MEDIA KEPERAWATAN INDONESIA
Jl. Kedungmundu Raya No. 18 Semarang Gedung NRC Universitas Muhammadiyah Semarang Phone: 02476740287, Fax: 02476740287 Email: mki@unimus.ac.id

Research Article

Development and Validation of Indonesian Nursing Care Instruments for Patients with End-Stage Kidney Disease

Nauvila Fitrotul Aini[1,3], **Nursalam Nursalam**[1,3], **Ika Yuni Widyawati**[2]

1 Department Fundamental of Nursing, Management, Mental Health, Community, Family Health, and Gerontics, Faculty of Nursing, Universitas Airlangga, Indonesia
2 Department of Medical Surgical, Emergency, Disaster and Critical Care Nursing, Faculty of Nursing, Universitas Airlangga, Indonesia
3 Research Group Fundamental of Nursing, Leadership, and Nursing Management, Universitas Airlangga, Indonesia

Article Info

Article History:
Submitted: February 8th, 2026
Accepted: February 23rd, 2026
Published: March 18th, 2026

Keywords:
End stage kidney disease; Nursing care; Instrument; Health Care Quality; Nurses

Abstract

End-stage kidney disease is a global health problem with a steadily increasing prevalence. Nurses need standardized nursing care instruments to improve care quality and contribute to overall health care improvement. This study aimed to develop an Indonesian nursing care instrument for patients with end-stage kidney disease. The study used a research and development design conducted in two stages. In the first stage, 101 medical records and 11 respondents were involved, while the second stage included 9 respondents. Samples were selected using purposive sampling. Validity and reliability were tested using the Item Content Validity Index (I-CVI) and Kuder–Richardson 20 (KR-20), and data were analyzed descriptively. The instrument was developed for 10 nursing diagnoses: hypervolemia, ineffective breathing pattern, impaired gas exchange, activity intolerance, anxiety, risk of electrolyte imbalance, risk of imbalanced nutrition, risk of falling, risk of ineffective renal perfusion, and readiness for enhanced nutrition. The instrument was aligned with Indonesian nursing standards, including SDKI, SLKI, and SIKI. By providing structured guidance for diagnoses, outcomes, and interventions, this instrument supports nurses in daily practice, improves documentation accuracy, and enhances consistency and quality of nursing care. Nurses' evaluations indicated that the instrument is feasible for clinical implementation.

INTRODUCTION

End stage kidney disease is a global health issue that is starting to gain attention in various countries. The population of end stage kidney disease patients continues to increase as a chronic disease. A holistic, transdisciplinary approach to care is necessary to slow the progression of end stage kidney disease from becoming more severe [1,2]. Patients with end stage kidney disease tend to experience a decline in

Corresponding author:
Nauvila Fitrotul Aini
Email: nauvila.fitrotul@fkp.unair.ac.id
Media Keperawatan Indonesia, Vol 9 No 1, March 2026
e-ISSN: 2615-1669
ISSN: 2722-2802
DOI: 10.26714/mki.9.1.2026.9-19

quality of life due to the progression of their disease, accompanied by physical and psychological issues such as fatigue, pain, skin problems, anxiety, and depression. Healthcare professionals, including nurses, need to improve the quality of care to enhance the quality of life for those with end stage kidney disease. Healthcare professionals, including nurses, need to improve the quality of care, specifically the quality of nursing care, to enhance the quality of life for those with end stage kidney disease [3–5]. There is not much literature explaining the standards of nursing care for patients with end stage kidney disease. The Indonesian National Nurses Association has published the Indonesian Nursing Diagnosis Standards, Indonesian Nursing Outcomes Standards, and Indonesian Nursing Interventions Standards to serve as guidelines for Indonesian nurses in improving the quality of nursing care provided to patient [6–8]. However, to date, there is no nursing care guideline and nursing care instrument based on Indonesian standards specifically used for patients with end stage kidney disease, which is concerning as it may affect the quality of nursing care.

Globally, the prevalence of end stage kidney disease patients is increasing. It was recorded at 97,856 in 2001 and increased to 135,972 in 2021 [9]. According to the data from the 2023 Indonesian Health Survey, it was recorded that 0.18% of Indonesia's population suffers from chronic kidney disease. The prevalence of kidney disease is quite high, so attention is needed in nursing care, including in the process of documenting nursing care. There are still many findings that the documentation of nursing care for end stage kidney disease patients has not been done properly. A study conducted at a private hospital in East Java states that the accuracy of nursing care based on Indonesian standards is mostly moderate at 69%, with nursing care plans being adequate at 59%, nursing care implementation adequate at 66%, nursing care evaluation at 60%, and nursing care documentation at 62% [10]. Problems in the documentation of nursing care can be caused by a lack of materials and the unavailability of in-service training programs to empower nurses in the nursing process [11].

The provision of high-quality nursing care is intrinsically linked to the accuracy and standardization of documentation. Standardized nursing documentation not only embodies professional accountability but also facilitates clinical decision-making, interprofessional communication, and continuity of care [12]. Conversely, inconsistent or incomplete documentation can result in variations in care, miscommunication among healthcare professionals, and an elevated risk of patient safety incidents [13]. Consequently, the implementation of structured nursing care instruments that adhere to professional standards is imperative to enhance patient safety and minimize variability in practice [14]. Poor nursing documentation practices can lead to significant issues in patient care evaluation and can cause miscommunication among nurses and other healthcare team members. Ineffective documentation has the potential to impact patient safety. Poor nursing documentation can put patients, staff, and the organization at risk of substantial physical and legal harm [15].

Standardized nursing care instruments are integral to enhancing clinical decision-making by offering structured guidance in the identification of nursing diagnoses, the selection of appropriate outcomes, and the determination of evidence-based interventions [16]. The implementation of standardized terminology further facilitates clearer interprofessional communication, enabling nurses to collaborate more effectively with physicians and other health professionals through consistent and measurable documentation. Additionally, standardized instruments support patient safety initiatives by reducing variability in care, minimizing documentation errors, and

promoting adherence to established clinical standards. Through systematic assessment and intervention planning, these instruments contribute to safer, more coordinated, and higher-quality health care delivery [17].

The solution developed in this study involves using the productivity determinant theory in organizations according to Kopelman (1986) in Nursalam (2020), which is divided into three categories: organizational characteristics, nurse characteristics, and job characteristics [18]. Work behavior and performance are addressed by developing a nursing care instrument based on the Indonesian Nursing Standards for patients with end-stage kidney disease to improve the quality of nursing care and contribute to improving health care quality.

METHOD

The study uses a Research and Development research design with 2 stages [19] . The first stage was to evaluate nursing care instruments on the medical records of patients with end stage kidney disease, totaling 101 medical records, using purposive sampling. The inclusion criteria in stage 1 were records of patients with end-stage kidney disease and complications like cardiovascular disease, diabetes, or anemia; records with documented nursing problems; and records with completed nursing care instruments. From the results of the evaluation of medical records, strategic issues emerged which were discussed in FGD 1 with 5 nurses and 6 nurse managerial which were divided into two sessions, followed by expert consultation. The research team facilitated a structured FGD where participants reviewed the draft instrument for clarity, relevance, and feasibility. The 60-90 minute discussion was documented through notes and consensus summaries. Expert validation was conducted with the Head of the Nursing Service Department at the hospital, who has extensive experience in nursing management and implementation of standardized nursing care. Based on the results of FGD 1 and expert consultation, researchers developed nursing care instruments based on the Indonesia Nursing Standards for patients with end stage kidney disease and then tested the validity using I-CVI and reliability using KR20 [20] [21] [22]. An instrument was deemed valid if the Item-Content Validity Index (I-CVI) was ≥ 0.78, and it was considered reliable if the reliability assessment produced a reliability coefficient exceeding 0.60. Data analysis uses descriptive analysis. In the second stage, the results of instrument development were discussed in FGD 2 with 9 nurses. The results of FGD 2 were used as recommendations for research into the development of nursing care instruments based on the Indonesian Nursing Standards for patients with end stage kidney disease and the instruments have been refined and are ready to be implemented. This research protocol has been declared ethically sound by the Health Research Ethics Team of Bangil Hospital, Pasuruan with ethical certificate number No. 445.1/ 012 /424.072.01/2022 on August 24, 2022.

RESULTS

Phase 1 Evaluation Of Nursing Care Instruments For End Stage Kidney Disease Patients

Stage 1. Evaluation of nursing care instruments for patients with end stage kidney disease was carried out from January 2022 to August 2022 with a total of 101 medical records. The most cases being end stage kidney disease complicated by heart and blood vessels, 24 people and the fewest cases being end stage kidney disease complicated by diabetes mellitus, 3 people. The most frequently used nursing diagnosis in patients with end stage kidney disease in the X Hospital was ineffective breathing patterns for 40 patients (39.6%) and the least used was risk of falls for 11 patients (10.9%). The nursing diagnosis

components of ineffective breathing patterns, hypervolemia, and nutritional deficits on the instrument do not yet contain signs of major and minor symptoms so they are not in accordance with the Indonesian Nursing Diagnosis Standards (SDKI) of 75 (74.26%). The diagnosis components for the risk of electrolyte imbalance and the risk of falls are in accordance with the Indonesian Nursing Diagnosis Standards (SDKI) at 26 (25.74%). The results of the evaluation of nursing care instruments from all aspects of the instrument, the nursing diagnosis category is in accordance with the components of the Indonesian Nursing Diagnosis Standards (SDKI) of 26 (25.74%) are risk diagnoses and 75 (74.26%) are inappropriate diagnoses.

Development Of Nursing Care Instruments Based On Indonesian Standards In The End Stage Kidney Diseases Patient

The stages in instrument development begin with the formulation of strategic issues as material for focus group discussions. The results of strategic issues are discussed in focus group discussions in stage 1 and then consulted with experts. The development of a structured nursing care instrument based on the SDKI SLKI SIKI for patients with end-stage kidney disease can be explained as follows:

Table 1.
Development Of Nursing Care Instruments Based On Indonesian Nursing Standards In The End Kidney Diseases Patient

Component	Previous Instrument	Nursing Care Standards based on Indonesian Nursing Standards	Development of nursing care instruments for end stage kidney disease patients
Nursing diagnosis	1. The actual nursing diagnosis component includes the title of the diagnosis, causes and related clinical conditions 2. The risk nursing diagnosis component lists the risk factors and related clinical conditions 3. There is no health promotion diagnosis available	The components of a nursing diagnosis refer to SDKI. Writing a diagnosis fulfills the elements of PES (problem, etiology, symptoms) for actual diagnosis, PR (problem, risk factors) for risk diagnosis, PS (problem, symptoms) for diagnosis of health promotion and related clinical conditions	1. The nursing diagnosis prepared has columns for cause, major signs and symptoms, minor signs and symptoms and clinical conditions in the actual diagnosis. Fill in using a checklist. The date of assessment, initials and name of primary nurse are listed. 2. The risk diagnosis contains risk factors and related clinical conditions. Fill in using a checklist. The date of assessment, initials and name of primary nurse are listed. 3. The health promotion diagnosis contains major signs and symptoms, minor signs and symptoms and clinical conditions. Fill in using a checklist. The date of assessment, initials and name of primary nurse are listed.
Nursing outcomes	The nursing output components in the nursing care instrument are not in accordance with the Indonesian Nursing Outcome Standards (SLKI), namely they do not contain targets and time intervals for	The nursing outcome component refers to the SLKI. There is a label that contains the target time for intervention, expectations for the intervention to be carried out and there are indicators of criteria for expected results and desired targets. There are value	Nursing outcomes are in accordance with the Indonesian Nursing Outcome Standards (SLKI), namely meeting the name of the outcome, expectations and outcome criteria (initial results, target and time interval for the intervention to be carried out). Fill in using a checklist

Component	Previous Instrument	Nursing Care Standards based on Indonesian Nursing Standards	Development of nursing care instruments for end stage kidney disease patients
	interventions to be carried out.	indicators for outcome criteria after the intervention is carried out	
Nursing interventions	The nursing intervention components are not in accordance with SIKI standards, namely there is no name for the intervention.	The nursing intervention component refers to SIKI. There are labels for interventions carried out and actions which include observation, therapy, collaboration, education	Nursing interventions are in accordance with the Indonesian Nursing Intervention Standards (SIKI), which consist of the name of the intervention, as well as actions: observation, therapeutic, education, collaboration so that it can be understood that it is in accordance with the SDKI-SIKI link.
Nursing implementation	The nursing implementation components do not comply with the Indonesian Nursing Intervention Standards (SIKI), namely that there is no intervention title and the format is still separate from the nursing intervention	Nursing implementation refers to interventions that have been prepared based on SIKI	Implementation refers to interventions that have been prepared based on SIKI. Implementation consists of 3 x 24 hours. Fill in using a checklist. There are initials and the name of primary nurse
Nursing evaluation	The components of nursing evaluation are not in accordance with patient assessment standards, namely they do not meet results evaluation, process evaluation, and the format is still separate from other nursing processes.	Evaluate nursing care based on patient assessment standards	Evaluation of nursing care based on patient assessment standards includes an evaluation of the time for providing nursing care, a process evaluation for 3 days. re-assessment evaluation, and re-planning of care evaluation results. Filling in is done using a checklist. The evaluation date, initials and name of the primary nurse are written on it.

The instrument that had been prepared was tested for validity using I-CVI and reliability using KR20 involving 9 nurses, namely 1 case of a patient with end-stage kidney disease carried out by 3 nurses with 3 - 4 nursing diagnoses each. The results of the validity and reliability test for developing nursing care instruments based on Indonesian Nursing Standards for patients with end stage kidney disease were obtained as follows:

Table 2. Instrument validity and reliability test results

No	Instrument Name	Validity Test Results (I-CVI)	Reliability Test Results (KR20)	Conclusion
1	Hypervolemia	0,833 - 1,00	0,83	Valid and reliable
2	Ineffective breathing pattern	0,833 - 1,00	0,85	Valid and reliable
3	Gas exchange disorders	0,917 - 1,00	0,83	Valid and reliable
4	Activity intolerance	0,917 - 1,00	0,89	Valid and reliable
5	Anxiety	0,917 - 1,00	0,85	Valid and reliable
6	Risk of electrolyte imbalance	0,917 - 1,00	0,77	Valid and reliable
7	Risk of nutritional deficit	0,833 - 1,00	0,81	Valid and reliable
8	Risk of falling	0,833 - 1,00	0,72	Valid and reliable
9	Risk of ineffective renal perfusion	0,917 - 1,00	0,72	Valid and reliable
10	Readiness for increased nutrition	0,917 - 1,00	0,77	Valid and reliable

Phase 2. Recommendations for research regarding the development of a nursing care instrument based on Indonesian Standards In The End Stage Kidney Diseases Patient by conducting Focus Group Discussion (FGD) stage 2.

At the beginning of the Focus Group Discussion (FGD) phase 2, the researcher first explained the results related to the development of a nursing care instrument based on the SDKI SLKI SIKI for end-stage kidney disease. Next, the researchers asked for opinions from nurses and the nursing management team regarding the development of a nursing care instrument based on the SDKI SLKI SIKI for end stage kidney disease by distributing questionnaires. The evaluation involved nine respondents, consisting of nurses and members of the nursing management team. Overall ratings were categorized as “good” or “sufficient". In the functionality domain, seven out of nine respondents (77.8%) rated the instrument as good, while two respondents (22.2%) rated it as sufficient. For efficiency, six respondents (66.7%) rated it as good and three (33.3%) as sufficient. Similarly, in the usability domain, six respondents (66.7%) rated it as good and three (33.3%) as sufficient. These results indicate that functionality received the highest proportion of positive ratings compared to efficiency and usability.

Key findings:
In this research, a Nursing Care Guide for End Stage Kidney Disease has been developed

1) In this study, 10 nursing care instruments based on the SDKI SLKI SIKI have been developed for terminal kidney disease, namely Ineffective breathing pattern (D.0005), Hypervolemia (D.0022), Risk of electrolyte imbalance (D.0037), Risk of falls (D .0143), Risk of nutritional deficit (D.0032), Activity intolerance (D.0056), Anxiety (D.0080), Impaired gas exchange (D.0003), Risk of ineffective renal perfusion (D.0016), and Readiness improved nutrition (D.0026)
2) It is necessary to carry out socialization and training related to filling out and using nursing care instruments based on the Indonesian Nursing Diagnosis Standards, Indonesian Nursing Outcomes Standards, and Indonesian Nursing Interventions Standards for end stage kidney disease to increase the knowledge and skills of nurses
3) It is necessary to socialize the similarities in perception between nurses in measuring outcome criteria
4) Development of nursing care instruments in general in good categories in terms of Functionality, Efficiency, Usability. The highest-rated aspect was functionality, particularly in components such as the instrument title (responsibility), patient identity (accountability), content reflecting nurses’ authority in determining diagnoses, outcomes, interventions, and evaluations, formal validation by the responsible nurse, and implementation according to the established timeline, as these elements were considered to function appropriately and support professional nursing practice. The instrument is recommended for use in providing nursing care to patients with end-stage kidney disease in the Internal Medicine Department.

DISCUSSION

There are 10 nursing diagnoses for end-stage kidney disease that have been developed, the first of which is hypervolemia (D.0022). The expected outcome is an increase in fluid balance and an improvement in fluid status. The interventions carried out include hypervolemia management and fluid monitoring. In patients with Chronic Kidney Disease, there is fluid overload and toxification in the heart, kidneys, and vascular system due to excess sodium, which can affect blood pressure. One of the

interventions that can be provided to patients with CKD with fluid overload is a Low Salt Diet (LSD). The development of hypertension in CKD is caused by salt and water retention. Reducing salt consumption is highly recommended for patients with early-stage CKD to End-Stage Kidney Disease (ESKD) [23].

The second diagnoses is ineffective breathing pattern (D.0005). The expected outcome is an improvement in breathing patterns. The interventions used include airway management, respiratory monitoring, and progressive muscle relaxation therapy. Patients with end-stage kidney disease are often accompanied by anemia. Anemia occurs due to low hemoglobin (HB) levels and causes anemic hypoxia, which can impair oxygenation and lead to kidney damage. In patients with end-stage kidney disease accompanied by anemic hypoxia, kidney damage occurs due to high metabolism in the kidneys, fluid regulation, and electrolyte balance. As a result, these patients experience difficulty breathing [24,25].

The third diagnoses is risk of nutritional deficit (D.0032). The expected outcome is nutritional status improves. The intervention is nutritional, hyperglycemia, and hypoglycemia management. In patients with end-stage kidney disease, there are changes in glucose and insulin metabolism, leading to hypoglycemia and hyperglycemia. Hypoglycemia occurs due to nutrient deficiencies, uremia, and insulin resistance [26]. Patients with end-stage kidney disease and proteinuria are recommended to consume protein at 0.6–0.8 g/kg/day, sodium less than 2 g/day, and attention should be given to calcium intake to ensure calcium levels remain within the normal range [27].

The fourth diagnoses is risk fall (D.0143). The expect outcome is fall incident decrease and physhical mobility increased. The intervention is fall prevention management and environmental safety management. Factors influencing the risk of falls in patients with chronic kidney disease include comorbid diabetes mellitus, activity intolerance, and the highest prevalence is found in patients undergoing hemodialysis. There is a need for fall risk prevention health education interventions for patients, their families, and healthcare staff to improve the quality of life of chronic kidney disease patients [28].

The fifth diagnoses is inbalance electrolyt risk (D.0037). The expected outcome is electrolyte balancing increased and nausea decreased. The intervention is electrolyte monitoring and electrolyte management. The kidneys contain nephrons that are responsible for filtration, reabsorption, secretion, and excretion to maintain homeostasis of electrolyte concentration, osmolality, fluid volume, and acid-base balance. In patients with Chronic Kidney Disease, there can be a failure to maintain homeostasis and fluid and electrolyte balance [29]. The sixth diagnoses is activity intolerance (D.0056). The expected outcome is activity tolerance increased and ambulation increased. The intervention is management energy and activity therapy. Activity intolerance in patients with Chronic Kidney Disease is caused by the physical weakness they experience. Physical exercise has been proven to improve physical function, lower blood pressure, enhance muscle function, reduce inflammation, and improve kidney function [30,31].

The seventh diagnoses is anxiety (D.0080). The expected outcome is anxiety level decreased and social support improves. The intervention is anxiety reduction and relaxation therapy. Patients with end-stage kidney disease who have undergone dialysis are more vulnerable to experiencing anxiety and even depression compared to pre-dialysis patients [32].

The dialysis process for patients with end stage kidney disease is time-consuming and

exhausting, which can cause stress for the patients.

The eight diagnoses is gas exchange disorder (D.0003), patients with chronic kidney disease, there is a decline in kidney function, leading to reduced glomerular filtration and retention of uremic toxins, which results in edema in the lung parenchyma. This causes gas exchange disorders, and the patient experiences shortness of breath [33]. The nine diagnoses is risk of ineffective renal perfusion (D.0016), ineffective of renal perfusion in patients with end stage kidney disease refers to the decline in kidney function, which results in reduced blood flow to the kidneys. The last dignoses is readiness for increased nutrition (D.0026), Patients with chronic kidney disease are at risk of micronutrient deficiencies due to reduced appetite, inadequate food absorption, and the significant loss of micronutrients during dialysis. It is essential to increase protein and energy intake in patients with end-stage kidney disease, especially those undergoing dialysis [34,35]. The development of this instrument has been declared valid and reliable through CVI and KR20 testing.

The use of Standardized Nursing Language (SNL) helps nurses provide quality nursing care, encourages nurses to be creative in solving client problems, and trains critical thinking skills [36]. The use of nursing care according to standards can improve communication between interdisciplinary fields and enhance the quality of patient care [37]. In Indonesia, there is already a Standardized Nursing Language (SNL) established by The Indonesian National Nurses Association, which includes Indonesian Nursing Diagnosis Standards, Indonesian Nursing Outcomes Standards, and Indonesian Nursing Interventions Standards. The use of standardized nursing care instruments is very important for nurses. Hospitals, especially in Indonesia, must be able to provide nursing care instruments that meet the Indonesian Nursing Diagnosis Standards, Indonesian Nursing Outcomes Standards, and Indonesian Nursing Interventions Standards to improve the quality of nursing care and patient safety.

The developed instrument can be integrated into hospital nursing documentation systems by embedding it within electronic or paper-based nursing records to ensure standardized documentation aligned with SDKI, SLKI, and SIKI. Integration into electronic health records facilitates real-time documentation, enhances data accuracy, and enables the monitoring of nursing outcomes [38]. In nurse training and orientation programs, the instrument serves as a structured learning guide to strengthen nurses' competencies in formulating diagnoses, determining outcomes, and selecting appropriate interventions for patients with end-stage kidney disease. It may also function as a reference during clinical preceptorship to ensure consistency between theoretical standards and clinical practice. Furthermore, the instrument supports quality assurance processes by providing measurable indicators for auditing nursing documentation, evaluating adherence to standards, and identifying areas for continuous quality improvement [39]. Through these integrations, the instrument not only standardizes care delivery but also reinforces professional accountability and patient safety. This study has limitations. First, it was conducted in one hospital, possibly limiting generalizability to other institutions with different cultures or systems. Second, the sample size for reliability testing was small, affecting reliability estimates. Future studies with larger samples are needed for stronger psychometric testing. Third, this study focused on instrument development and validation, not clinical outcomes post-implementation. Further research is recommended to assess the instrument's impact on patient outcomes, documentation quality, and safety indicators.

CONCLUSION

The development of the SDKI, SLKI, and SIKI-based nursing care instrument for patients with end-stage kidney disease has demonstrated commendable validity, reliability, and favorable user evaluations. These results suggest that the instrument is prepared for pilot implementation in clinical settings. However, it is not yet intended for widespread adoption without further evaluation. Future research is recommended to test the instrument across multiple hospital settings to enhance its generalizability and to assess its impact on the quality of nursing documentation, nursing outcomes, and patient safety indicators. With further refinement and broader testing, this instrument holds the potential to strengthen standardized nursing practice and improve the quality and safety of care for patients with end-stage kidney disease.

ACKNOWLEDGEMENTS

We would like to thank the dean of the faculty of nursing and all parties who have contributed to this research.

BIBLIOGRAPHY

[1] Burgos-Calderón R, Depine SÁ, Aroca-Martínez G. Population kidney health. A new paradigm for chronic kidney disease management. International Journal of Environmental Research and Public Health 2021;18:6786.

[2] Yang C-W, Harris DCH, Luyckx VA, Nangaku M, Hou FF, Garcia GG, et al. Global case studies for chronic kidney disease/end-stage kidney disease care. Kidney International Supplements 2020;10:e24–48.

[3] Stavropoulou A, Grammatikopoulou MG, Rovithis M, Kyriakidi K, Pylarinou A, Markaki AG. Through the Patients' Eyes: The Experience of End-Stage Renal Disease Patients Concerning the Provided Nursing Care. Healthcare (Basel, Switzerland) 2017;5. https://doi.org/10.3390/healthcare5030036.

[4] Eckardt K-U, Delgado C, Heerspink HJL, Pecoits-Filho R, Ricardo AC, Stengel B, et al. Trends and perspectives for improving quality of chronic kidney disease care: conclusions from a Kidney Disease: Improving Global Outcomes (KDIGO) Controversies Conference. Kidney International 2023;104:888–903.

[5] Goh ZS, Griva K. Anxiety and depression in patients with end-stage renal disease: Impact and management challenges – A narrative review. International Journal of Nephrology and Renovascular Disease 2018;11:93–102. https://doi.org/10.2147/IJNRD.S126615.

[6] PPNI. Standar Luaran Keperawatan Indonesia: Definisi dan Tindakan Keperawatan. 1st ed. Jakarta: DPP PPNI; 2019.

[7] PPNI. Standar Diagnosis Keperawatan Indoensia: Definisi dan Indikator Diagnosis. 1st ed. Jakarta: DPP PPNI; 2017.

[8] PPNI. Standar Intervensi Keperawatan Indonesia: Definisi dan Tindakan Keperawatan. Jakarta: DPP PPNI; 2018.

[9] The United States Renal Data System. Incidence, prevalence, patient characteristics, and treatment modalities. End stage renal disease. 2023;837.

[10] Trisno T, Nursalam N, Triharini M. Analysis of Accuracy Nursing Care Process Implementation. Jurnal Ners 2020;eISSN:2020. https://doi.org/10.20473/jn.v15i2.19784.

[11] Mutshatshi TE, Mothiba TM. Nurses' Practices During Implementation of the Nursing Process at a Selected Public Hospital of Limpopo Province, South Africa: A Qualitative Pilot Study Analysis. The Open Public Health Journal 2020;13:309–15. https://doi.org/10.2174/1874944502013010309.

[12] Mykkänen M, Miettinen M, Saranto K. Standardized nursing documentation supports evidence-based nursing management. Studies in Health Technology and Informatics, vol. 225, 2016, p. 466–70. https://doi.org/10.3233/978-1-61499-658-3-466.

[13] Tate K, Ma R, Reid RC, McLane P, Waywitka J, Cummings GE, et al. A first look at consistency of documentation across care settings during emergency transitions of long-term care residents. BMC Geriatrics 2023;23. https://doi.org/10.1186/s12877-023-03731-6.

[14] Tasew H, Mariye T, Teklay G. Nursing documentation practice and associated factors among nurses in public hospitals, Tigray, Ethiopia. BMC Research Notes

2019;12. https://doi.org/http://dx.doi.org/10.1186/s13104-019-4661-x.

[15] Tamir T, Geda B, Mengistie B. Documentation practice and associated factors among nurses in harari regional state and dire dawa administration governmental hospitals, eastern ethiopia. Advances in Medical Education and Practice 2021;12:453–62. https://doi.org/10.2147/AMEP.S298675.

[16] Rodríguez-Suárez C-A, González-de la Torre H, Hernández-De Luis M-N, Fernández-Gutiérrez D-Á, Martínez-Alberto C-E, Brito-Brito P-R. Effectiveness of a Standardized Nursing Process Using NANDA International, Nursing Interventions Classification and Nursing Outcome Classification Terminologies: A Systematic Review. Healthcare (Switzerland) 2023;11. https://doi.org/10.3390/healthcare11172449.

[17] Gligor LE, Rusu H, Domnariu CD, Müller-Staub M. The quality of nursing diagnoses, interventions, and outcomes in Romanian nursing documentation measured with the Q-DIO: A cross-sectional study. International Journal of Nursing Knowledge 2024;35:298–307. https://doi.org/10.1111/2047-3095.12446.

[18] Nursalam. Buku Management Keperawatan : Aplikasi Dalam Praktek Keperawatan Profesional Ed 6. Jakarta: Salemba Medika; 2020.

[19] Nursalam. Metodologi Penelitian Ilmu Keperawatan : Pendekatan Praktis. 5th ed. Jakarta: Salemba Medika; 2020.

[20] Yusoff MSB. ABC of Content Validation and Content Validity Index Calculation. Education in Medicine Journal 2019;11:49–54. https://doi.org/10.21315/eimj2019.11.2.6.

[21] Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar A-R. Design and Implementation Content Validity Study: Development of an instrument for measuring Patient-Centered Communication. Journal of Caring Sciences 2015;4:165–78. https://doi.org/10.15171/jcs.2015.017.

[22] Fraenkel, J. L., Wallen, N. E., & Hyun HH. How to design and evaluate research in education eighth edition. New York: Mc Graw Hill.; 2012.

[23] Borrelli S, Provenzano M, Gagliardi I, Ashour M, Liberti ME, De Nicola L, et al. Sodium intake and chronic kidney disease. International Journal of Molecular Sciences 2020;21:1–13. https://doi.org/10.3390/ijms21134744.

[24] Habas ES, Al Adab A, Arryes M, Alfitori G, Farfar K, Habas AM, et al. Anemia and Hypoxia Impact on Chronic Kidney Disease Onset and Progression: Review and Updates. Cureus 2023;15:e46737. https://doi.org/10.7759/cureus.46737.

[25] Bhutta BS, Alghoula F, Berim I. Hypoxia., Treasure Island (FL): 2024.

[26] Galindo RJ, Beck RW, Scioscia MF, Umpierrez GE, Tuttle KR. Glycemic Monitoring and Management in Advanced Chronic Kidney Disease. Endocrine Reviews 2020;41:756–74. https://doi.org/10.1210/endrev/bnaa017.

[27] Kim SM, Jung JY. Nutritional management in patients with chronic kidney disease. The Korean Journal of Internal Medicine 2020;35:1279–90. https://doi.org/10.3904/kjim.2020.408.

[28] de Carvalho TC, Dini AP. Risk of falls in people with chronic kidney disease and related factors. Revista Latino-Americana de Enfermagem 2020;28:1–8. https://doi.org/10.1590/1518-8345.3911.3289.

[29] McGregor T, Jones S. Fluid and electrolyte problems in renal dysfunction. Anaesthesia & Intensive Care Medicine 2021;22:406–9. https://doi.org/https://doi.org/10.1016/j.mpaic.2021.05.008.

[30] Kirkman DL, Bohmke N, Carbone S, Garten RS, Rodriguez-Miguelez P, Franco RL, et al. Exercise intolerance in kidney diseases: Physiological contributors and therapeutic strategies. American Journal of Physiology - Renal Physiology 2021;320:F161–73. https://doi.org/10.1152/AJPRENAL.00437.2020.

[31] MT Hayden C, Begue G, Gamboa JL, Baar K, Roshanravan B. Review of Exercise Interventions to Improve Clinical Outcomes in Non-dialysis Chronic Kidney Disease. Kidney International Reports 2024. https://doi.org/https://doi.org/10.1016/j.ekir.2024.07.032.

[32] Dziubek W, Pawlaczyk W, Rogowski L, Stefanska M, Golebiowski T, Mazanowska O, et al. Assessment of Depression and Anxiety in Patients with Chronic Kidney Disease and after Kidney Transplantation—A Comparative Analysis. International Journal of Environmental Research and Public Health 2021;18. https://doi.org/10.3390/ijerph181910517.

[33] Yanti B, Mauliza DS, Shehzad A. Respiratory Bronchiolitis-Interstitial Lung Disease in Chronic Kidney Disease Mimicking Uremic Lung: A 2022.

[34] MacLaughlin HL, Friedman AN, Ikizler TA. Nutrition in kidney disease: core curriculum 2022. American Journal of Kidney Diseases 2022;79:437–49.

[35] KDIGO. Kdigo 2022 Clinical Practice Guideline on Diabetes Mangement in Chronic Kidney Disease (Confidential : Do Not Distribute Public Review Draft). Kdigo Clinical Practice Guideline on Diabetes Mangement in Chronic Kidney Disease 2022:1–152.

[36] Olatubi MI, Oyediran OO, Faremi FA, Salau OR. Knowledge, Perception, and Utilization of Standardized Nursing Language (SNL) (NNN) among Nurses in Three Selected Hospitals in Ondo State, Nigeria. International Journal of Nursing Knowledge 2019;30:43–8. https://doi.org/10.1111/2047-3095.12197.

[37] Fennelly O, Grogan L, Reed A, Hardiker NR. Use of standardized terminologies in clinical practice: A scoping review. International Journal of Medical Informatics 2021;149:104431. https://doi.org/10.1016/j.ijmedinf.2021.104431.

[38] Nielsen G, Peschel L, Burgess A. Essential documentation elements: Quality tool for the Emergency Department nurse. Advanced Emergency Nursing Journal 2014;36:199–205. https://doi.org/10.1097/TME.0000000000000020.

[39] Akhu-Zaheya L, Al-Maaitah R, Bany Hani S. Quality of nursing documentation: Paper-based health records versus electronic-based health records. Journal of Clinical Nursing 2018;27:e578–89. https://doi.org/10.1111/jocn.14097.