seen that chronic kidney failure is ranked the 12th highest cause of high death rates in the world. The number of chronic kidney failure sufferers in the world according to the ESRD (End Stage Renal Disease) Program shows an increase in the number, namely in 2018 there were 2,303,354 people and in 2019 there were 2,372,697 people (Marwanti et al., 2022).

Central Java Province is ranked third with the number of chronic kidney failure cases of 96,794 people after West Java and East Java in the age group  $\geq 15$  years according to data (Riskesdas, 2018). The number of kidney failure patients in the 55-64 year age group was 79,919 people, then in the 65-74 year age group there were 38,572 people. The number of cases of chronic kidney failure in men was 355,726 people, while in women it was 358,057 people.

The continuing increase in the rate of chronic kidney failure with hemodialysis has led the Ministry of Health of the Republic of Indonesia to establish a program to overcome it through efforts to prevent and control chronic kidney disease by increasing promotive and preventive efforts with lifestyle modifications, namely by carrying out regular physical activity, eating healthy foods (low fat, low salt, high fiber), control blood pressure and blood sugar, monitor body weight, drink at least 2 liters of water per day, do not consume drugs that are not recommended, and do not smoke. Apart from that, the government is also encouraging the implementation of the Posbindu program for Non-Communicable Disease Services so that early detection of chronic kidney failure can be carried out (Rokom, 2018).

Hemodialysis patients experience difficulty managing fluids and dietary restrictions which result in a high risk of death and increased health service costs (Cristóvão, 2015). (Tovazzi & Mazzoni, 2012), said that 81.4% of patients had difficulty managing hemodialysis fluids and 74.6% had difficulty following a diet, this was because they did not have an understanding of strategies that could help them limit fluids.

Imbalance in kidney failure patients causes various problems that will have a negative impact on the course of the patient's illness. This situation will result in a lack of effectiveness of treatment and the development of unexpected disease as well as complications, namely decreased quality of life. Hemodialysis patients who do not comply with the regulation of fluid intake will cause fluid to accumulate in the body and cause edema around the body. The problem of excess fluid can come from foods that contain high water content and the patient's diet must be controlled (Welch et al., 2006).

The study concluded that the information booklet is effective in increasing hemodialysis patients' knowledge about homecare management for the prevention of complications from hemodialysis and can be used effectively in hospital and community settings (Neena & Wale, 2021). Apart from that, from the results of the research and discussion, it can be concluded that there is an influence of providing booklet media on improving self-care for chronic kidney failure patients in the working area of the Tamalanrea Makassar Health Center (Wahyuni & Darmawan, 2020).

Booklets are a medium for conveying health messages in book form with a combination of writing and pictures. The advantages of booklet media are that the information presented is more complete, more detailed and clear and is educational. This booklet, which is used as an educational medium, can be taken home, so it can be read repeatedly and stored. Providing education to patients in a structured manner is expected to increase patient knowledge so that they are able to manage fluids independently. Patients have good knowledge regarding limiting fluid intake (Widiastuti, 2012).

## RESEARCH METHOD

Descriptive method with a case study approach, namely a scientific method that is data collection. Nursing care includes assessment, diagnosis, fluid management booklet intervention, implementation, and evaluation. The diagnosis that emerged in cases of chronic kidney failure at II RSUP Dr. Soeradji Tirtonegoro Klaten to Mr. A include hypervolemia, ineffective peripheral perfusion, instability of blood glucose levels, and impaired physical mobility. Meanwhile, Mr. H includes hypervolemia, ineffective peripheral tissue perfusion, and acute pain. Measurement of fluid intake and urine output within 24 hours is recorded in the fluid monitoring chart table in the Booklet. Health education on fluid management is carried out for 6x8 hours for patients Mr. J and 9x8 hours in Mr. patients. H.

## RESULT AND DISCUSSION

### A. Nursing Assessment

According to the results of the study of the two patients, the causes of CKD in the two patients were different. Patient Mr. J has CKD caused by chronic diabetes mellitus for 8 years. Based on studies according to (Tarigan et al., 2020) fasting blood sugar levels are the main risk factor for type 2 DM patients with kidney failure, Every increase in fasting blood glucose of 1 mmol/L will increase the risk of proteinuria by 1.15 times, also fasting blood glucose in patients with kidney failure due to diabetes is greater than the fasting blood glucose value in non-patients, this indicates that control of fasting blood glucose is very important in the development of failure complications. kidneys, as well as patients with type 2 DM and kidney failure should focus on HbA1c and blood glucose levels. Then in the patient Mr. The cause of CKD is multiple ureteral stone obstruction. Based on studies (Widiani, 2020) obstruction or urinary tract stones (kidney stones) can cause kidney failure. This is caused by an increase in intratubular pressure, which is also followed by vasoconstriction of the blood vessels, which will lead to renal ischemia. Over a long period of time, this will cause glomerulosclerosis, tubular atrophy and renal fibrosis.

The results of the assessment of the two patients according to the age factor, patient Mr. J is 59 years old, while Mr. H is 64 years old. Based on the results of the study (Baroleh et al., 2019), the results of the t-test analysis in determining the p-value show that there is no relationship between age and chronic kidney disease because the p-value obtained is  $\geq 0.05$ . Age is one of the factors that influences the incidence of chronic kidney disease. As you get older, the body's cells weaken, this is a natural thing, the same applies to kidney function, at the age of 40 the number of functioning nephrons decreases by 10% every 10 years. This is supported by research by (Delima et al., 2017) which was conducted in four hospitals in Jakarta for the highest group of cases with chronic kidney disease in the 52-60 year age range.

The results of the assessment of gender factors, both patients, Mr. J and Mr. H is male. Based on research (Baroleh et al., 2019), the largest total sample in the chi-square analysis results was female, 39 respondents (54.2%). The group of chronic kidney failure patients had the highest gender, namely male, with 21 respondents (63.6%) while in the group without chronic kidney failure, the

gender characteristic was mostly female with 24 respondents (61.5%). The results of Riskesdas (2018) show that chronic kidney disease in Indonesia shows that the characteristics of the male gender are the highest at 4.17% compared to the female gender.

## B. Nursing Diagnose

Based on the study conducted by Mr. J and Mr. H there are several similar and different diagnoses. The nursing diagnosis that emerged in Mr. There are five, namely hypervolemia, ineffective peripheral perfusion, instability of blood glucose levels, impaired physical mobility, and risk of infection. Meanwhile, the nursing diagnosis that emerged in Mr. There are five H, namely hypervolemia, ineffective peripheral perfusion, acute pain, risk of bleeding, and risk of infection. Based on a study (Adira, 2018), the nursing diagnosis that appears in patients with chronic kidney failure is in accordance with the diagnosis that appears in patients with Mr. J and Mr. H.

## C. Nursing Intervention

The intervention used is the application of a fluid management booklet to fulfill fluid balance needs in patients with chronic kidney disease. As a result of applying the booklet by both patients, the patient Mr. J was able to understand how to limit fluids through Health Education using the booklet on the second day of treatment, while Mr. H was able to understand how to limit fluids through health education using a booklet on the seventh day of treatment. The two patients received the material at different times because Mr. J has chronic diabetes mellitus that has been going on for 8 years and has direct complications leading to kidney failure, glomerular filtrate rate in Mr. J is 5.25ml/min/1.73m<sup>2</sup> which is in the fifth degree, while CKD in Mr. H is caused by multiple ureteral stones which require a ureteroscopic lithotripsy surgical procedure and undergo observation to monitor the values of urea, creatinine, BUN, and glomerular filtrate rate. Based on studies (Widiani, 2020) and studies (Isro'in & Mas'udah, 2020) the degree of disease is based on the glomerular filtrate rate, calculated using the Kockcroft-Gault formula and divided into five. Degree one is LFG 90 ml/min/1.73m<sup>2</sup>, degree two is LFG 60-89 ml/min/1.73m<sup>2</sup>, degree 3A 45-59 ml/min/1.73m<sup>2</sup>, degree 3B 30-44 ml/min/1.73m<sup>2</sup>, grade 4 15-29 ml/min/1.73m<sup>2</sup> and grade five < 15 ml/min/1.73m<sup>2</sup>. Case of kidney failure in Mr. H, the patient's glomerular filtrate rate on the eighth day of treatment was 10.97ml, which means it was in grade five. So, the diagnosis of the patient Mr. H changed from Accute Kidney Injury to Chronic Kidney Disease stage V.

## D. Nursing Implementation

Implementation of the problem Hypervolemia is related to disruption of regulatory mechanisms in Mr. J and Mr. H is the analysis obtained: the implementation of nursing diagnoses is in accordance with the interventions made and also in accordance with the patient's condition. This diagnosis uses a modified intervention from research (Neena & Wale, 2021). The modification of the intervention carried out in education on limiting fluid intake using booklet media included additional information about medication management and hemodialysis adequacy. According to previous research (Ladesvita & Sukmarini, 2019), Body Mass Index (BMI) is the strongest factor in dialysis adequacy because it reflects the amount of fluid remaining in the body. Increasing body weight between dialysis will increase vascular volume where decreased kidney function cannot remove excess body fluid. Research (Sari et al., 2021) shows that there is no difference in the effectiveness of health education between booklets and leaflets on elderly people's knowledge about hypertension. Booklet is a printed medium in the form of a book whose function is to provide whatever information the maker wants to convey. According to research (Neena & Wale, 2021) after 7 days, there was a difference in knowledge between before and after being given a media booklet about home care management to prevent hemodialysis complications. The study concluded that the information booklet was effective

in increasing hemodialysis patients' knowledge about homecare management for preventing complications from hemodialysis and could be used effectively in hospitals and in the community.

### E. Nursing Evaluation

Evaluation of Mr. J and Mr. H in the nursing diagnosis of hypervolemia, namely in Mr. J. If the swelling in both legs is reduced, the patient can understand well how to limit fluids through Health Education using a booklet. The patient's outcome criteria are that skin turgor is quite improved and edema is quite reduced. Fluid balance values in Mr. J namely -100CC on the sixth treatment day. Then to Mr. H, post-hemodialysis blood laboratory results were monitored, the patient's complaints of weakness decreased slightly, the patient said he understood how to limit fluid consumption using booklet media. The criteria for results on the ninth day of treatment are that the patient's urine output has increased sufficiently, skin turgor has improved sufficiently, and edema has decreased sufficiently. The cases of these two patients are in line with the study (Neena & Wale, 2021) concluding that information booklets are effective in increasing hemodialysis patients' knowledge about homecare management for preventing complications from hemodialysis and can be used effectively in hospitals and communities. Then it is in line with the study (Pramono et al., 2021) that there is an effect of education using booklets on compliance with fluid restrictions in hemodialysis patients at RSU Islam Klaten with a value of  $p = 0.001$ .

### CONCLUSION

Were able Application of nursing care Mr. J and Mr. H with Chronic Kidney Disease stage V can be concluded that the nursing diagnosis of hypervolemia was partially resolved, because both patients require routine hemodialysis and effective fluid management to maintain fluid balance in the body.

Nursing assessment is obtained through anamnesis data, observation, physical examination, results of supporting examinations, and patient medical records. The results of the assessment of the two patients, namely Mr. J and Mr. H obtained the results of the study which were in line with the results of previous studies, namely that CKD can be caused by chronic diabetes mellitus and ureteral stone obstruction which develops into CKD stage V. Then the incidence of CKD according to the age factor, Mr. J and Mr. H has the same risk of developing CKD due to increasing age and weakened body cells, and the number of functioning nephrons decreases every 10% per 10 years. Furthermore, regarding the gender factor, according to previous studies, the incidence of chronic kidney failure in Indonesia is the highest among males with a prevalence of 4.17% of female education.

Based on previous studies, in both patients Mr. J and Mr. H, there are several similarities in nursing diagnoses that emerge, including hypervolemia, ineffective peripheral perfusion, and risk of infection. Meanwhile, a different nursing diagnosis, namely Mr. J is instability of blood glucose levels and impaired physical mobility, because Mr. J has diabetes mellitus and parasthesia. Meanwhile, Mr. H different nursing diagnosis is acute pain and the risk of bleeding due to Mr. H had a ureteral stone obstruction which caused pain during urination and underwent a ureteroscopic lithotripsy surgical procedure which resulted in the nursing diagnosis of risk of bleeding being removed.

Based on the results of previous studies, both patients to understand how to limit fluids after being given Health Education using fluid management booklets.



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## Reference

- 1) Adira, A. (2018). Chronic Kidney Disease (Ckd) Dan Kelebihan Volume Cairan. *Journal of Physical Therapy Science*, 9(1), 1–11.  
<http://dx.doi.org/10.1016/j.neuropsychologia.2015.07.010><http://dx.doi.org/10.1016/j.vi>  
[sres.2014.07.001](http://dx.doi.org/10.1016/j.vi)[0Ahttps://doi.org/10.1016/j.humov.2018.08.006](http://dx.doi.org/10.1016/j.vi)[0Ahttp://www.ncbi.nlm.nih.gov/pubmed/24582474](http://dx.doi.org/10.1016/j.vi)[0Ahttps://doi.org/10.1016/j.gaitpost.2018.12.007](http://dx.doi.org/10.1016/j.vi)[0Ahttps](http://dx.doi.org/10.1016/j.vi)
- 2) Angraini, F., & Putri, A. F. (2016). *Pemantauan Intake Output Cairan Pada Pasien Gagal Pendahuluan Hasil Metode*. 19(3), 152–160.
- 3) Arie Kusumo Dewi, Nur Hidayah, I. N. (2023). *Pengaruh Health Coaching Terhadap Kepatuhan Pembatasan Cairan, Interdialytic Weight Gain Dan Kualitas Hidup Pasien Hemodialisis: A Systematic Review*. 15(September), 1007–1022.
- 4) Asmara, D. T., & Nugroho, T. E. (2017). Pengaruh Pemberian Analgesik Kombinasi Parasetamol Dan Tramadol Terhadap Kadar Serum Glutamat Oksaloasetat Transaminase Tikus Wistar. *Jurnal Kedokteran Diponegoro*, 6(2), 417–426.
- 5) Bare., S. &. (2011). *Textbook of Medical Surgical Nursing volume 1*. Philladelphia: Lippincott Williams 7 Wilkins.
- 6) Bare, S. &. (2002). . *Buku Ajar Keperawatan Medikal Bedah Brunner & Suddarth*. EGC: Jakarta.
- 7) Baroleh, J. M., Ratag, T. B., G, F. L. F., & Langi. (2019). Faktor-Faktor Yang Berhubungan Dengan Penyakit Ginjal Kronis Pada Pasien Di Instalasi Rawat Jalan RSU Pancaran Kasih Manado. *Kesmas*, 8(7), 8. <https://ejournal.unsrat.ac.id/index.php/kesmas/article/view/27233>
- 8) Başer, E., & Mollaoğlu, M. (2019). The effect of a hemodialysis patient education program on fluid control and dietary compliance. *Hemodialysis International*, 23(3), 392–401. <https://doi.org/10.1111/hdi.12744>
- 9) Berman, A., Snyder, S., Levett-Jones, T., Dwyer, T., Hales, M., Harvey, N., Luxford, Y., Moxham, L., Park, T., Parker, B., Reid-Searl, K., & Stanley, D. (2018). *Kozier and Erb's Fundamentals of Nursing*. *Kozier and Erb's Fundamentals of Nursing*, 521.
- 10) Cristóvão, A. F. A. de J. (2015). Fluid and dietary restriction's efficacy on chronic kidney disease patients in hemodialysis. *Revista Brasileira de Enfermagem*, 68(6), 1154–1162. <https://doi.org/10.1590/0034-7167.2015680622i>
- 11) Delima, Emiliana, T., Tana, L., Halim, F. S., , Lannywati Ghani, Hadi Siswoyo, Sri Idaiani, A. L., Widowati1, L., Gitawati1, R., Sihombing1, M., Tjahja, I., Notohartoyo1, Sintawati1, , Tince Arniati Jovina1, M. K., Nugroho2, P., Djoko, Wibisono3 , J. Sarwono4 , Heidy Agustin5, Suhardjono2, S. S., & Siswanto1. (2017). Risk Factors for Chronic Kidney Disease: A Case Control Study in Four Hospitals in Jakarta in 2014. *Buletin Penelitian Kesehatan*, 45(1), 17–26.
- 12) Dimas Wardani, F., Faradisi, F., Fajriyah, N. N., Peningkatan, T., Otot, K., Pasien, P., Di, S., & Abstrak, R. B. (2022). Application Of Rom (Range Of Motion) Exercise Therapy In

- Increasing Muscle Strength In Batang Hospital Penerapan Terapi Latihan Rom (Range Of Motion). *Prosiding 16th Urecol: Seri MIPA Dan Kesehatan*, 597–603.
- 13) Edriyan, D. (2022). Dukungan Keluarga Berhubungan Dengan Kualitas Hidup Pasien Gagal Ginjal Kronik Yang Menjalani Terapi Hemodialisa. *Jurnal Penelitian Perawat Profesional*, 4, 793–800. <https://jurnal.globalhealthsciencegroup.com/index.php/JPPP/article/view/977>
  - 14) Guidelines and Protocols Advisory Committee (BC). (2019). Chronic Kidney Disease in Adults – Identification , Evaluation and Management. *British Columbia, Ministry of Health*, 1–11. <https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/ckd-full-guideline.pdf>
  - 15) Herdiana. (2013). Perhimpunan Nefrologi Indonesia. In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9).
  - 16) Isro'in, L., & Mas'udah, A. F. (2020). Pelatihan Penghitungan Glomerululo Filtration Rate (Gfr) on Line Bagi Penderita Diabetes Mellitus Dan Hipertensi. *Adimas : Jurnal Pengabdian Kepada Masyarakat*, 4(1), 35. <https://doi.org/10.24269/adi.v4i1.1430>
  - 17) Jepson, R., & Syme, H. (2018). Management of chronic kidney disease. In *BSAVA Manual of Canine and Feline Nephrology and Urology*. <https://doi.org/10.22233/9781910443354.23>
  - 18) Khusna, R. P., Wahyuni, T. D., Wicaksana, A. L., Masyarakat, K., & Mada, U. G. (2022). Edukasi Pemantauan Cairan Pada Pasien Gagal Ginjal Kronis Dengan Anuria 8 Tahun : Studi Kasus. *Jurnal Persatuan Perawat Nasional Indonesia*, 7.
  - 19) Kidney Health Australia. (2020). *Chronic Kidney Disease (CKD) Management in Primary Care*. [www.kidney.org.au](http://www.kidney.org.au)
  - 20) Ladesvita, F., & Sukmarini, L. (2019). Berat Badan Interdialisis Terhadap Adekuasi Hemodialisa Pada Pasien Hemodialisa Kronik. *Jurnal Keperawatan Widya Gantari Indonesia*, 3(1), 1–6. <https://doi.org/10.52020/jkwgi.v3i1.1080>
  - 21) Lam, W. Y., & Fresco, P. (2015). Medication Adherence Measures: An Overview. *BioMed Research International*, 2015. <https://doi.org/10.1155/2015/217047>
  - 22) Lestari, S., Faridasari, I., Hikmat, R., Kurniasih, U., & Rohmah, A. (2022). Pengaruh Teknik Relaksasi Nafas Dalam Terhadap Skala Nyeri. *Jurnal Kesehatan*, 13(1), 1–6. <https://doi.org/10.38165/jk.v13i1.254>
  - 23) Marwanti, Azizah Islamiati, S., & Zuhri, S. (2022). Dukungan Keluarga Berhubungan Dengan Kecemasan Pada Pasien Gagal Ginjal Kronik Yang Menjalani Hemodialisa. *Jurnal Ilmiah Permas; Jurnal Ilmiah STIKES Kendal*, 12(3), 497–504. <http://journal.stikeskendal.ac.id/index.php/PSKM>
  - 24) Monica Ester[Ed.], Mary Baradero, Mary Wilfrid dayrit, Yakobus Siswadi, E. W. (2009). *Klien Gangguan Ginjal*. EGC. [http://digilib.uki.ac.id/images/docs/Seri\\_Asuhan\\_Keperawatan\\_Klien\\_Gangguan\\_Ginjal\\_Mary\\_Barader.jpg.jpg](http://digilib.uki.ac.id/images/docs/Seri_Asuhan_Keperawatan_Klien_Gangguan_Ginjal_Mary_Barader.jpg.jpg)
  - 25) Neena, P. J., & Wale, G. R. (2021). Effect of Information Booklet on Level of Knowledge among Patients Undergoing Haemodialysis. *International Journal of Advance Nursing Education*, 1(2), 0–7. [https://www.researchgate.net/profile/Gajanand-Wale/publication/358497937\\_Effect\\_of\\_Information\\_Booklet\\_on\\_Level\\_of\\_Knowledge\\_among\\_Patients\\_Undergoing\\_Haemodialysis/links/620500f17b05f82592de3809/Effect-of-Information-Booklet-on-Level-of-Knowledge-among-P](https://www.researchgate.net/profile/Gajanand-Wale/publication/358497937_Effect_of_Information_Booklet_on_Level_of_Knowledge_among_Patients_Undergoing_Haemodialysis/links/620500f17b05f82592de3809/Effect-of-Information-Booklet-on-Level-of-Knowledge-among-P)

- 26) Noriaki Kurita, takafumi wakita. (2023). *Health-related hope and reduced distress associated with fluid and dietary restrictions in advanced chronic kidney disease and dialysis: a cohort study*. 1–28.
- 27) Notoatmodjo, S. (2007). *Promosi Kesehatan dan Ilmu Perilaku*. PT.Rineka Cipta.
- 28) Patricia A. Potter, A. G. P. (2009). *Fundamentals of Nursing* (7th ed.). Salemba Medika.
- 29) PPNI, T. P. S. D. (2017). *Standar Diagnosis Keperawatan Indonesia* (1st ed.). Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia.
- 30) PPNI, T. P. S. D. (2018). *Standar Intervensi Keperawatan Indonesia* (1st ed.). Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia.
- 31) PPNI, T. P. S. D. (2019). *Standar Luaran Keperawatan Indonesia* (1st ed.). Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia.
- 32) Pramono, C., Agustina, N. W., Suwarni, E., Klaten, S. M., & Muhammadiyah, S. (2021). Edukasi Booklet Terhadap Kepatuhan Pengaturan Cairan Pada Pasien Gagal Ginjal Kronik Yang Menjalani Hemodialisa. *Edukasi Booklet Terhadap Kepatuhan Pengaturan Cairan Pada Pasien Gagal Ginjal Kronik Yang Menjalani Hemodialisa Daryani1*, 4, 1812–1820.
- 33) Putri, E., Alini, & Indrawati. (2020). 377-Lampiran. *Jurnal Ners*, 4(2), 47–55.
- 34) Rasyid Busjra M; Irawati, Diana; Rayasari, Fitriani, W. N. (2019). Efektivitas Waktu Injeksi Insulin terhadap Kadar Glukosa Darah 2 Jam setelah Makan pada Pasien Diabetes Mellitus Tipe 2 di RSUD Dr. Achmad Mochtar Bukittinggi Tahun 2018. *Jurnal Keperawatan Silampari*, 2(2), 39–52. <https://journal.ipm2kpe.or.id/index.php/JKS/article/view/502>
- 35) Riskesdas. (2018). Laporan Riskesdas 2018 Kementerian Kesehatan Republik Indonesia. In *Laporan Nasional Riskesdas 2018* (Vol. 53, Issue 9, pp. 154–165). [http://www.yankes.kemkes.go.id/assets/downloads/PMK No. 57 Tahun 2013 tentang PTRM.pdf](http://www.yankes.kemkes.go.id/assets/downloads/PMK_No_57_Tahun_2013_tentang_PTRM.pdf)
- 36) Rokom. (2018). *Cegah dan Kendalikan Penyakit Ginjal dengan CERDIK dan PATUH*. Sehat Negeriku. <https://sehatnegeriku.kemkes.go.id/baca/umum/20180307/1425164/cegah-dan-kendalikan-penyakit-ginjal-cerdik-dan-patuh/>
- 37) Sari, N., Barat, T. B., Utari, R., Sari, N., Sari, F. E., Non, P., Inap, R., Tumijajar, K., Barat, T. B., Masyarakat, F. K., Malahayati, U., Lampung, B., & Lampung, B. (2021). *Efektivitas Pendidikan Kesehatan terhadap Motivasi Diit Hipertensi pada Lansia Hipertensi di Posyandu Lansia Desa Makarti Tulang Bawang Barat Tahun 2020*. 10(1).
- 38) Saudakur Br Barus, M. A. Z. (2019). Booklet Konseling Terhadap Peningkatan Pengetahuan Self Care Management Pada Pasien Gagal Ginjal Kronik (Ggk) Dengan Hemodialisa. *Holistik Jurnal Kesehatan*, 13(2), 84–91.
- 39) Sri Hartati Pratiwi, Eka Afrima Sari, T. K. (2019). Kepatuhan menjalankan manajemen diri pada pasien hemodialisis. *Jurnal Perawat Indonesia*, 3(2), 131–138.
- 40) Suarniati, S. (2019). *Application of nursing care in patients with fluid and electrolyte needs in hemodialisa room , labuang baji makassar ' s hospital Stadium V memerlukan juga pemantauan Umum Daerah Labuang Baji Makassar pada*.
- 41) Tarigan, G., Tarigan, P., & Siahaan, J. M. (2020). Hubungan Gagal Ginjal Kronik dengan Diabetes Mellitus Tipe 2. *Jurnal Kedokteran Methodist*, 13(2), 1–9.



- 42) Tovazzi, M. E., & Mazzoni, V. (2012). Personal paths of fluid restriction in patients on hemodialysis. *Nephrology Nursing Journal : Journal of the American Nephrology Nurses' Association*, 39(3), 207–215.
- 43) Wahyuni, S., & Darmawan, S. (2020). Pengaruh Media Booklet Terhadap Self Care Penderita Gagal Ginjal Kronik Yang Menjalani Terapi Hemodialisa Di Wilayah Kerja Puskesmas Tamalanrea Jaya Kota Makassar. *Jurnal Keperawatan Sriwijaya*, 7(1), 8–13. <https://doi.org/10.32539/jks.v7i1.12219>
- 44) Welch, J. L., Perkins, S. M., Johnson, C. S., & Kraus, M. A. (2006). Patterns of interdialytic weight gain during the first year of hemodialysis. *Nephrology Nursing Journal : Journal of the American Nephrology Nurses' Association*, 33(5), 493–499.
- 45) Widiani, H. (2020). Penyakit Ginjal Kronik Stadium V Akibat nefrolitiasis. *Intisari Sains Medis*, 11(1), 160–164. <https://doi.org/10.15562/ism.v11i1.680>
- 46) Widiastuti, A. (2012). *Efektifitas Edukasi Terstruktur Berbasis Teori Perilaku Terencana Terhadap Pemberdayaan Dan Kualitas Hidup Pasien Penyakit Jantung Koroner Di Rumah Sakit Pondok Indah Jakarta*. 24–25.
- 47) Yuniarti, W. (2021). Anemia Pada Pasien Gagal Ginjal Kronik. *Journal Health And Science ; Gorontalo Journal Health & Science Community*, 5, 1–5.
- 48) Zulfan Efendi, Muhammad Irawan, Rummy Islami Zalni, Y. R. (2021). *Faktor-Faktor Yang Berhubungan Dengan Kualitas Hidup Pasien Dengan Gagal Ginjal Kronis Yang Menjalani Hemodialisa*. 2, 1–26.