



COMPETENCY ASSESSMENT OF HEMODIALYSIS UNIT NURSES IN EFFICIENT MANAGEMENT OF END STAGE RENAL DISEASE PATIENTS

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Abstract

Background: Chronic Kidney Disease is a major health care concern in terms of its morbidity and mortality around the worldwide. It has shown an increasing trend of patients and raises the economic load in the current years. Patients with Chronic Kidney Disease usually go into end-stage renal disease through passing many phases. The End-Stage Renal Disease is the stage that cannot be cured or reversed and treated by some conservative care alone, and must need dialysis or kidney transplantation to sustain life.

Aim: The main purpose of the study was to assess the levels of competency regarding knowledge and skills of nursing staff working in haemodialysis units.

Methods: A descriptive cross sectional study was carried out to evaluate the knowledge and skills competencies of nurses working in haemodialysis unit. A sample of 100 nurses was taken through universal sampling method from both the public and private sectors hospitals in Lahore. Data was collected through a self-administered, structured and valid questionnaire. SPSS Version-17 was used for the analysis of data. Frequencies, percentages and mean values were calculated according to the nature of the variables. The interpreted data was plotted in graphs and tables. All the ethical considerations were taken care properly during the entire conduction of the study..

Results: The findings of the study showed that mean age of the participants was 29.43 ± 6.396 . Majority of Nurse (92%) were having diploma in General nursing qualification while very few were having bachelor qualification in nursing. Around 83% of the staff nurses had no formal training regarding hemodialysis and they gained their working experience from their senior nurses. Findings further showed that nurses had poor knowledge regarding managing the dialysis patients. Approximately 88% of the participants did not provide the standard care to the patients in pre

procedure, 71% of them did not provide the care to the patient during procedure and 100% of the participants were unable to provide the care to the patients after procedure which showed an approach of incompetency in the provision of standardized nursing care.

Conclusion: The findings of the study showed that majority of the nursing staff were found deficient in their knowledge and skill performance while caring the patients with hemodialysis. This study finding further highlights the need for greater attention to be paid on training program and special courses in haemodialysis among health care professionals specifically nurses who spends most of their time in direct care of the patients. Training of nurses may play a crucial role to bring quality in care of patients undergoing the hemodialysis procedures.

Keywords: Knowledge, Competency, Hemodialysis, Patients, End Stage Renal Disease, Care, Nurses

Introduction

Kidney diseases are becoming common health concern in terms of its morbidity and mortality specifically in the developing countries around the world. Chronic kidney disease is a serious condition that leads kidneys to decrease in glomerular filtration rate and a rise in serum creatinine and blood urea nitrogen levels that further proceed to systematic deteriorations. When there is a reduction in the glomerular filtration rate (GFR) less than 15 ml/min per 1.73 m² with signs and symptoms of kidney failure then it is labeled as End-Stage Renal Disease. ESRD needs replacement therapy in the form of dialysis that could be haemo or peritoneal dialysis. Last option choice to treat is the renal transplantation in order to sustain the signs of life. The End-Stage Renal Disease (ESRD) is the stage that cannot be cured or reversed.

It is estimated that in Pakistan about 150 patients are with End Stage Renal Disease (ESRD) per year in per million populations, so in every year, we will have 16000 patients with ESRD (Anees, et al., 2011). In Pakistan the mean age of patients with ESRD is less (42 years) than west (61 years). So, ESRD patients suffer in their best period of life when they can financially support their families (Bennett, 2009). The quality care nursing and patient safety is greatly depending upon the nurse's performance during care and the reduction in nursing errors. Guidelines and protocols have great importance to improve patient safety, because it decreases the variability in nursing care (Neef, et al., 2009). Competent performance is marked by an independent decision making skill in clinical area, prioritizing the patient's needs, multi focusing tasks, technical skills and knowledge, and most important is patient's outcomes (Schmalenberg, et al., 2008).

End stage renal disease (ESRD) is an overwhelming medical, social and economic problem in any community and demands comprehensive and managed health care with continue supervision. Nurses are the important members amongst health care team who expend more time with the patients are going through renal replacement therapy, so the image of whole care provided in hemodialysis unit reflected by their performance.

Newly qualified nurses are expected to be competent and able to practice independently without direct supervision but in reality it is contradictory, their training has not equipped them with the knowledge, necessary skills or confidence to the level that is required for independent practice. That's why, it is necessary to assess competence of practicing nurses that has been identified as significantly important in maintaining professional standards, identifying areas for professional development, educational needs, curriculum evaluation, and planning.

Materials and Methods

A descriptive cross sectional study was conducted in order to assess and evaluate the knowledge and levels of skills competency among nursing professionals working in different haemodialysis units in Lahore. A sample of 100 nurses was taken through universal sampling method from both the public

and private sectors hospitals. Data was collected through a self-administered, structured and valid questionnaire. The questionnaire was further divided into two parts. One part of the tool was used to assess the knowledge while the other was utilized to evaluate the skills of nurses regarding hemodialysis practices. The content validity index of the research instrument was calculated as ($CVI=0.94$) that was valid enough to be used for the required data collection. SPSS Version-17 was used for the analysis of data. Frequencies, percentages were calculated for the categorical and mean values were calculated for the continuous variables according to the nature of the variables. The interpreted data was plotted in graphs and tables for its proper presentation and dissemination. All the ethical considerations were taken care properly. Proper permissions from Synopsis Review Committee and Ethical Review Committee University of Health Sciences Lahore were granted for data collection. Voluntary consent was taken from the participants and proper instructions were given to them during the entire phase of data collection.

Results

Demographics

Demographic Variables	Category	Frequency	Percentage
Professional Qualification	Diploma in Nursing	92	92%
	Generic B.S Nursing	05	05%
	Post-RN-BS- Nursing	03	03%
Work Experience in Haemodialysis (Years)	6-Months to 1-Year	22	22%
	2-5 Years	49	49%
	6-10 Years	18	18%
	11-15 Years	09	09%
Training Regarding Dialysis	One Year Diploma	02	02%
	1-5 Days Workshop	06	06%
	1- Day Workshop	08	08%
	From Senior Staff	84	84%
Mean Age	29.43+6.396-Years		

Table-1

The following table summarizes the demographics of the study participants. Majority (92%) of the nurses were having diploma in nursing qualification while the rest of 8% of the participants were equipped with bachelor qualification either Generic or Post-RN-BSN. Similarly looking into the experience in dialysis units it was interpreted that majority (49%) were professional experience of 2 to 5 years in dialysis units and 22% of them had only 6 months to 1 years' experience. Only 9% of the nurses were having experience more than 10 years. Analysis of the training regarding hemodialysis training reflected that a huge number of (84%) of the nurses have no proper training to work in the dialysis units and they got their working experience on their job from their senior ones. Only 2% of the nurses were specialized with diploma qualification to take care of the hemodialysis patients. Mean age of the participants was 29.43+6.396-Years that reflects that majority of the nurses were young and new into their lineup.

Knowledge Assessment

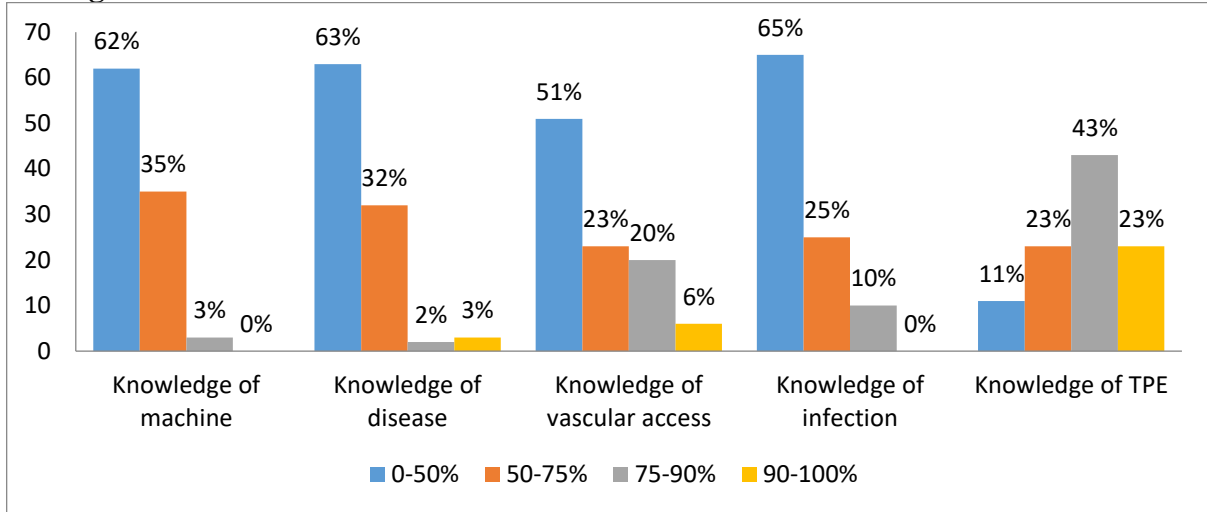


Figure-I

The result of this study shows that most of the nursing staff had minimum knowledge to manage the patients with ESRD, undergone haemodialysis therapy in dialysis units. No one was found proficient or competent in relation to the knowledge of dialysis machine, 3% of them were having adequate knowledge, 35% have minimal/average knowledge and 62% were having no knowledge of machine. In category of knowledge regarding disease 3% staff nurses were proficient, 2% had good knowledge, 32% had minimal/average and 63% were having no knowledge. In knowledge of vascular access, 6% were proficient, 20% Competent, 23% minimal/average and 51% incompetent. In knowledge of infection control 0% proficient, 10% competent, 25% minimal, and 65% were incompetent. In knowledge of TPE 23% proficient, 43% competent, 23% minimal and 11% were incompetent. Mostly participants incompetent in knowledge category to manage the end stage of renal disease (ESRD) patients, as shown in *Figure-I*

**Skills Assessment of Nurses Regarding Haemodialysis Patient Management
Pre-Procedure Care Assessment**

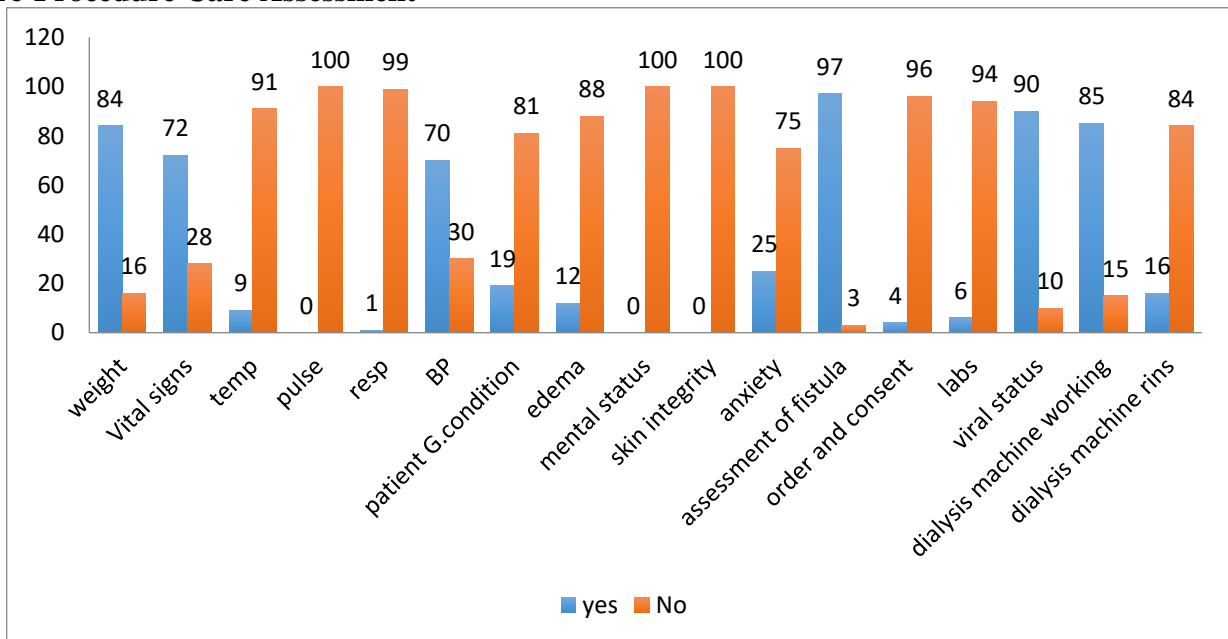


Figure-II: Nursing Care (Pre-Procedure)

Figure-II shows that most of the basic and important skills were not performed adequately by the nurses before dialysis session to start (pre procedure care).

Intra Procedure Care

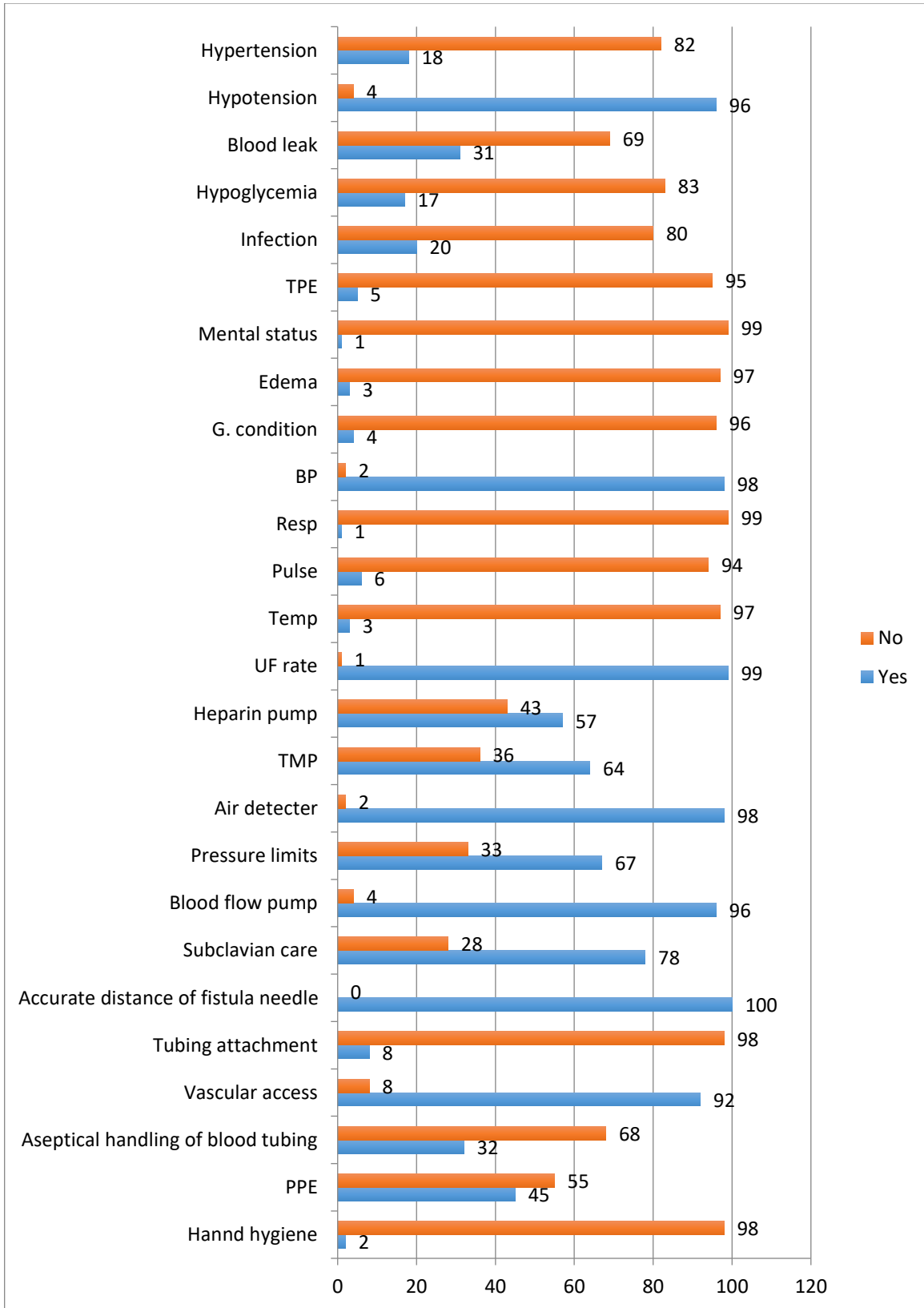


Figure-III: Intra Procedure Care

The following figure-III indicates that majority of the other required nursing skills were not performed adequately by the concerned assigned staff in the hemodialysis units.

Post Procedure Care

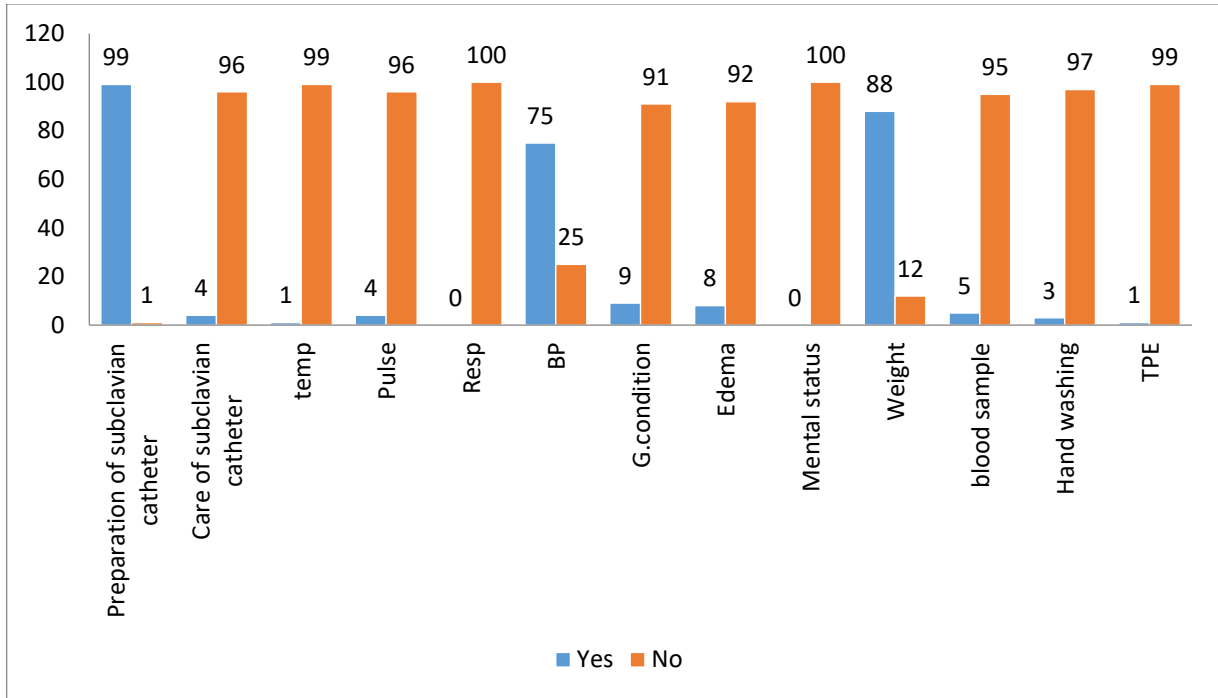
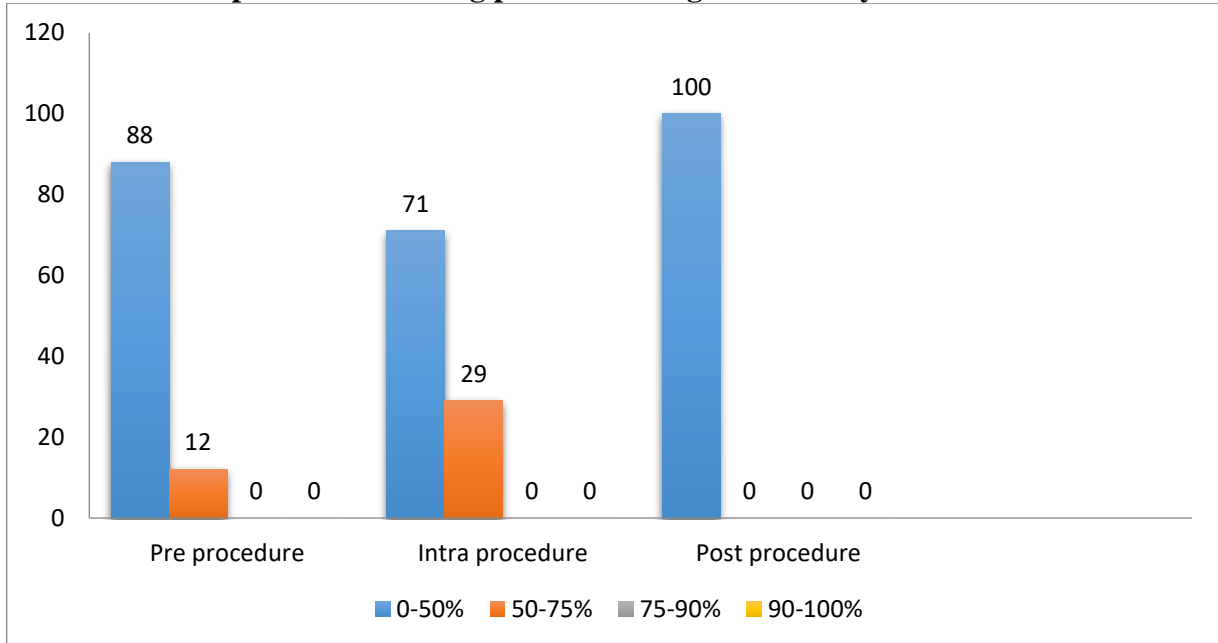


Figure-IV: Post Procedure Care

The following statistics shows that most of the skills were not performed after dialysis procedures which are vital for dialysis effectiveness and better patient health care outcome.

Overall Skills Competencies in caring patients during Haemodialysis Procedure



The following criteria were used to evaluate the level of knowledge of nurses regarding hemodialysis patient care.

- Proficient 90-100%
- Competent/Good 75-90%

Minimal/Average	50-75%
Incompetent/Poor	0-50%

According to the given assessment criteria it was found that majority of the nurses scored in the poor grading of the scale and very few scored in average while none of the study participant gained the overall skills competences score of more than 75%.

Discussion

The current study concluded that majority of the nurses had scored poorly in all categories of knowledge. A study by (Manal, et al., 2018) has reflected the same trend of poor knowledge among nursing staff had been working in haemodialysis unit; only 41% had minimal/average knowledge to manage the ESRD patients. Another study by (Muhammad and Abuaisha S., 2019) shows the parallel kind of poor knowledge findings in comparison to the present study results. Further studies by Alnawafleh et. Al., 2018 and Hui Chen, et al., 2022] reflects the same trends of findings as shown by the current study. Similarly the skills competency assessment results showed poor performance by the nurses. Previous studies show the same kind of information and findings. During dialysis procedure 89.9% nurses practices were unsatisfactory and 8.9% have satisfactory level, 1.3% was above average and nobody have exceptional level of performance during dialysis procedure. Post procedure 100% nurses performance remained unsatisfactory. The overall performance of the nurses in Heamodialysis session was unsatisfactory (65.8%), 12.7% satisfactory, 21.5% above average and no anyone have exceptional level of performance to manage the patient of ESRD. (Essa et al., 2019). In contrast one of the studies has shown contrary results. A study in Egypt in 2021 in which the practice score level was satisfactory in 68.7% of the nurses, while it was insufficient in 31.3% (Swapna. M and Ranjana. S, 2021).

Conclusion

The study concluded that majority of the nursing staff were found deficient in their level of knowledge and skill performance. Nursing care protocols and standards were not followed in any of the institutions properly to ensure the congruent care of the hemodialysis patients. Most of the nurses had not any proper specialization course, education or comprehensive training related to dialysis nursing. As; Nurses play a vital role in the provision of safe and congruent care of the patient specifically in hemodialysis units where patients are prone to certain infections. Therefore it is a dire need of the day to train the nurses with proper curriculum or training module to equip the nurses with the required knowledge, skills and professional attributes in order to maintain excellence in care.

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