DOI: https://doi.org/10.54393/pjhs.v4i04.704

PAKISTAN JOURNAL OF HEALTH SCIENCES

https://thejas.com.pk/index.php/pjhs

Volume 4, Issue 4 (April 2023)

Original Article

Knowledge Regarding Risk Factors of Phlebitis and its Association with Education Among Nurses at Tertiary Care Hospital, Karachi

Afsha Bibi[1], Mahboob Ali[1], Sadia Pervaiz[1], Shiza Mary[1], Misheal Mary[1], Sabir Bagga[1], Samson Khalid[1], Rasheed Ahmad khan[1], Abdul Sami[1] and Raheem Khan[1]

[1]Horizon School of Nursing and Health Sciences

ARTICLE INFO

Key Words:

Knowledge Regarding Risk Factors of Phlebitis

How to Cite:

Bibi, A. ., Ali, M. ., Pervaiz, S. ., Mary, S. ., Mary, M. ., Bagga, S. ., Khalid, S. ., Ahmad khan, R. ., Sami, A. ., & Khan, R. . (2023). Knowledge Regarding Risk Factors of Phlebitis and its Association with Education Among Nurses at Tertiary Care Hospital, Karachi: Knowledge Regarding Risk Factors of Phlebitis. Pakistan Journal of Health Sciences, 4(04). https://doi.org/10.54393/pjhs.v4i04.704

***Corresponding Author:**

Afsha Bibi

Horizon School of Nursing and Health Sciences

fawad52005@gmail.com

Received Date: 14th April, 2023

Acceptance Date: 29th April, 2023

Published Date: 30th April, 2023

ABSTRACT

Phlebitis is the inflammation of a vein, typically in the legs, due to a blood clot or other causes. Risk factors for developing phlebitis include prolonged immobility, age, family history, obesity, smoking, and certain medical conditions, such as cancer, heart disease, and inflammatory bowel disease, which can increase the risk of phlebitis. **Objective:** To assess the knowledge regarding risk factors of phlebitis and its association with nurses' education among nurses at a tertiary care Hospital in Karachi. **Methods:** This cross-sectional analytical study was conducted at a tertiary care hospital in Karachi from September to December 2022. A total of 53 nurses were part of the study, and a convenient sampling technique was used to approach the participants. The data were collected through a valid and reliable tool. **Results:** Study results show that Among 53 participants, the male participant 26(49.1%), whereas the female participant was 27 (50.9%). Study results also found that 17.0% of nurses have High-level knowledge, whereas 83.0% of the participants have moderate, level knowledge about the risk factors of phlebitis. Moreover, the study found no significant difference between the knowledge score and the nurses' education p-value of 0.794. **Conclusions:** These findings suggest that nurses may need further education and training regarding the risk factors of phlebitis, as most nurses have only a moderate level of knowledge. Investigating other factors impacting nurses' knowledge may also be essential, such as work experience and training programs.

INTRODUCTION

A peripheral intravenous catheter is essential for administering intravenous medication, fluids, nutritional supplements, and blood sampling in admitted patients. In addition, phlebitis is the inflammation of the walls of the vein (veins are the blood vessels in your body that carry blood from organs and limbs back to the heart) [1, 2]. In addition, its appearance is in the form of local edema and inflammation, discomfort, redness of the skin, or erythema. It mainly happens when the protocol of intravenous cannulation is not followed correctly by aseptic techniques. Moreover, the triggering risk factors of phlebitis include infusion flow rate, pre, and post-bolus, 3-4 days of I/V cannulation, or a catheter retained for a more extended period [3]. However, the risk factors (risk factor that increases a person's chance of developing a disease) for developing phlebitis are patient characteristics, administration of intravenous medications, nursing practices, and cannula characteristics [4]. Possible risk of infection includes manual skills, technical skills, and the expertise of pharmaceutical therapies skills. These intravenous catheterization risks and complications can affect the clinical condition, well-being, and potential result of a patient needing a peripheral catheter inserted in another location [5]. Furthermore, the risk is characterized by four groups: patient characteristics, the therapy administered, health professional practice, and cannula

DOI: https://doi.org/10.54393/pjhs.v4i04.704

characteristics. However, to reduce the risk factor of phlebitis and to evaluate the nurses' understanding of the phlebitis risk factors. Assess the cannula from the 1st day the patient is admitted to the hospital [6]. Phlebitis is a common condition among patients, and nurses play a critical role in its prevention and management. However, there is limited research on the extent of nursing knowledge about the risk factors of phlebitis and how it may be influenced by education level [7]. Therefore, the research aims to assess nursing knowledge regarding the risk factors of phlebitis and its association with nurses' education levels. This study will contribute to identifying any gaps in nursing knowledge about phlebitis risk factors and provide insight into whether education level plays a significant role in this knowledge.

METHODS

A descriptive cross-sectional analytical study was conducted at Tabba Kidney Hospital Karachi, Pakistan, from September to December 2022. A total of 53 nurses were part of the study, and a convenient sampling technique was used to approach the participants. Moreover, the sample size was calculated through open EPI version 3.0 with a population of 60, a confidence interval of 95%, and the obtained sample size is 53. Data were collected using a questionnaire prepared with the help of the literature [8]. The tool consists of two components I is socio-demographic data which has three questions (Age, Gender, Education), and II component is knowledge assessment questions which contain 19 questions. The knowledge scoring system is 0-2, where 0 means don't know, 1 means no, and 2 means yes. The total score of the tool is 38, and below 50% is considered low-level knowledge, 50% to 80% is moderate-level knowledge, and above 80% is considered high-level knowledge. Furthermore, a piloting study was conducted on 10% of the sample size, which contained 6 participants, which resulted in 0.790, which shows that the tool was reliable. Before data collection, study approval was taken from the Horizon School of Nursing and Health Sciences, and data collection permission was taken from the Tabba Kidney Hospital. During data collection, the purpose and benefits of the study were explained to the participants, and the duration for data collection to complete the questionnaire was given approximately 15 minutes. Participants were informed about the purpose of the study, and a written concern was also taken by the respondents under the supervision of the principal investigator. However, it was also explained that the participant's data would remain confidential. All the questions were explained briefly to the participants. All respondents willingly participated in the study. Moreover, nurses above 18 years, both male and female and a minimum with three months of experience were included in the study. Those nurses who were unwilling to participate and Pilot study participants were excluded from the study. SPSS software version 26 is used in this study for data entry, analysis, and interpretation. The frequency table and the percentages were used to calculate socio-demographic and knowledge assessment data. Furthermore, an Independent T-test was used to associate knowledge scores with nurses' education.

RESULTS

Table 1 shows the results of the socio-demographic variables of the participants. Among 53 participants male participant was 26 (49.1%), whereas the female participant was 27 (50.9%). The percentage of diploma nursing is 62.3%, and BScN is 37.7%. Regarding the age of the participants, 20-25 is 18 (34.0%), 25-30 is 25, whereas the percentage is 47.2%, and participants who fall in the age group > 30 are 10 as their percentage is 18.9%.

Table 1: Socio-demographic Data

Variables	Frequency (%)
Gender	
Mal e	26(49.1)
Female	27(50.9)
Education	
BSN	20(37.7)
Diploma	33(62.3)
Age	
20-25	18(34.0)
26-30	25(47.2)
Above 30	10(18.9)

Table 2 results show that 17.0% of nurses have high-level knowledge, whereas 83.0% have moderate, level knowledge about the risk factors of phlebitis.3

Table 2: Overall Knowledge Score

Knowledge Score	N(%)
Moderate level of knowledge	44(83.0)
High Level of Knowledge	9(17.0)
Total	53(100.0)

Table 3 shows the result of the association of Knowledge score with nurses' education and found that there is no significant difference found between knowledge score, and nurse's education p-value is 0.794.

Table 3: Association of Knowledge Score with Nurses' Education

Variables	N	Mean	Std. Deviation	p-value
Education				
Diploma	33	22.1515	3.30833	0.794
NursingBScN	20	22.4000	3.37795	

An Independent sample T-test has been applied

DISCUSSION

Phlebitis is a common and preventable complication of intravenous therapy that can result in pain, inflammation,

DOI: https://doi.org/10.54393/pjhs.v4i04.704

and infection [9]. It can also lead to longer hospital stays, increased healthcare costs, and reduced patient satisfaction [10]. Nurses play a critical role in preventing and managing phlebitis by identifying and addressing risk factors such as catheter insertion technique, catheter dwell time, and patient-related factors. Therefore, assessing nurses' knowledge of phlebitis risk factors is essential to improve patient outcomes and quality of care. So, this study aimed to evaluate knowledge about risk factors of phlebitis among nurses and its association with nurse's education. The study was conducted at Tabba kidney institute Karachi. The present study results show that 49.1% of male participated in the study, and 50.9% of females participated in the study, as the majority was female participants. At the same time, another study's results show that 66.7% were male respondents and 38.3% were female respondents [1]. In contrast, a study from Indonesia demonstrated that 19% of the participants were male and 81% were females [11]. These differences may reflect the two studies' research methodology and subject matter. The present study's findings indicate that a majority of the participants were in the age range of 25-30 years old (47.2%), followed by those in the age range of 20-25 years old (34.0%), and a minority of participants were above 30 years old (18.9%). Similarly, another study's findings are almost parallel to our finding and show that (41.7%) of the age was less than 30 years, whereas (50.4%) age was between 30-40 years; moreover, (7.9%) age was more than 40 years(3). The present study results show that 17.0% of nurses have high-level knowledge about the risk factors of phlebitis. Similarly, a study from Malaysia demonstrated that 56.8% of the participants had good knowledge regarding the risk factors of phlebitis [12]. Moreover, another study from Turkey shows that the majority of nurses have good knowledge regarding the risk factors of phlebitis [13]. In contrast, a study from Pakistan shows that most nurses have a poor understanding of the risk factors of phlebitis [8]. In addition, another study from Indonesia shows that 38.5% of the participants have poor knowledge regarding the risk factors of phlebitis [14]. Educating the staff nurses about the numerous phlebitis risk factors is essential. Programs for education and training should be executed appropriately [15]. The present study finding that 83% of the participants have a moderate level of knowledge about the risk factors of phlebitis highlights the need for healthcare professionals to continue learning and improving their knowledge in this area. Present findings revealed that 83.0% of participants have moderate level knowledge about the risk factors of phlebitis. Another study from Sari Lanka shows that 60.0% of the participants have a moderate level of knowledge regarding the risk factors of phlebitis [16]. Similarly, another study from India shows that 63% of the participants have a moderate level of knowledge [17]. While a moderate level of knowledge may be considered sufficient for some healthcare professionals, it is essential to note that phlebitis is a serious condition that can lead to complications if not treated promptly and effectively [18]. Therefore, nurses and other healthcare professionals should be well-versed in the risk factors of phlebitis to provide the best possible care for their patients. One way to improve the level of knowledge among healthcare professionals regarding phlebitis would be to provide ongoing education and training opportunities. This could be done through professional development programs, online courses, or workshops [7]. Additionally, healthcare organizations could provide clinical exposure opportunities to healthcare professionals in different settings, including hospitals and clinics, to increase their exposure to phlebitis patients and allow them to gain more practical experience managing this condition [14]. The current findings show no association between the knowledge score and nurses' education. Similarly, a study from China shows no association between education and the knowledge score of phlebitis [3]. It is commonly assumed that higher levels of education would lead to increased knowledge scores among nurses. However, this study suggests that this may not always be the case. Other factors, such as clinical experience, ongoing education and training, and resource access, may significantly determine a nurse's knowledge score. The lack of association between education and knowledge score also highlights the need for ongoing education and training opportunities for nurses, regardless of their level of formal education. Continuing education programs and workshops can help nurses stay up-to-date on the latest developments in their field and provide opportunities for knowledge acquisition and skills development [19-21].

CONCLUSIONS

Based on the study results, it can be concluded that the majority of nurses have a moderate level of knowledge about the risk factors of phlebitis, with only a small percentage having a high level of knowledge. Additionally, the study found no significant difference in knowledge scores based on nurses' education level. These findings suggest that nurses may need further education and training regarding the risk factors of phlebitis.

Authors Contribution

Conceptualization: AB, MAK
Methodology: SP, AS
Formal analysis: MAK, SM, SK, RK
Writing-review and editing: AB, MM, SB, RAK

All authors have read and agreed to the published version of the manuscript.

DOI: https://doi.org/10.54393/pjhs.v4i04.704

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

The authors received no financial support for the research, authorship and/or publication of this article.

REFERENCES

[1] Ali AH and Saud AT. Assessment of Nurses' Knowledge towards Infections of Peripheral Intravenous Cannula in Al-Basrah Teaching Hospital. Indian Journal of Forensic Medicine & Toxicology. 2021 May; 15(3): 2216-21.

[2] Marsh N, Webster J, Larsen E, Cooke M, Mihala G, Rickard CM. Observational study of peripheral intravenous catheter outcomes in adult hospitalized patients: a multivariable analysis of peripheral intravenous catheter failure. Journal of hospital medicine. 2018 Feb; 13(2): 83-9. doi: 10.12788/jhm.2867

[3] Li XF, Liu W, Qin Y. Nurses' perception of risk factors for infusion phlebitis: A cross-sectional survey. Chinese nursing research. 2016 Mar; 3(1): 37-40. doi: 10.1016/j.cnre.2016.03.002

[4] Lv L and Zhang J. The incidence and risk of infusion phlebitis with peripheral intravenous catheters: A meta-analysis. The Journal of Vascular Access. 2020 May; 21(3): 342-9. doi: 10.1177/1129729819877323

[5] Chang WP and Peng YX. Occurrence of phlebitis: a systematic review and meta-analysis. Nursing research. 2018 May; 67(3): 252-60. doi: 10.1097/NNR.0000000000000279

[6] Yeesin A, Rojanaworarit C, Chansatitporn N. Incidence of peripheral phlebitis and its predictive characteristics infemale inpatients hospitalized at a public hospital in thailand: A prospective cohort study. International Journal On Advanced Computer Theory And Engineering (IJACTE). 2017; 6: 27-33.

[7] Guanche-Sicilia A, Sánchez-Gómez MB, Castro-Peraza ME, Rodríguez-Gómez JÁ, Gómez-Salgado J, Duarte-Climents G. Prevention and treatment of phlebitis secondary to the insertion of a peripheral venous catheter: a scoping review from a nursing perspective. InHealthcare 2021 May; 9(5): 611. MDPI. doi: 10.3390/healthcare9050611

[8] Bibi S, Parveen K, Abdullahi K, Afzal M, Gilani SA. Knowledge Regarding Perception of Risk Factors for Phlebitis Among Nursing Students.

[9] Khoso AH. Associated Risk Factors of Phlebitis among Registered Nurses at PMC Hospital Nawabshah, Experience and Education Based Study. Saudi Journal of Nursing and Health Care. 2021; 4(2): 37-42. doi: 10.36348/sjnhc.2021.v04i02.001

[10] Macklin D. Phlebitis: A painful complication of peripheral IV catheterization that may be prevented. AJN The American Journal of Nursing. 2003 Feb; 103(2): 55-60. doi: 10.1097/00000446-200302000-00027

[11] Siagian E. In House Training In Nursing On Knowledge of Chemical Phlebitis In Giving Intravena Therapy. InAbstract Proceedings International Scholars Conference 2019 Dec; 7(1): 42-53. doi: 10.35974/isc.v7i1.877

[12] Ying CX, Yusuf A, Keng SL. Perceptions of risk factors for phlebitis among Malaysian nurses. British journal of nursing. 2020 Jan; 29(2): S18-23. doi: 10.12968/bjon.2020.29.2.S18

[13] Karadeniz G, Kutlu N, Tatlisumak E, Özbakkaloğlu B. Nurses' knowledge regarding patients with intravenous catheters and phlebitis interventions. Journal of Vascular Nursing. 2003 Jun; 21(2): 44-7. doi: 10.1016/S1062-0303(03)00034-7

[14] Dewi NA and Hidayat A. The Relationship Between Knowledge of Novice Nurses and The Incidence of Phlebitis In Cipto Mangunkusumo Hospital, Jakarta. Jurnal Kesehatan Komunitas. 2022 Aug; 8(2): 306-13. doi: 10.25311/keskom.Vol8.Iss2.1278

[15] Naik SH, Wani D, Yasmin B. A Study to Assess the Occurrence and Risk Factors of Phlebitis among Peripheral Intravenous Cannulated Patients admitted in Emergency Wards of SKIMS, Soura, Srinagar with a view to develop Phlebitis Prevention Protocol. Trends in Nursing Administration and Education (2348-2141). 2022 Jun; 11(1): 5-15. doi: 10.24321/2348.2141.202202

[16] Harshani RA and Perera PP. Knowledge and attitudes of final year nursing students of National School of Nursing, Sri Jayewardenepura and School of Nursing, Colombo on infusion phlebitis. 2016.

[17] Sudhakar M and Dhakshinamoorthy S. Knowledge and practice on prevention of phlebitis among nurses working in ccu at selected hospitals Chennai. TNNMC Journal of Medical & Surgical Nursing. 2021; 9(1): 12-4.

[18] Simões AM, Vendramim P, Pedreira ML. Risk factors for peripheral intravenous catheter-related phlebitis in adult patients. Revista da Escola de Enfermagem da USP. 2022 Jun; 56. doi: 10.1590/1980-220x-reeusp-2021-0398pt

[19] Tupere MB, Temker AC, Mhaske N, Thombare BS. Effect of Nursing Intervention for the Prevention of Phlebitis among Patients Receiving Chemotherapy Admitted in Oncology Ward of Selected Hospital. Indian Journal of Surgical Nursing. 2020 Sep; 9(3): 113-8.

[20] Mohammed EK and James S. A cross sectional study to assess nurse's perception of risk factors for infusion phlebitis in selected hospitals, Jazan, Saudi Arabia. IOSR Journal of Nursing and Health Science (IOSR-JNHS). 2018; 7(3): 25-30.

[21] Ali JS and Amr TE. Educational Intervention Program for Maternity Nurses about Intravenous Catheter and Its Effect on Phlebitis Rate. Zagazig Nursing Journal. 2015 Jan; 11(1): 95-105. doi: 10.12816/0029249