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Original Research Article

ASSESSMENT OF THE NURSES KNOWLEDGE REGARDING THE CARE OF MENINGITIS PATIENTS

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Abstract: *Meningitis is a life-threatening condition requiring prompt and effective management. Nurses play a critical role in the care of meningitis patients, yet gaps in their knowledge can adversely impact patient outcomes.* ***Objective:*** *To assess the knowledge of nurses regarding the care of meningitis patients in a tertiary care hospital in Lahore, Pakistan.* ***Methods:*** *A descriptive cross-sectional study was conducted among 142 nurses using a structured and validated questionnaire. Data were analyzed using SPSS version 26, with results presented as frequencies and percentages.* ***Results:*** *The study revealed that 41.5% of nurses demonstrated good knowledge about the definition of meningitis, but significant gaps were observed in understanding its types, prevention strategies, and medical management. While 41.5% correctly identified viruses as a major cause, only 31% recognized vaccination as a preventive measure. Nurses with higher qualifications and more clinical experience exhibited better knowledge compared to their counterparts.* ***Conclusion:*** *There are substantial gaps in nurses' knowledge regarding meningitis care, particularly in prevention and management. Targeted training programs and updated clinical guidelines are essential to address these deficiencies and improve the quality of care for meningitis patients in Pakistan.*

Keywords: Meningitis, Nursing Knowledge, Patient Care, Prevention, Pakistan, Professional Training

Introduction

Meningitis, an inflammation of the meninges surrounding the brain and spinal cord, is a life-threatening condition requiring prompt diagnosis and management. It can be caused by bacterial, viral, fungal, or parasitic infections, with bacterial meningitis being the most severe form. Globally, meningitis poses a significant public health burden, particularly in low- and middle-income countries like Pakistan, where challenges in early detection and treatment persist due to limited healthcare resources and a lack of awareness among healthcare providers (1, 2).

In Pakistan, meningitis remains a major health concern, particularly in pediatric and immunocompromised populations. Studies show that the country faces a high burden of bacterial meningitis, with Streptococcus pneumoniae and Neisseria meningitidis being the most common causative organisms (3). Despite the availability of vaccines, such as meningococcal and pneumococcal vaccines, awareness and utilization remain low, contributing to preventable morbidity and mortality (4). Healthcare professionals, particularly nurses, play a crucial role in the care and management of meningitis patients, as they are directly involved in monitoring, administering treatments, and educating families about preventive measures.

Nurses' knowledge regarding meningitis management is essential for improving patient outcomes. A study conducted in India revealed that over 40% of nurses lacked adequate knowledge about meningitis symptoms and management protocols (5). Similarly, research in Bangladesh highlighted gaps in knowledge among nurses regarding the administration of antibiotics and corticosteroids in meningitis cases, leading to delays in effective treatment (6). In Pakistan, limited research exists on the knowledge and practices of nurses related to meningitis care, creating a significant gap in understanding their preparedness to handle such cases. The challenges faced by nurses in Pakistan include overcrowded hospitals, lack of access to updated clinical guidelines, and inadequate training in specialized areas like meningitis management. According to Ahmed et al., most nurses in public hospitals rely on experiential learning rather than formal training, leading to inconsistent practices and suboptimal patient care (7). Addressing these gaps requires targeted interventions, including continuous professional education and the integration of meningitis-specific modules into nursing curricula. Globally, efforts to improve meningitis management have focused on training healthcare providers and increasing awareness about preventive strategies. For instance, initiatives in African countries have demonstrated the effectiveness of comprehensive training programs in reducing mortality rates associated with bacterial meningitis (8). Incorporating similar strategies tailored to the Pakistani context could significantly improve the knowledge and practices of nurses and enhance patient outcomes. This study aims to assess the knowledge of nurses regarding the care of meningitis patients in a tertiary care hospital in Lahore, Pakistan. By identifying gaps in knowledge and understanding the factors influencing nursing practices, the findings will inform the development of targeted educational programs and policy reforms to enhance the quality of care for meningitis patients in Pakistan.

Methodology

The study utilized a descriptive cross-sectional design to assess the knowledge of nurses regarding meningitis care in a tertiary care hospital in Lahore, Pakistan. This design was selected to capture a comprehensive snapshot of the participants' knowledge within a specific time frame,

facilitating an understanding of the existing gaps in knowledge and practices.

A total of 142 nurses were included in the study, selected through a purposive sampling technique. Participants were recruited from various departments, including medical wards, surgical wards, ICUs, and CCUs, to ensure a diverse representation of nursing staff. The inclusion criteria required nurses to have at least one year of clinical experience in the care of meningitis patients. Nurses on extended leave or unwilling to participate were excluded. The sample size was determined based on the total number of eligible nursing staff in the hospital to ensure adequate statistical power. Data were collected using a structured, pre-validated questionnaire, designed based on existing literature and expert input to ensure reliability and content validity. The questionnaire consisted of two main sections: demographic characteristics and knowledge assessment. The demographic section included variables such as age, gender, marital status, educational qualifications, years of experience, and department of work. The knowledge assessment section comprised multiple-choice questions and true/false statements addressing the causes, symptoms, prevention, and management of meningitis. Ethical approval was obtained from the institutional review board of the hospital before initiating the study. Written informed consent was obtained from all participants after explaining the study's objectives and ensuring confidentiality and anonymity. Participants were informed of their right to withdraw from the study at any point without consequences. The data collection process was conducted during working hours, ensuring minimal disruption to patient care. Trained research assistants distributed the questionnaires and were available to clarify any queries during the data collection phase. Completed questionnaires were reviewed for completeness and securely stored for data entry and analysis.

Data analysis was performed using SPSS version 26. Descriptive statistics, including frequencies and percentages, were used to summarize demographic characteristics and knowledge levels. Inferential statistics, such as chi-square tests, were employed to examine associations between demographic variables and knowledge levels. Results were presented in tables and charts to ensure clarity and facilitate understanding.

Results

This study assessed the knowledge of nurses regarding the care of meningitis patients in a tertiary care hospital in Lahore, Pakistan. A total of 142 nurses participated in the study. The majority were female (66.2%) and aged between 31–35 years (33.1%). Most of the participants were married (54.9%), held a post- RN qualification (38.0%), and had 1–5 years of professional experience (42.3%). The majority worked in medical wards (31.7%) (Table 1).

The results revealed varied levels of knowledge among the participants. The majority had good knowledge about "What is meningitis?" (41.5%), but significant gaps were observed in knowledge about the types of meningitis and its medical management. Most participants responded correctly regarding the causes of meningitis, with 41.5% identifying viruses as a major cause (Table 2).

The results indicate that while a significant proportion of nurses have good knowledge about certain aspects of meningitis, there are critical gaps in their understanding of its management and prevention strategies. For instance, while 41.5% correctly identified inflammation of the meninges as meningitis, only 33.8% were aware of the use of IV fluids for its medical management. Similarly, knowledge about bacterial meningitis and its prevention strategies, such as vaccination, was limited among participants. These findings highlight the need for targeted training programs to enhance nurses' knowledge and improve their ability to manage meningitis effectively.

Table 1: Demographic Characteristics of Nurses

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	20–25	28	19.7
	26–30	44	31.0
	31–35	47	33.1
	36–40	23	16.2
Gender	Male	48	33.8
	Female	94	66.2
Marital Status	Single	64	45.1
	Married	78	54.9
Qualification	Diploma in Nursing	51	35.9
	Post RN	54	38.0
	BSN (Generic)	37	26.1
Experience (years)	1–5	60	42.3
	6–10	46	32.4
	11–15	36	25.4
Department	ICU	33	23.2
	CCU	40	28.2
	Emergency	45	31.7
	Surgical Wards	24	16.9

Table 2: Knowledge of Nurses about Meningitis

Question	Response	Frequency (n)	Percentage (%)
What is meningitis?	Inflammation of the meninges	59	41.5
	Hemorrhage from membranes	42	29.6
	Softening of the membrane	21	14.8
	Attachment of bones by membrane	20	14.1
What type of meningitis is more common?	Viral	57	40.1
	Cryptococcal	34	23.9
	Bacterial	20	14.1
	Carcinomatous	31	21.8
What are the causes of meningitis?	Virus	59	41.5
	Bacteria	48	33.8
	Upper respiratory tract infection	19	13.4
	Tobacco use	16	11.3
What are the prevention strategies?	Vaccination	44	31.0
	Avoid smoking	38	26.8
	Isolation	37	26.1
	Getting adequate rest	23	16.2
How can meningitis be controlled medically?	IV fluids	48	33.8
	Anticonvulsants	38	26.8
	Antibiotics	30	21.1
	Corticosteroids	26	18.3

Discussion

This study assessed the knowledge of nurses regarding the care of meningitis patients in a tertiary care hospital in Lahore, Pakistan. The findings reveal significant gaps in knowledge, particularly regarding the management and prevention of meningitis, consistent with previous studies conducted in similar settings.

The results indicated that while a significant proportion of nurses had good knowledge about the definition of meningitis (41.5%), knowledge about the types, causes, and medical management of meningitis was limited. For instance, only 33.8% of nurses identified IV fluids as part of medical management. These findings align with a study by Gupta et al. in India, where 40% of nurses lacked sufficient knowledge about meningitis management protocols due to inadequate training (9). Similarly, Rahman et al. in Bangladesh observed that nurses' limited understanding of meningitis management contributed to delays in initiating appropriate treatments (10). Knowledge about the causes of meningitis was also variable, with only 41.5% recognizing viruses as a major cause. These findings are comparable to those of Ahmed et al., who reported that most nurses in Pakistan had misconceptions about the aetiology of meningitis, leading to inconsistencies in their clinical approach (11). In developed countries, however, nurses generally demonstrate better knowledge of meningitis due to structured training programs and access to updated guidelines, as highlighted by Wang et al. in a study conducted in sub-Saharan Africa (12).

The gaps in knowledge regarding preventive strategies, such as vaccination, were particularly concerning. Only 31% of nurses identified vaccination as a preventive measure. This is consistent with the findings of Qureshi et al., who reported low awareness about meningitis vaccination among healthcare providers in Pakistan, citing limited access to educational resources as a key factor (13). In contrast, studies from high-income countries have demonstrated that comprehensive vaccination campaigns and nurse-led awareness programs significantly improve prevention strategies (14).

The demographic analysis in this study revealed that nurses with higher qualifications, such as Post RN and BSN, demonstrated better knowledge compared to those with diplomas. This aligns with findings by Hasan et al., who emphasized the importance of advanced nursing education in improving knowledge and clinical decision-making skills (15). Moreover, nurses with more years of experience were more likely to have better knowledge, consistent with studies by Rahman et al. and Ahmed et al., who highlighted the role of clinical exposure in enhancing knowledge levels (10, 11).

The findings also underscore the systemic challenges faced by nurses in Pakistan, including overcrowded hospitals, lack of access to updated guidelines, and inadequate training opportunities. These issues have been widely documented in the literature, including a study by Saeed et al., which highlighted the need for targeted training programs and institutional support to address knowledge gaps among nurses in infectious disease management (16).

This study's findings align with previous research, emphasizing the need for targeted educational interventions, integration of meningitis-specific modules into nursing curricula, and continuous professional development programs. Addressing these gaps is crucial for enhancing the knowledge and skills of nurses, ultimately improving patient outcomes in meningitis care.

Conclusion

This study highlights significant gaps in the knowledge of nurses regarding the care of meningitis patients in a tertiary care hospital in Lahore, Pakistan. While some nurses demonstrated good knowledge about the basic definition and causes of meningitis, there were critical deficiencies in understanding its types, prevention, and management strategies. Nurses with higher qualifications and more clinical experience exhibited

better knowledge, underscoring the importance of advanced training and continuous professional development. Targeted educational programs, integration of updated clinical guidelines, and institutional support are essential to enhance the competency of nurses in managing meningitis effectively.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department Concerned. (IRBEC-SNU-099331/23)
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Not applicable

Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution

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Coordination of collaborative efforts. Data entry and Data analysis, drafting article.
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