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NURSES' EXPERIENCES ON NURSING INTERVENTIONS FOR PATIENTS UNDERGOING HEMODIALYSIS AT INTENSIVE CARE UNIT, OF A PUBLIC HOSPITAL IN NAMIBIA

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Abstract

Background: Nurses play a fundamental role in specialized nursing units such as nephrology and Intensive Care Units (ICU) where patients undergo life-sustaining treatment such as Hemodialysis. Hemodialysis is performed in (ICU) regularly for critically ill patients with metabolic derangements to conserve life and alleviate suffering.

Purpose: The aim of the study was to explore the experience of nurses on nursing intervention for patients undergoing hemodialysis treatment at ICU.

Methods: A qualitative exploratory approach was used to explore nurses' experiences regarding nursing interventions of patients undergoing hemodialysis. The target population includes all nurses with more than one year of working experience in ICU. Purposive sampling was used to select participants. Considering data saturation, seven participants were interviewed face to face using a structured interview guide. A tape-recorder was used to record participant's interviews. Data was analyzed thematically.

Results: Three themes and 7 sub-themes emerged from the study. The main themes emerged from the study are (i) The dynamic role of nurses in hemodialysis treatment, (ii) Patient assessment, preparation and readiness for hemodialysis, (iii) Managing patient's co-morbidities before hemodialysis.

Conclusion: Nurses are the first contact in any patient care including dialysis unit. They are expected to oversee the dialysis machine and continuous monitoring of patient's condition for possible side effects. The study underscores the critical importance of nursing interventions in enhancing the quality of care for hemodialysis patients.

INTRODUCTION

Kidney failure is a non-communicable disease that mostly affects patients with co-morbidity such as diabetes and hypertension (Cockwell & Fisher, 2020) It is a worldwide public health condition in terms of incidence and prevalence affecting about 80% of patients living in low to middle income countries due to low screening, late treatment and limited treatment resources (Nguyen, et al., 2019;

Mbunda, et al., 2025; Indrajani, et al., 2025; Boateng, et al., 2025). To mitigate the complications associated with kidney failure and injuries, it is important that patients undergo hemodialysis treatment (Mbunda, et al., 2025; Boateng, et al., 2025). It is estimated that 89% of kidney disease patients are receiving hemodialysis as an effective treatment (Sułkowski, et al., 2024). Hemodialysis treatment improves the quality of life among patients (Mbunda, et al., 2025).

Hemodialysis is a life sustaining treatment in which blood is filtered using a semi-permeable membrane to remove toxins and excessive fluid (Ellis, 2023). It is one of the regular treatments performed in Intensive Care Units (ICU) as part as part of critical management care for critically ill patients with metabolic derangements (Muaddi et al., 2022). Hemodialysis is used as a first line treatment to manage abnormal electrolytes and acid-based disturbances, hyperkalemia and fluids overload (Gunnerson, 2019; Muaddi et al., 2022; Chan et al., 2023). The main indication for hemodialysis treatment in ICU is Acute Kidney Injury, which accounts for 50% of admitted patients (Kashani, & Rule, 2022; Orieux, et al., 2021).

Nurses play a crucial role in caring for patients undergoing hemodialysis therapy (Mancin, et al., 2025). The day-to-day role of a nurse in dialysis includes regular monitoring of vascular access site for possible complications, patients' vital signs (blood pressure, heart rate, temperature, weight) and fluid balance (Zabihi, et al., 2023). Nurses are also required to prepare and oversee the dialysis machine, ensuring proper function and safety, administering medications and continuous monitoring of patient's condition for possible side effects such bleeding and hypotension (Zabihi, et al., 2023). In contrast nurses provide a holistic nursing care plan and act as referral personnel for patients' well-being throughout the dialysis treatment process (Mancin, et al., 2025).

Furthermore, nurses support patients and their family members emotionally and psychologically throughout the treatment journey which is characterized by heightened stress and anxiety (Mancin, et al., 2025). Supportive communication with patients rectifies misconception and uncertainty which improve patients' ability to engage in informed decision making (Otter, et al., 2022). Nurses' health education improves health literacy skills for patients by making information more accessible and easier to understand (Thomas, at al., 2024). Well informed patients make use of health facilities effectively, follows treatment protocols, nutrition and diet routines which in return lead to positive treatment outcome (Otter, et al., 2022; Thomas, at al., 2024, Mancin, et al., 2025). Studies have shown that a positive nurse: patient relationships enhance patients' involvement and attentiveness which in return improve the patient's well-being, trust and sense of security (Mancin, et al., 2025).

Recently the government of Republic of Namibia introduced dialysis treatment to patients in public health facility free of charge. Considering the important role nurses play in dialysis unit. It's important that nurses experience on nursing intervention specifically for Namibia is explored. There is limited literature on this topic, therefore the experiences of nurses regarding nursing intervention for patients undergoing hemodialysis treatment is explored.

METHODS

Study Design

A qualitative, exploratory, design was employed to explore nurses' perceptions and feelings towards the nursing intervention on patient undergoing dialysis therapy.

Setting and Participants

The population for this study comprised of all 14 registered nurses with more than one year of experience, working at the ICU of a public hospital. The researcher opted for this population due to their exposure and acquired experience in the care for patients undergoing hemodialysis. A purposive sampling was adopted to recruit participants who met the inclusion criteria. The sample size was determined by data saturation, a point where no new information emerged from the participants during interview process (Rahimi 2024). Although 11 participants consented to participate in the study, data saturation was reached at the seventh participant. The researcher interviewed the eighth and nineth participants, but no new themes or insight emerged which confirmed saturation. The researcher personally collected data. Data collection took place in a quiet staff tearoom of the ICU of the public hospital. Data was collected over a period of 2 weeks of July 2025. The researcher had three time slots to collect data as the nurses were working in different shifts namely day and night shifts as well as afternoon shift that start at 13h00.

Instruments and Data Collection

A structured interview guide was used to collect data. The interviews were conducted in English and were recorded using an electronic Samsung tablet. The researcher also took field notes during interviews process. The audio-taped information was stored on the computer with a protected password only known by the researcher and supervisor. The interviews were then transcribed. The interview allowed all participants to tell their perception on the experiences on nursing interventions for patients undergoing hemodialysis. Each individual interview lasted for about 30-45 minutes. The main question of the interview guide was: Can you briefly explain the role of a nurse in the hemodialysis process? The main question was followed by specific probes to encourage deeper exploration of participants' experiences and perception such as: What key assessments do you perform on patients before initiating hemodialysis? How do you assess a patient's readiness for hemodialysis (physical, emotional, and psychological)? How do you assess and manage any comorbidities before hemodialysis?

Data Analysis

Data was analysed, after transcription was coded, three themes and seven subthemes were created. Data were analysed thematically using steps of data analysis in qualitative research (Naeem, et al., 2023). Initially data transcription and familiarization were done through reading and listening. The researcher looked deeply into the quotes to identify the initial themes and key statements. Furthermore, the researcher selected keywords using a thorough review of data from the study and detect repeated concepts to become keywords. Coding of data was then done using selected key words. Codes were

grouped together to develop themes. Themes and subthemes were then categorised and backed up by direct quotes from participants.

Trustworthiness

Trustworthiness applies truthfulness or rigor in qualitative studies and is based on four criteria: credibility, dependability, conformability, and transferability (Lincoln & Guba, 1985; Ahmed, 2024). Credibility entails the confidence of truth of the data and was ensured by allowing participants ample time to express themselves. Participants were also offered a chance to clarify misunderstandings, thus ensuring data accuracy. Dependability is concerned with consistency and reliability of results. The researcher kept audio records of participants which enabled the researcher's supervisor to confirm data facts. Conformability entails ability of study findings to reflect real responses of participants, and not researcher bias or interests. In this study detailed field notes. Transferability was ensured by presentation of detailed description from the participants audio recordings and verbatim transcript.

Ethical Consideration

The study was reviewed and approved by the School of Nursing reference no SoNEC 48/2025 of the higher education institution where the researcher was a student, further permission was obtained from Ministry of Health and Social Services reference no 22/3/1/2 dated 03/05/2025. In addition, permission was also obtained from the participants by means of informed consent. The researcher approached participants and explained the purpose of the study in detail. The audio recordings were keptanonymous and were not linked to a specific participant. Participants had the right to withdraw from the study at any time of choice, or to refuse to give certain information, and ask for clarification about the purpose of the study. Participation was voluntary with no coercion. In this study, the researcher ensured that all participants' information remained confidential and anonymous and that all data collected were kept safe on computer with passwords only known by the researcher. Participants were not paid to participate in the study.

RESULTS

Demographic Information

Table 1. Biographical information of participants.

Participants (P)	Age	Gender	Education	Years of experience in dialysis
P1	25	Female	Bachelor's degree	19 months
P2	25	Female	Bachelor's degree	2 years
P3	31	Female	Bachelor's degree	13 months
P4	38	Male	Bachelor's degree	15 years
P5	31	Female	Bachelor's degree	3 years
P6	45	Male	Bachelor's degree	5 years

P7	34	Female	Bachelor's degree	2 years

Themes and sub-themes

The study revealed 3 themes and seven sub-themes.

Table 2. Themes and Subthemes.

Themes	**Subthemes**
1. The dynamic role of Nurses in hemodialysis	1.1 Patient education
	1.2 Equipment preparation
	1.3 Holistic patient monitoring
2. Patient readiness and preparation for hemodialysis	2.1 Patient consent
	2.1 Correct prescription and liters of dialysis
	2.2 Psychological and physical readiness
3. Managing comorbidities before hemodialysis	3.1 Oral vs IV medication routes

Theme 1: The dynamic role of Nurses in hemodialysis

Participants express that their responsibilities extend beyond routine clinical tasks and include patient communication, procedural preparation, and continuous monitoring throughout the dialysis process.

Subtheme 1: Patient education

Study data revealed that effective patient education is a key element of hemodialysis care. As part of this, the nurse must clearly explain the need for dialysis, its purpose, and the steps involved, ensuring that the patient understands and feels at ease with the process. This also involves counseling the family members.

> *"You have to explain to the patients what and why are they being dialyzed, and as a nurse, you must make sure that the patient understands and is comfortable, then you can go on with the dialysis" [**P1]***
>
> *"In case your patient is unconscious (common here at ICU) you must give counselling to the family members, that the patient is going through hemodialysis and why? Family members sometimes can be problematic and do not want to understand the need of dialysis" [**P5]***

Subtheme 2: Equipment preparation

The study reveals that nurses play a vital role in ensuring both readiness of dialysis equipment. They make sure dialysis machines are functional, and vascular access is not blocked. In addition, there is a need to make sure that all commodities and consumables for dialyzing a patient are available.

"You must prepare the machine; make sure it's working and set it up. And then on the patient,

*you must set up a dialysis catheter and make sure it is pulling well' [**P5**]*

***"**We do not really encounter equipment's problems, as most of the consumables needed for dialysis are most of the times available" [**P1**]*

Subtheme 3: Holistic patient monitoring before and during dialysis.

Participants revealed the need for thorough patient assessment prior to dialysis, pinpointing monitoring of vital signs, fluid status, laboratory results, and medication history. This holistic approach is seen as essential to identify potential complications and ensure safe dialysis initiation. Once dialysis is underway, ongoing patient monitoring is essential to ensure safe and prompt response to any complications that may arise.

*"You must check patient basic vital signs, know the patient weight. Then make sure patient laboratory blood results are available. Also check if there is access to IV access. You must also assess the fluid overload or oedema. Lastly you must check, or review the medication the patient is on and assess for possible allergy" [**P6**]*

*''During dialysis process, you must make sure the vital signs are stable' **P3***

Theme 2: Patient assessment and preparation for hemodialysis

Subtheme 1: Patient consent

The findings revealed that obtaining patient consent is a fundamental step in preparing for hemodialysis. Participants emphasized the importance of educating patients about the procedure and confirming their understanding before initiating treatment.

"First you must prepare your patient and check if the patient has signed the consent to go through hemodialysis. If your patient is unconscious, the close family members must sign on patient's behalf" [**P3]**

Subtheme 2: Correct prescription and liters of dialysis

The study revealed the critical role of verifying the dialysis prescription prior to treatment. Participants noted that confirming the correct fluid volume, flow rate, and other prescription details was necessary to ensure safe and individualized care.

*"You must first make sure that you have a correct prescription from the doctor and the correct liters of how much you're supposed to dialyze, including their speed and time, whether it's going to be heparin free or not'' [**P2]***

Subtheme 3: Psychological and physical readiness

In this study the participants revealed that preparing a patient for hemodialysis requires careful attention to both psychological and physical aspects of care. The participants also explained the different approaches to do according to the patient's level of consciousness.

"If the patient is conscious, you evaluate the patient understanding regarding what you're going to do. You explain what needs to be done. Then you re-assure the patient that everything is going to be fine. Then discuss the fear and misunderstanding about the dialysis to the patient'. ***[P7]***

"Then if the patient is unconscious or intubated like for most patients here in ICU, you must explain to the family members of what is going on, what you are doing to their patient. And then you can describe the steps involved in preparing a patient for hemodialysis" ***[P7]***

Theme 3: Managing comorbidities before hemodialysis

Subtheme 1: Oral vs IV medication routes

The study revealed the relationship between dialysis and medication absorption, emphasizing the challenges and considerations in administering treatments during dialysis.

"During dialysis you are flushing out all the toxins, most of the times we give oral medication as they take time to absorb. It does not make sense giving IV medication during dialysis process as it won't do any good for the patient, it will just be flushed out' ***[P4]***

DISCUSSION

The dynamic role of nurses in hemodialysis

This study narrated that nurses' responsibilities extend beyond routine clinical activities as supported by Kosar-Sahin, (2025) who concluded that nurses' roles in dialysis include but not limited to patient communication, emotional support, procedural preparation, and continuous monitoring throughout the dialysis process. Furthermore, literatures emphasized that effective patient education is a key element of hemodialysis care as it improves the knowledge and the quality of life of patients (Fadlalmola &, Elkareem, 2020).

Prior to initiation of hemodialysis care, it is essential that both the patient and immediate family members are fully informed, aware and comfortable with the treatment. Nurses must clearly explain the need for dialysis, its purpose, and the steps involved in ensuring that the patient or his family understands and feels at ease with the process. Patient informed consent is an important aspect as it gives disclosure to the patient about the benefits of treatment, risks and other available options (Michael, 2025). Patient education has a positive effect on the patient's overall knowledge regarding the concept of hemodialysis, vascular access care, and potential complications that may arise (Fadlalmola &, Elkareem, 2020). There is also an opportunity to counsel the family members who at times tend to become problematic to the services rendered by nurses. A study done in Ghana concluded that nurses working in dialysis units were faced with some challenges such as managing difficult and uncooperative relatives of patients undergoing hemodialysis (Boateng, et al., 2025). The study further alluded to the fact that at some point relatives want to interfere with the management of patients in dialysis units which can sometimes lead to misunderstanding, disagreement and conflicts (Boateng, et al., 2025). Conflicts

and disruption in dialysis centers have negative impacts on nurses' performance and well-being and may lead to burnout and emotional distress (Mbunda, et al., 2025; Boateng, et al., 2025).

Patient readiness and preparation for hemodialysis

Preparing a patient for hemodialysis requires careful attention to both psychological and physical aspects of care. Various studies emphasized that it is important that allied health professionals such as social work, dietitians and psychologists get involved in the treatment plan of dialyzed patients (Kosar-Sahin, 2025). Allied health professionals provide psychological support, relaxation techniques and adaptation modalities which improve patients' treatment outcome (Kosar-Sahin, 2025). Patients whose psychological and physical needs are taken care of are likely to adapt well psychologically which in return reduces stress (Fadlalmola &, Elkareem, 2020). It is worth noting that nurses play a vital role in ensuring both readiness and availability of dialysis equipment and commodities. Effective supply of essentials needed in dialysis units help nurses to carry out their work efficiently thereby ensuring effective and quality nursing care rendered (Mbunda, et al., 2025) On the other hand limited commodities required for dialysis care delays patients' treatment which in turn cause poor nursing care (Boateng, et al., 2025).

During dialysis process, it is important patient progress is monitored. Once dialysis is underway, ongoing patient monitoring, particularly of vital signs, is essential to ensure patient safety and prompt response to any complications [Zabihi, et al., 2023]. The findings revealed that nurses place strong emphasis on patient assessment before initiating hemodialysis. This includes checking vital signs, such as blood pressure, temperature, and heart rate and as well monitoring body weight to determine fluid retention [Zabihi, et al., 2023].

Managing co-morbidities before hemodialysis

There seems to be a misconception regarding the relationship between hemodialysis and medication absorption among nurses. Nurses prefer to administer oral medication over intravenous one during hemodialysis process. The study reveals that during hemodialysis intravenous medicine is flushed out together with toxins before achieving a therapeutic effect, therefore oral administration is the best method to prevent medication wastage. Pharmacological literature highlights that dialytic drug clearance is influenced by molecular weight, volume distribution and protein binding and not by the route of administration (Liabeuf, et al., 2023; Allaoui, et al., 2026). This gap in drug dialysis interactions among nurses needs to be addressed to enhance nurses' pharmacological knowledge and to ensure timely medication administration.

The limitation of this study is acknowledged and highlighted. The study focused on a single study setting, the ICU of a public hospital with a small number of participants, using purposive sampling. In addition, a qualitative design was conducted making it difficult to generalize results. There is a need to increase local research on haemodialysis nursing to explore and determine specific

challenges using a quantitative study.

IMPLICATIONS AND LIMITATIONS

The findings emphasize the need to strengthen nurses' competencies in hemodialysis care through regular in-service training, particularly in-patient assessment, dialysis preparation, and drug–hemodialysis interactions. Nursing curricula should incorporate more comprehensive nephrology content to better prepare future nurses. Additionally, health-care institutions should establish standardized clinical protocols and support continuous professional development to improve the quality and safety of hemodialysis care.

This study has several limitations. It was conducted in a single public hospital ICU with a small sample of nurses, which may limit the transferability of the findings. In addition, the qualitative design explored participants' experiences without measuring the effectiveness of nursing interventions or patient outcomes. Future studies involving multiple health-care facilities and mixed-methods or quantitative designs are recommended to provide broader and more generalizable evidence.

CONCLUSION

This study demonstrates that nurses play a pivotal role in delivering safe and effective hemodialysis care in the ICU through comprehensive patient assessment, preparation, education, continuous monitoring, and management of comorbidities. While participants demonstrated positive experiences and understanding of nursing interventions, the findings also identified a need to strengthen knowledge regarding drug–hemodialysis interactions. Enhancing nurses' competencies through continuous education and standardized clinical practices may further improve the quality and safety of hemodialysis care.

AUTHOR CONTRIBUTION

Jasmine Iimene : Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft, Writing – review & editing.

Simon Shalonda : Methodology, Data curation, Formal analysis, Writing – review & editing, Supervision.

All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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Table Captions

Table 1. Biographical information of participants.

Table 2. Themes and Subthemes.