American Journal of Nursing Research, 2023, Vol. 11, No. 3, 110-117
Available online at http://pubs.sciepub.com/ajnr/11/3/2
Published by Science and Education Publishing
DOI:10.12691/ajnr-11-3-2

Hemodialysis Nursing Staffs' Knowledge Regarding Practices Toward Viral Hepatitis B & C in Dialysis Unit

Hanan Elzeblawy Hassan[1,*], Asmaa Salah Eldin Mohamed Saleh[2], Amal Abelazyeem Mohamed[2], Mona Moawad Mohamed[3]

[1]Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt
[2]Community Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt
[3]Nursing Specialist Beni-Suef University, Egypt
*Corresponding author: nona_nano_1712@yahoo.com

Received October 01, 2023; Revised November 02, 2023; Accepted November 10, 2023

Abstract ***Background:*** HCV is present worldwide, varies among countries with a total of 170 million people infected, and constitutes 40% of patients of chronic liver disease. People who are on hemodialysis for long periods have higher chance of getting this infection. ***Aim:*** The aim of this study was to assess hemodialysis nursing staffs' knowledge regarding practices toward viral hepatitis B & C in dialysis unit. ***Design:*** A descriptive exploratory design was utilized in the current study. ***Setting:*** The study was carried out in two hemodialysis units at Beni-Suef University Hospital and Elwasta General Hospital in Beni-Suef Governorate. ***Subjects:*** A convenient sample of 76 hemodialysis nurses. ***Results:*** 10.5% of the dialysis nurses have fair level of total knowledge about viral hepatitis B & C for elderly patients in the dialysis units. Also, 85.5% of them have good level of total knowledge, while, 4% of them have poor level of total knowledge, 92.1% of the dialysis nurses have knowledge about infection control standards for dialysis patients. 71.4% of the dialysis nurses got knowledge about infection control standards for dialysis patients from scientific meeting, 20% from conferences, and 5.7% from book. ***Conclusion:*** there is statistically significant relationship between dialysis nurses' knowledge about infection control standards for dialysis patients and with their participation in scientific conferences for dialysis and kidney disease during the last 5 years, their total knowledge about viral hepatitis B & C, and their Participate in educational lectures before at (P=<0.05). ***Recommendations:*** Conducting standards educational program that emphasize on improving knowledge level regarding prevention of viral hepatitis transmission in HDUs in order to raise awareness and correct misconceptions.

Keywords: *viral hepatitis, nurses' knowledge, practices*

Cite This Article: Hanan Elzeblawy Hassan, Asmaa Salah Eldin Mohamed Saleh, Amal Abelazyeem Mohamed, and Mona Moawad Mohamed, "Hemodialysis Nursing Staffs' Knowledge Regarding Practices Toward Viral Hepatitis B & C in Dialysis Unit." American Journal of Nursing Research, vol. 11, no. 3 (2023): 110-117. doi: 10.12691/ajnr-11-3-2.

1. Introduction

The world population is aging. By 2050, one in five will be over 65 years of age, with those over 85 showing the greatest increase in numbers. The number of people living to 100 years of age is projected to grow at more than 20 times the rate of the total population by 2050. Older people today are healthier, better educated, and expect a much higher quality of life as they age than did their elders [1-9]. Healthy aging is now an achievable goal for many and it is essential that we have the knowledge and skills to help people of all ages, races, and cultures achieve this goal [10-17].

HCV is present worldwide, varies among countries with a total of 170 million people infected, and constitutes 40% of patients of chronic liver disease. People who are on hemodialysis for long periods have higher chance of getting this infection. It has to be treated before the kidney patient undergoes kidney transplant because some medicines used for its treatment can cause rejection of the transplanted kidney. There are three main treatments for this infection. Two are injections of standard interferon or pegylated interferon given under the skin three times a week or once a week respectively. Treatment needs to be continued for at least 24 to 48 weeks. Along with either of these injections, tablets of ribavirin can be given to improve the results. However ribavirin can accumulate in kidney patients and cause destruction of red blood cells and anemia [18].

As regard Egypt, it is well documented and intensively studied that it has the largest burden of HCV infection in the world. Seventy-four studies have measured HCV prevalence in Egypt in populations at varying levels of risk. Some of them reported prevalence in comparison to USA, Germany, Italy, Canada, France, Pakistan, China, Taiwan, Australia, India, Japan, Korea, Thailand, Vietnam and Egypt. Results were 1.8, 0.6, 2.2, 0.8, 1.1, 4.7, 3.2, 4.4, 1.3, 1.9, 1.9, 1.29, 2.8, 2.9 and 14.9%, respectively. This

review collates the available evidence from standardized studies for treatment of HCV in dialysis patients and did not include uncontrolled studies. Ten studies all in hemodialysis with about 300 patients showed that standard interferon was effective in producing a short-term response, which was not sustained and was well tolerated [19].

2. Aim of the Study

The aim of this study was to assess hemodialysis nursing staffs' knowledge regarding practices toward viral hepatitis B & C in dialysis unit

Research Questions

a. What about hemodialysis nursing staffs' knowledge regarding practices toward viral hepatitis B&C in dialysis unit?
b. Is hemodialysis nursing staffs' participation in scientific conferences for dialysis and kidney disease during the last 5 years affects nursing staffs' knowledge toward viral hepatitis B&C?
c. Is hemodialysis nursing staffs' knowledge about infection control standards for dialysis patients can affect their knowledge toward viral hepatitis B&C?
d. Is hemodialysis nursing staffs' participation in educational lectures can affect nursing staffs' knowledge toward viral hepatitis B&C?

3. Subjects and Methods

3.1 Research Desig

The study's objective was achieved by using a descriptive exploratory design.

3.2. Subjects & Setting

3.2.1. Setting

In the Beni-Suef governorate, the study was carried out in two hemodialysis units at Elwasta General Hospital and Beni-Suef University Hospital.

3.2.2. Subjects

Sample Size: All of the 76 hemodialysis nurses who provided direct patient care and were involved in the study; 22 men and 54 womenhad consented to take part.

Sampling Type: A convenient sample

3.2.3. Tools of Data Collection

A. Tool (I): Knowledge Assessment Questionnaire:

Based on the original instrument created by (Alpers, 2020) and a survey of the literature [20], the researcher created a modified Arabic self-administered questionnaire (Setia et al., 2021) [21]. It was divided into two sections:

Part I: Socio-demographic characteristics questionnaire sheet:

This part was developed by the researcher to collect data about nurses' personal data; participation in scientific conferences for dialysis and kidney disease during the last 5 years, know the infection control standards for dialysis patients, and participation in educational lectures before.

Part II: Nurses' knowledge regarding practices toward viral hepatitis B&C in dialysis unit:

A complete accurate response received two points, an incomplete response received one point, and a wrong response or "don't know" resulted in a score of zero. The questionnaire had questions. A % score was created by adding up these scores. It was divided into three groups:

- Good knowledge if score ≥ 75%.
- Fair knowledge if score 50-< 75%.
- Poor knowledge if score from <50%.

3.2.4. Validity and Reliability

Content Validity:

- Tool validity was assessed to see how well the employed instruments capture the intended outcomes. The tools' face validity and content were evaluated by a panel of five community health nursing experts from the nursing faculty at Beni-Suef University.

Reliability:

- In the present study, reliability was tested using Cronbach's Alpha coefficients:
- The percentage of nurses who knew about viral hepatitis B and C in the dialysis units for senior patients was 0.823.

3.2.5. Preparatory phase

This phase began with a survey of the literature on the study's topics, both recent and historical, national and international, using books, papers, journals, and websites.

3.2.6. Pilot study

A pilot study was conducted on 10% of the total study sample (8 nurses) in order to assess the tools' relevance, effectiveness, and clarity as well as the feasibility of fieldwork. It also sought to identify any potential challenges the researcher would experience that might impede data collection.

3.2.7. Field Work

To gather information about the nurses' understanding of the elderly and dialysis, the researchers gave the nurses who agreed to participate in the study the Self-administered Questionnaire.

3.2.8. Ethical Considerations

The Faculty of Nursing at Beni-Suef University's scientific research ethical committee gave its clearance before the study was carried out. Each eligible subject was told the study's purpose and significance during the initial interview as well.

3.2.9. Administrative design

The dean of Beni-Suef University's faculty of nursing sent an official letter seeking permission to perform the study and forwarded it to Elwasta General Hospital, which is the hospital affiliated with Beni-Suef University.

3.2.10. Statistical design

Statistical Package for Social Science (SPSS) version 25 and the Microsoft Excel programme were used to conduct the data analysis. For categorical data, frequencies and percentages were used, while arithmetic means (X) and standard deviations (SD) were used for quantitative data. Descriptive statistics were used to present the data. Qualitative variables were compared using chi square test (X^2). Degrees of significance of results were considered as follows:

- - P-value > 0.05 Not significant (NS)
- - P-value ≤ 0.05 Significant (S)
- - P-value ≤ 0.01 Highly Significant (HS).

4. Results

Figure 1: presents frequency of dialysis nurses according to their characteristics. It shows that 52.6% of the dialysis nurses have technical institute, 48.7% of the dialysis nurses have 2-5 years of experience in nursing field. Also, 84.2% of the dialysis nurses attend training programs for improving nursing skills, 54.7% of them attend two programs. Moreover, 72.4% of the dialysis nurses don't participate in scientific conferences for dialysis and kidney disease during the last 5 years.

Table 1 & Figure 2 present frequency distribution of the dialysis nurses according to their knowledge about practices toward viral hepatitis B & C in dialysis unit. It reveals that 92.1% & 100.0% of the dialysis nurses have correct knowledge about perform routinely viral hepatitis (B & C) test before starting dialysis to the patient for the first time and dispose of any single used supplies after used, respectively. Also, 92.1% of them have correct knowledge about the isolate patients with viral hepatitis in separate room and special dialysis machine and equipment are used for patients with viral hepatitis, respectively.

Figure 3: Presents percentage distribution of the dialysis nurses' total knowledge about practices toward viral hepatitis B & C in dialysis unit. It shows that 10.5% of the dialysis nurses have fair level of total knowledge about viral hepatitis B & C for elderly patients in the dialysis units. Also, 85.5% of them have good level of total knowledge, while, 4% of them have poor level of total knowledge.

Figure 4: Presents dialysis nurses' knowledge about preventive measures of infection control in dialysis unit. It shows that 92.1% of the dialysis nurses have knowledge about infection control standards for dialysis patients.

Figure 5: Presents dialysis nurses' source of information regarding standards of infection control in dialysis unit. It shows that 71.4% of the dialysis nurses got knowledge about infection control standards for dialysis patients from scientific meeting, 20% from conferences, and 5.7% from book.

Figure 6: Presents relationship between dialysis nurses' participation in scientific conferences and their total knowledge about viral hepatitis B & C in dialysis unit. It reveals that there is statistically significant relation with their participation in scientific conferences for dialysis and kidney disease during the last 5 years at (P=<0.05).

Figure 7: Presents relationship between dialysis nurses' knowledge about infection control standards for dialysis patients and their total knowledge about viral hepatitis B & C in dialysis unit. It reveals a highly statistically significant relation between dialysis nurses' knowledge and their Knowing the infection control standards for dialysis patients (P=000).

Figure 8: Presents relationship between dialysis nurses' participate in educational lectures and their total knowledge about viral hepatitis B & C in dialysis unit. It reveals a highly statistically significant relation between dialysis nurses' knowledge and their Participate in educational lectures before (P= 0.000).

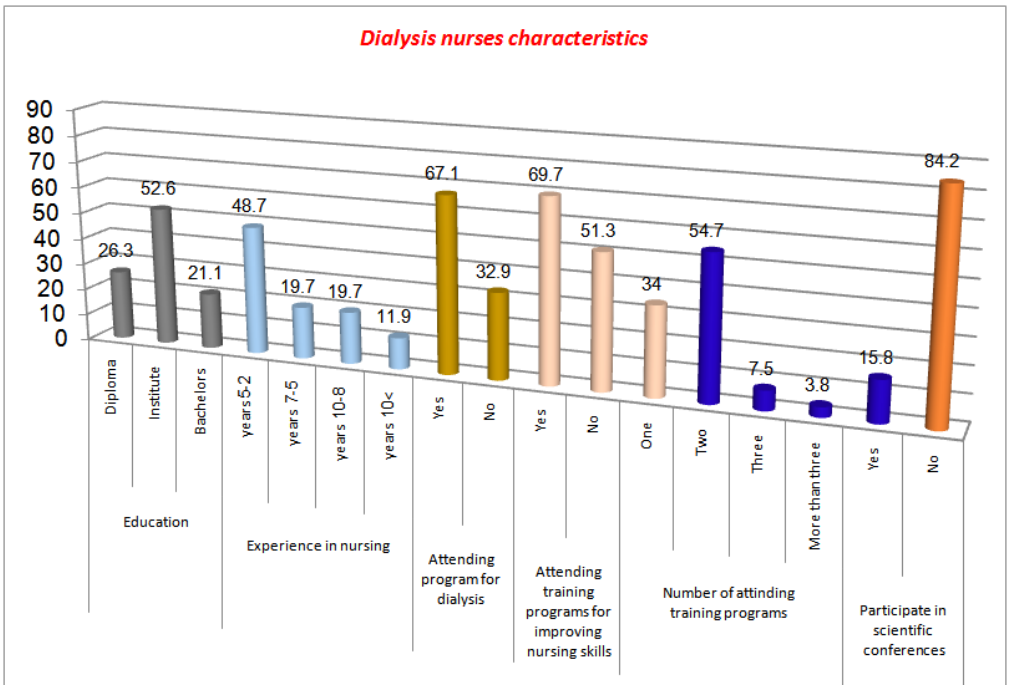

Figure 1. Frequency distribution of the dialysis nurses according to their characteristics (n=76)

Table 1. Frequency distribution of the dialysis nurses according to their knowledge about practices toward viral hepatitis B & C in dialysis unit (n=76)

Items	Apply		partially Applied		Not Apply	
	No.	%	No.	%	No.	%
Involve the routine blood test result for viral hepatitis (B&C) in the patents medical file.	68	89.5	8	10.5	0	0.0
Perform routinely viral hepatitis (B&C) test before starting dialysis to the patient for the first time.	70	92.1	6	7.9	0	0.0
Doing a test for viral hepatitis (B&C) periodically for the dialysis patients.	42	55.3	22	28.9	12	15.8
Insert patient history for hepatitis infection and vaccination in medical records.	65	85.5	6	7.9	5	6.6
Isolate patients with viral hepatitis in separate room	70	92.1	6	7.9	0	0.0
Special Dialysis machine and equipment are used for patients with viral hepatitis	70	92.1	6	7.9	0	0.0
Dispose of any single used supplies after used.	76	100.0	0	0.0	0	0.0

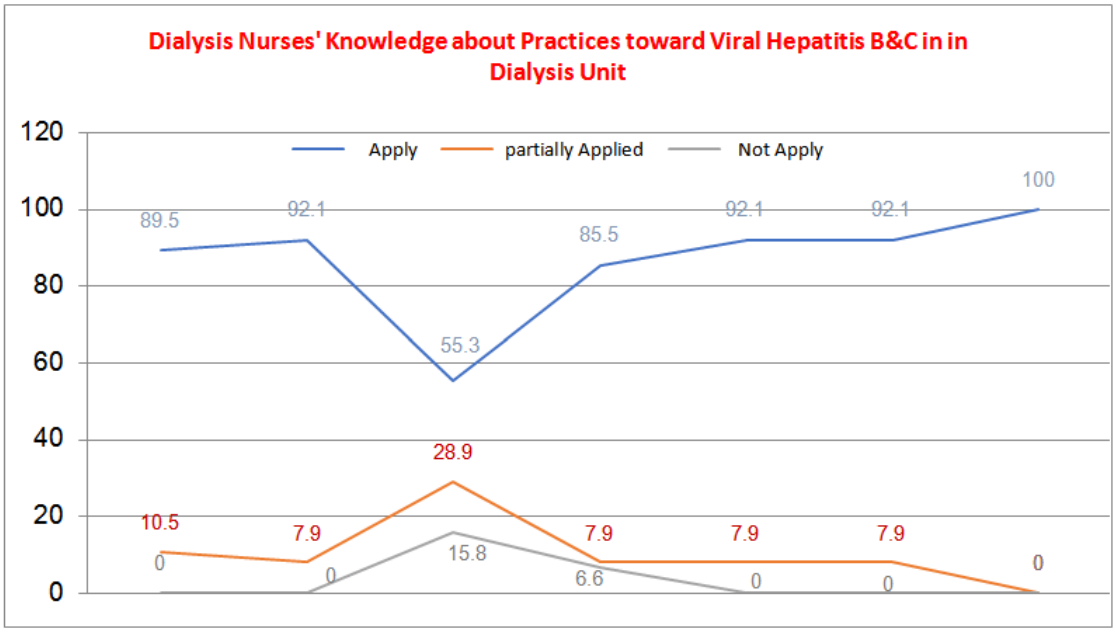

Figure 2. Frequency distribution of the dialysis nurses according to their knowledge about practices toward viral hepatitis B & C in dialysis unit (n=76).

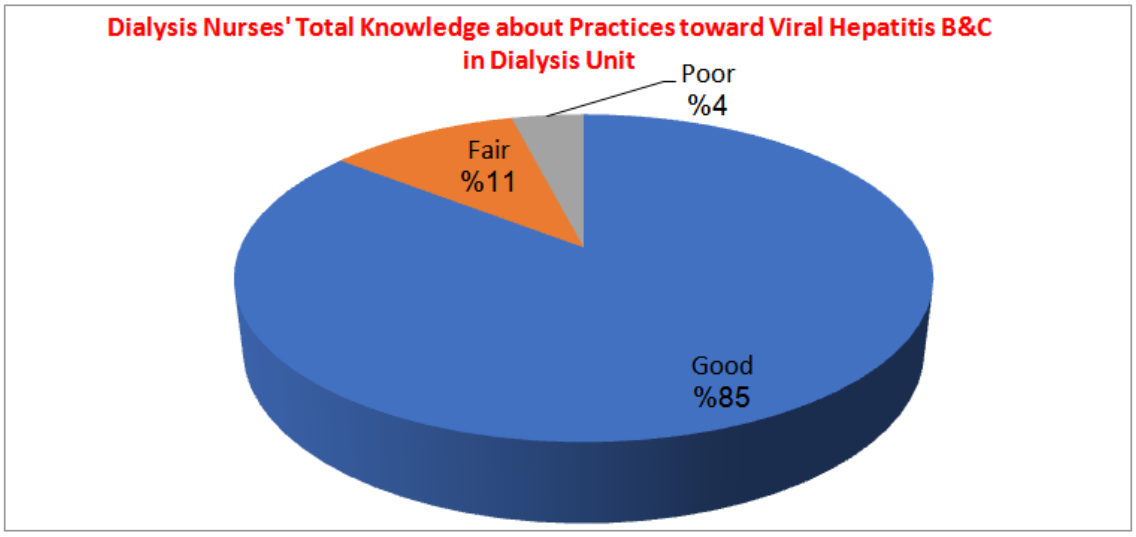

Figure 3. Dialysis nurses' total knowledge about practices toward viral hepatitis B & C in dialysis unit

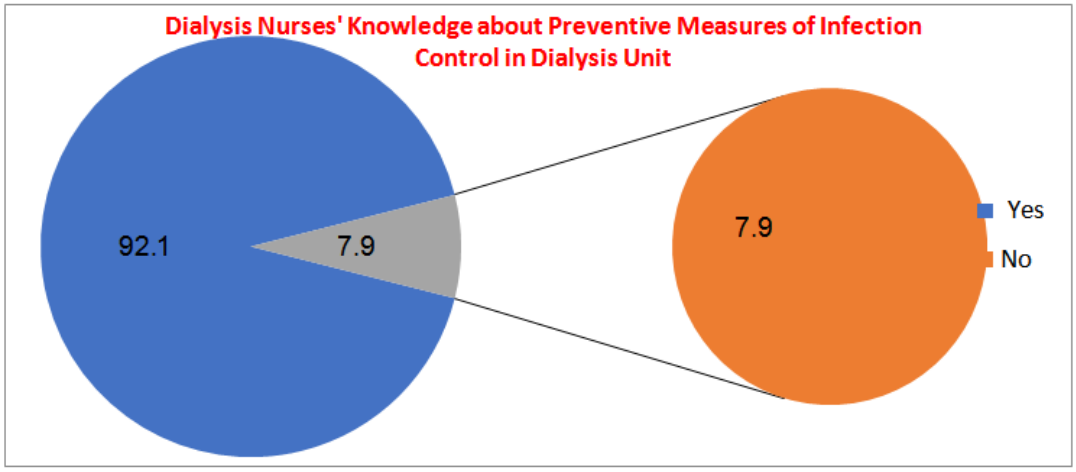

Figure 4. Dialysis nurses' knowledge about preventive measures of infection control in dialysis unit

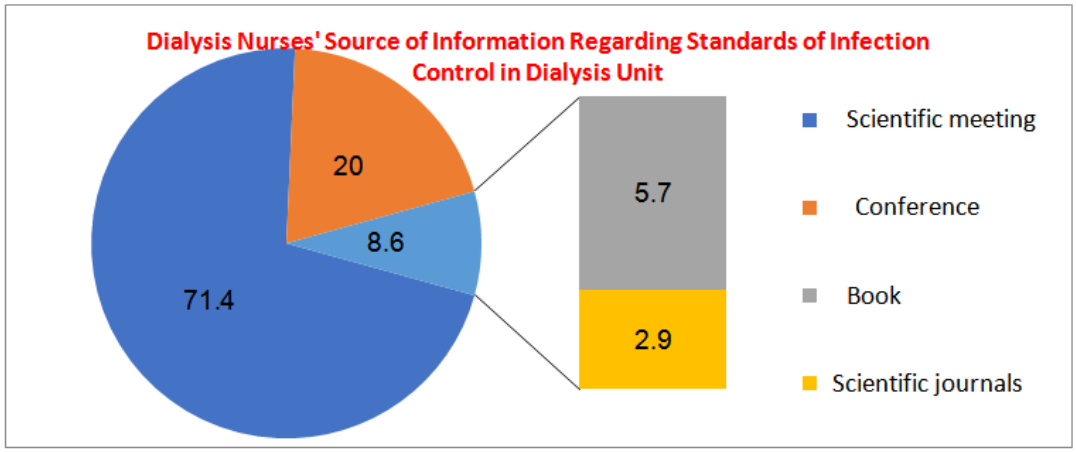

Figure 5. Dialysis nurses' source of information regarding standards of infection control in dialysis unit

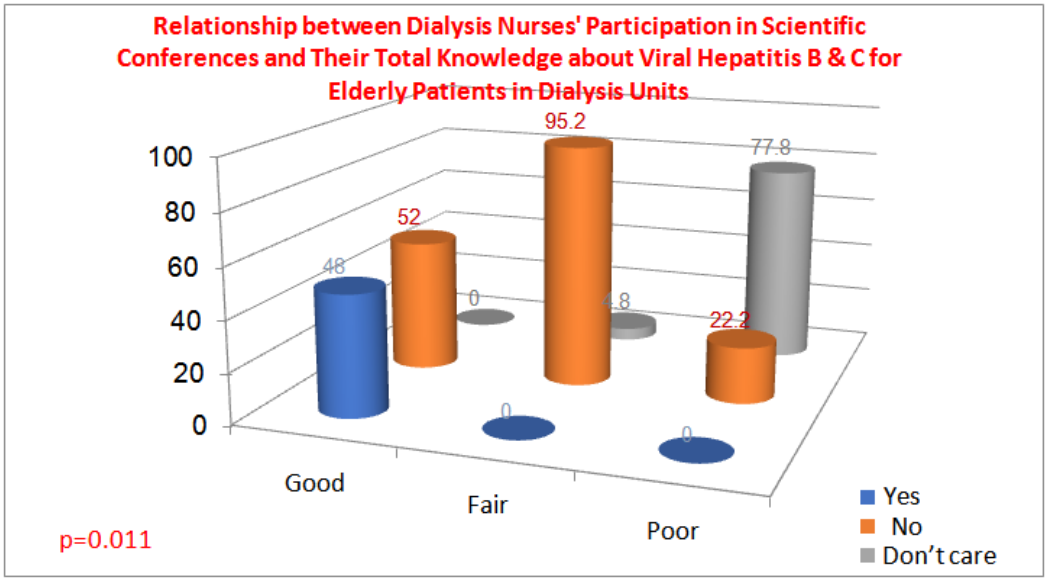

Figure 6. Relationship between dialysis nurses' participation in scientific conferences and their total knowledge about viral hepatitis B & C in dialysis uni

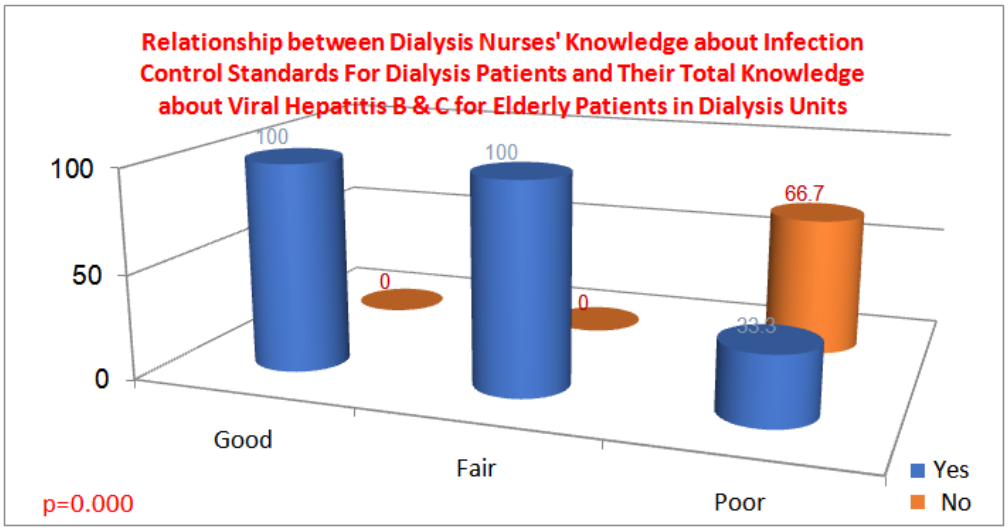

Figure 7. Relationship between dialysis nurses' knowledge about infection control standards for dialysis patients and their total knowledge about viral hepatitis B & C in dialysis unit

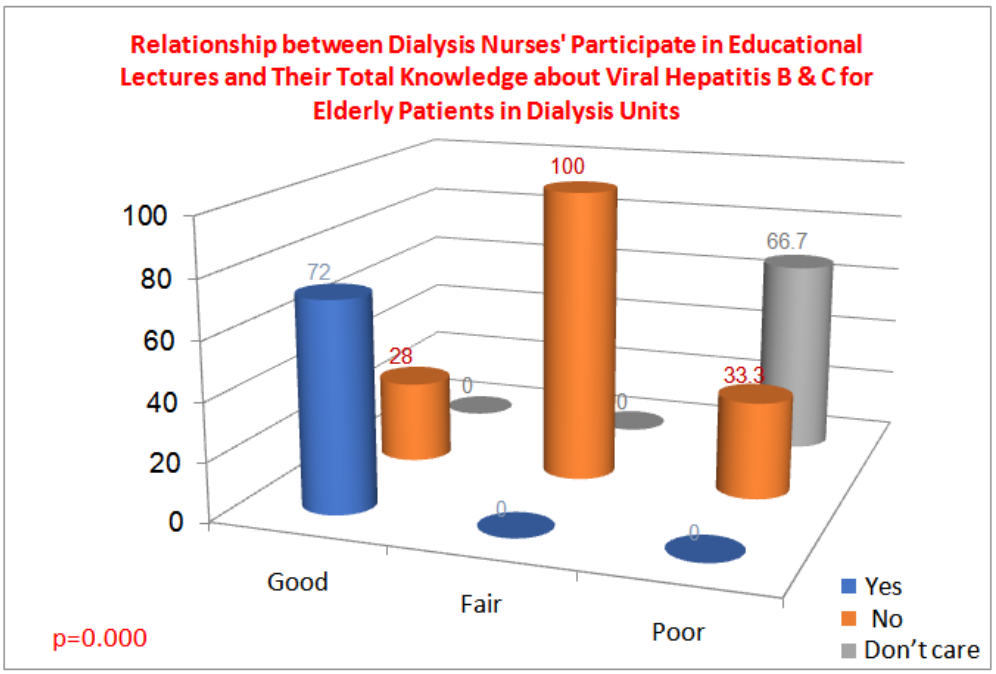

Figure 8. Relationship between dialysis nurses' participate in educational lectures and their total knowledge about viral hepatitis B & C in dialysis unit

5. Discussion

Many infection control measures, such as appropriate hand hygiene, consistent use of aseptic technique, cleaning and disinfection practices are simple and of low-cost, but require staff accountability and behavioral change, in addition to improving staff education, reporting and surveillance systems Nurses must be skilled in renal nursing, maintain a high standard of clinical practice, have excellent communication skills, and develop their individual leadership and management abilities. Nurses should be involved in multiprofessional discussions where decisions are made about changes in patient treatment. In addition, nurses require the clinical skills and competencies to manage renal patients in different stages of their illness and on particular RRT modalities [22].

Concerning the distribution of the dialysis nurses according to their knowledge about practices toward viral hepatitis B & C in dialysis unit, the results of the present study revealed that knowledge related to viral hepatitis B&C for elderly patient in dialysis unit, the current study finding revealed that a large percent (85.5%) of the dialysis nurses have good level of total knowledge about practices and attitude to limit the spread of viral hepatitis B&C in dialysis unit. Also, about half (50.0% and 51.3%) of them have fair level of total knowledge about elderly and viral hepatitis, respectively. Moreover, more than half (52.6% and 55.3%) of them have fair level of total knowledge about general knowledge about preventive measures of infection control in dialysis unit and infection control inside dialysis unit, respectively. Furthermore, half (55.3%) of the dialysis nurses have fair level of total knowledge about viral hepatitis B & C for elderly patients in the dialysis units.

Regarding knowledge and practice characteristics that might be determinants of positive attitudes, the current study finding revealed that a large percent of the studied nurses have positive attitude toward preventive measures of Viral hepatitis B&C infection transmission in HDU. The great majority of respondents agreed that evidence-based infection control measures provide adequate protection against transmission of blood borne pathogens among HCWs, and this result is in accordance with Palewar, & Karyakarte, (2022). Study in surveying nurses working in primary care, reported that almost (90%) of respondents agreed that infection-control precautions would protect them from acquiring viral hepatitis [23].

Regarding the relationship between total knowledge about viral hepatitis B & C in dialysis unit of the dialysis nurses and their participation in scientific conferences, nurses' knowledge about infection control standards, and participate in educational lectures; the results of the current study revealed a statistically significant relation between dialysis nurses' knowledge and their years of experience in dialysis unit ($p<0.05$). It is not amazing as all the mentioned item surly affect everyone knowledge.

Infection control and prevention is the responsibility of the nurse, and represents an integral element of patients' safety programs. It encompasses the processes and activities, which identify and reduce the risks of acquiring and transmitting endemic or epidemic infections among individuals. Therefore, nurses should have professional and ethical responsibilities to make sure that their knowledge, skills regarding infection control are up-to-date, and they practice safely and competently at all times [24-25].

Most nurses care for older people during the course of their careers. In addition, the public looks to nurses to have knowledge and skills to assist people to age in health. Every older person should expect to receive care provided by nurses with competence in gerontological nursing. Gerontological nursing is not only for a specialty group of nurses. Knowledge of aging and gerontological nursing is core knowledge for the profession of nursing [26-30].

Conclusion

There is statistically significant relationship between dialysis nurses' knowledge about infection control standards for dialysis patients and with their participation in scientific conferences for dialysis and kidney disease during the last 5 years, their total knowledge about viral hepatitis B & C, and their Participate in educational lectures before.

Recommendation

Conducting standards educational program that emphasize on improving knowledge level regarding prevention of viral hepatitis transmission in HDUs in order to raise awareness and correct misconceptions.

References

[1] Hassan H., Fahmy M., Alshrbieny E. Impact of Elderly Women's Knee Osteoarthritis Pain on Daily Living Activity at Northern Upper Egypt. Journal of Orthopaedic Science and Research; 4(1): 1-10.

[2] Mohamed S., OmranA., Hanan Elzeblawy Hassan H., Ramadan E. (2023). Effect of Deep Breathing and Kegel Exercises on Stress Urinary Incontinence among Elderly Women. Benha Journal of Applied Sciences.

[3] Hassan H., Alshrbieny E., Fahmy M. (2023). Coping Strategies among Elderly Women with Knee Osteoarthritis Pain at Beni-Suef City: Impact of Socio-demographic Characteristics. Journal of Orthopaedic Science and Research; 4(1): 1-14.

[4] Fahmy M., Alsherbieny E., Hassan H. (2023). Knee Osteoarthritis Pain: Coping Strategies among Elderly Women. American Journal of Public Health Research; 11(3), 99-106.

[5] Hassan H., Badr-Elden S., Hamdi S., Aboudonya M. (2021). Control Poly-Pharmacy: Elderly Patients' Perception. American Journal of Medical Sciences and Medicine; 9(3): 82-88.

[6] Alsherbieny E., Hassan H., Fahmy M. (2023). Knee Osteoarthritis among Elderly Women. American Journal of Medical Sciences and Medicine; 11(2): 47-54.

[7] Hassan H., Abozed A., Mohamed A., Ibrahim E. (2021). Compassionate Care Delivery for Elderly Patients: Nurses' Perception. American Journal of Applied Psychology; 9(1): 22-35.

[8] Fahmy M., Hassan H., Alsherbieny E. (2023). Coping Strategies Among Elderly Women Suffering From Knee Osteoarthritis Pain At Beni-Suef City. Nile journal for geriatric and gerontology, 2023; 6(1): 148-166.

[9] Hassan H., Badr Elden S., Hamdi S., Aboudonya M. (2021). Poly-Pharmacy among Elderly Patients: Perception and Practices. Journal of Nursing and Community Medicine; 1(1): 1-6.

[10] Tobin, E. A., Ediagbonya, T. F., Asogun, D. A., & Oteri, A. J. (2021). Assessment of Healthcare Waste Management practices in Primary Health Care Facilities in a Lassa Fever Endemic Local Government Area of Edo state, Nigeria. Afrimedic Journal, 4(2), 16-23.

[11] Mohamed S., Omran A., Hassan H., Abo zied E. (2023). Effect of Deep Breathing and Kegel Exercises on Stress Urinary Incontinence among Elderly Women. Benha Journal of Applied Sciences; 8 (4): 81-89.

[12] Hassan H., Alsherbieny E., Fahmy M. (2023). Effect of Elderly Women's Socio-demographic Characteristics on Knee Osteoarthritis Pain. American Journal of Medical Sciences and Medicine; 11(2): 39-46.

[13] Ibrahim E., Mahmod A., Elmaghwry A., Hassan H. (2021). Compassionate Care Delivery: Elderlies' Perception. Research in Psychology and Behavioral Sciences; 9(1): 24-32.

[14] Hassan H., Badr Elden S., Hamdi S., Aboudonya M. (2021). Control Poly-Pharmacy: Elderly Patients' Practices. American Journal of Pharmacological Sciences; 9(2): 56-62.

[15] Aboudonya M., Badr Elden S., Hassan H., Hafez S. (2022). Knowledge And Practices Used By Old Age Patients To Control Polypharmacy. Nile journal for geriatric and gerontology; 5(1): 80-91.

[16] Hassan H., Alsherbieny E., Fahmy M. (2023). Daily Living Activity among Elderly Women with Knee Osteoarthritis Pain: Impact of Socio-demographic Characteristics. World Journal of Social Sciences and Humanities; 9(1), 24-33.

[17] Abou-Shabana K., Hassan A., Eid S., Hassan H. (2022). Effect of Counseling Sessions on Women's Satisfaction during Gynecological Examination. Journal of Obstetrics Gynecology and Reproductive Sciences; 6(4): 1-10.

[18] Bianco, A., Bova, F., Nobile, C. G., Pileggi, C., Pavia, M. & the Collaborative Working Group. (2021). Healthcare workers and prevention of hepatitis C virus transmission: exploring knowledge, attitudes and evidence-based practices in hemodialysis units in Italy. BMC infectious diseases, 13(1), 76.

[19] Sweed, H. S. (2021) Population Ageing-Egypt Report Middle East Journal of Age and Ageing, 13(2), 10.

[20] Alpers, C., Bloom, R. D., Fabrizi, F., Izopet, J., Jadoul, M., Lindley, E., & Ioannidis, J. (2020). KDIGO clinical practice guidelines for the prevention, diagnosis, evaluation, and treatment of viral hepatitis in chronic kidney disease: introduction. Kidney International, 73(suppl. 109), S6-S99.

[21] Setia, S., Gambhir, R. S., Kapoor, V., Jindal, G., & Garg, S. (2021). Attitudes and Awareness Regarding Hepatitis B and Hepatitis C Amongst Health-care Workers of a Tertiary Hospital in India. Annals of medical and health sciences research, 3(4), 551-558.

[22] Bouallègue, O., Naija, W., Said, H., Nouria, A., Jaidane, N., Dhidah, L., & Boujaafar, N. (2021). P233: Incidence of ICU acquired nosocomial infections in University Hospital of Sahloul (Sousse-Tunisia). Antimicrobial Resistance and Infection Control, 2 (1), 1-1.

[23] Palewar, M. S., Joshi, S., Choudhary, G., Das, R., Sadafale, A., & Karyakarte, R. (2022). Prevalence of Hepatitis virus in patients presenting with acute viral hepatitis: A 3-year retrospective study at a tertiary care Hospital in Western India. Journal of Family Medicine and Primary Care, 11(6), 2437-2441.

[24] Eskander, H. G., Morsy, W. Y. M., & Elfeky, H. A. A. (2021). Intensive Care Nurses' Knowledge & Practices regarding Infection Control Standard Precautions at a Selected Egyptian Cancer Hospital. Journal of Education and Practice, 4(19), 160-174.

[25] Hassan H., Mohamed A., Saleh A., Mohamed M. (2023). Viral Hepatitis B&C in Hemodialysis Units: Preventive Practices toward Machine, Equipment, Environment and Waste Management. Psychology and Mental Health Care, 5(6): 1-9.

[26] Ahmed M., Hassan H., Mohamed A., Saleh A. (2024). Knowledge and Practice of Nurses toward Preventive Measures of Elderly Patients with Viral Hepatitis B and C in the Dialysis Unit. Nile journal for geriatric and gerontology, 7(1): 70-92.

[27] Richmond, J, Wheeler, E (2020). Australasian Hepatology Association Practice Standards for the Hepatology Nurse, Australian Hepatology Association, Available at: http://www.hepatologyassociation. com.au/resources/practice-standards/.

[28] Saleh A., Mohamed A., Mohamed M., Hassan H. (2023). Nurses' Knowledge regarding Preventive Measures for Viral Hepatitis B&C in Dialysis Unit. American Journal of Epidemiology and Infectious Disease, 11(1).

[29] Mohamed A., Mohamed M., Saleh A., Hassan H. (2023). Viral Hepatitis B&C in Elderly Hemodialysis Unit: Nurses' Related Preventive Practices. World Journal of Preventive Medicine, 11(1).

[30] Hassan H., Mohamed M., Saleh A., Mohamed A. (2023). Beni-Suef Elderly Hemodialysis Units: Nurses' knowledge and Preventive Measures Practices, American Journal of Public Health Research, 11(4).