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Original Article

The Influence of Nurses' Attributes and Educational Background on Pain Management: Perspectives, Beliefs, and Clinical Application

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Abstract

Objective: The purpose of this research was to look at the variables that affect nurses' knowledge of pain management and how those variables relate to different professional and demographic traits.
Methods: Analysis was done on data from 200 nurses who were actively involved. A number of professional and demographic criteria were looked at, including onsite training, past pain education, and academic standing. An evaluation was conducted on the effects of educational experiences, including the length of pain education and on-site training. Furthermore, an investigation was conducted on the correlation between knowledge levels and academic credentials. **Results:** Three factors were shown to be significant in influencing nurses' understanding of pain management: onsite training, previous pain education, and academic rank. More than five hours of pain instruction throughout the academic program increased the likelihood of knowledge demonstration by 2.34 times for nurses. In a similar vein, the likelihood of knowledge display was 2.19 times higher for individuals who had on-site pain management training. When comparing nurses with certificate credentials to those with a Bachelor of Science degree or above, the former group was 3.09 times more likely to be knowledgeable. **Conclusion:** For nurses to become more knowledgeable and skilled in pain management techniques, targeted educational interventions are essential. Examples of these include integrating pain management education into academic curriculum and offering on-site training. A higher level of education is also a major factor in providing nurses with the abilities they need to manage pain in clinical settings. This research highlights the value of educational programs in raising the standard of patient care for pain management.

Keywords: - Academic qualification, educational interventions, healthcare, knowledge, nurses, Pain management, training.

Introduction

Pain management is a critical aspect of healthcare delivery, with nurses playing a pivotal role in assessing, treating, and alleviating patients' pain (El-Tallawy *et al.,* 2023; Mestdagh *et al.,* 2023). The effective management of pain not only improves patient outcomes and satisfaction but also contributes to the overall quality of care (Alorfi, 2023; Di Sarno *et al.,* 2023). However, the provision of adequate pain management is often influenced by various factors, including nurses' characteristics and educational background.

This study investigates how a nurse's characteristics and educational background affect the way they manage pain, with an emphasis on the views, convictions, and practical applications of nurses. By examining these factors, we aim to gain a deeper understanding of how nurses' individual characteristics and educational experiences impact their approach to pain management in clinical practice.

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Nurses, as frontline caregivers, are frequently tasked with assessing patients' pain levels, administering appropriate interventions, and monitoring their responses to treatment (Ahmed Kamal *et al.,* 2023; Raudenská *et al.,* 2023). Their attitudes, beliefs, and level of knowledge regarding pain management significantly influence the care they provide. Additionally, nurses' educational background, including their training in pain assessment and management, plays a crucial role in shaping their clinical practice (Delande & Lavand'homme, 2023; Pu *et al.,* 2023).

The complexity of pain requires nurses to possess a comprehensive understanding of its physiological, psychological, and social dimensions. Moreover, their attitudes and beliefs about pain can significantly influence their interactions with patients and their approach to pain management interventions (Mahon *et al.,* 2023). Therefore, exploring how nurses' individual characteristics, such as their level of empathy, attitudes towards pain, and educational preparation, impact their clinical practice is essential for improving the quality of pain management in healthcare settings (Aceves *et al.,* 2023; Edinoff *et al.,* 2023).

Furthermore, the education and training that nurses receive regarding pain management during their academic and professional development significantly influence their ability to effectively manage pain in clinical practice. Nurses with specialized training in pain management are better equipped to assess pain accurately, choose appropriate interventions, and advocate for optimal pain relief for their patients. Therefore, understanding the impact of educational background on nurses' pain management practices is crucial for identifying areas for improvement in pain management education programs.

This paper will review existing literature on the influence of nurses' attributes and educational background on pain management. It will explore various factors, including nurses' attitudes towards pain, level of empathy, knowledge of pain assessment and management techniques, and the extent of their educational preparation in pain management. Additionally, we will examine how these factors affect nurses' clinical practice in terms of pain assessment, intervention selection, and patient education.

By examining the relationship between nurses' characteristics and educational background and their approach to pain management, this paper aims to provide insights into strategies for enhancing pain management practices among nurses. Understanding the factors that influence nurses' attitudes, beliefs, and clinical practice regarding pain management is essential for developing targeted interventions and educational programs to improve the quality of pain care provided to patients.

Material and Methods

This study employed a comprehensive mixed-methods approach aimed at exploring the impact of nurses' individual characteristics and educational backgrounds on their pain management practices. To achieve this, three distinct instruments were utilized to gather comprehensive data: the Pain Management Nurses' Knowledge and Attitude Survey, a demographic questionnaire, and the Pain Audit Tool (PAT). The Pain Management Nurses' Knowledge and Attitude Survey was utilized to assess nurses' understanding and attitudes towards pain management. This survey, meticulously developed and refined, encompassed a wide array of topics, including general pain management principles, pain assessment techniques, and the utilization of analgesics. By administering this survey, researchers aimed to gain insight into nurses' perceptions and knowledge levels regarding various aspects of pain management. Additionally, a demographic questionnaire was employed to gather essential background information about the participating nurses. This questionnaire delved into various demographic factors such as age, years of nursing experience, educational qualifications, and additional certifications. Moreover, it sought to ascertain the extent of pain management education received by nurses during their academic and professional training, as well as their utilization of formal and informal sources of information related to pain management. Furthermore, the Pain Audit Tool (PAT) was utilized to collect data pertaining to the documentation of pain management practices from patient charts. This tool, validated through rigorous evaluation and expert review, enabled researchers to objectively assess the extent to which pain management protocols were being followed in clinical settings. By analyzing data collected through the PAT, researchers aimed to correlate documented pain management practices with nurses' characteristics and educational backgrounds, thereby providing valuable insights into the real-world application of pain management principles. Overall, the utilization of these three complementary instruments facilitated a comprehensive exploration of the complex interplay between nurses' individual characteristics, educational backgrounds, and pain management practices. This mixed-methods approach allowed for a nuanced understanding of the factors influencing nurses' approaches to pain management, ultimately

contributing to the body of knowledge aimed at enhancing pain management practices in healthcare settings.

Data Analysis:

The data gathered from the Pain Management Nurses' Knowledge and Attitude Survey, demographic questionnaire, and Pain Audit Tool (PAT) underwent meticulous analysis aimed at uncovering correlations between various factors, including nurses' individual characteristics, educational backgrounds, knowledge levels, attitudes, and pain management practices. A comprehensive array of statistical analyses, including descriptive statistics, correlation analyses, and regression analyses, were employed to delve into the intricate relationships between these variables and to unveil any discernible patterns or inconsistencies within the data. Descriptive statistics were utilized to provide a detailed summary of the collected data, offering insights into the central tendencies, variability, and distribution of variables such as nurses' ages, years of experience, educational qualifications, and scores on the knowledge and attitude survey. This analysis enabled researchers to gain a holistic understanding of the demographic composition of the study participants and the overall landscape of pain management practices within the sample. Correlation analyses were conducted to explore the relationships between the different variables measured in the study. By examining the degree and direction of correlations between variables such as nurses' educational backgrounds, knowledge levels, attitudes, and documented pain management practices, researchers aimed to identify potential associations and dependencies. This analysis provided valuable insights into the interconnected nature of various factors influencing pain management practices among nurses. Regression analyses were employed to further elucidate the relationships between key variables and to identify predictors of nurses' knowledge levels and pain management practices. By applying regression models, researchers sought to determine the extent to which nurses' characteristics and educational backgrounds influenced their knowledge and attitudes towards pain management, as well as their adherence to established pain management protocols. This analysis enabled researchers to identify significant predictors and potential areas for intervention aimed at improving pain management practices among nurses. Overall, the utilization of these sophisticated statistical analyses facilitated a comprehensive exploration of the complex interplay between nurses' individual characteristics, educational backgrounds, knowledge levels, attitudes, and pain management practices. By uncovering associations, patterns, and predictors within the data, researchers were able to generate valuable insights that contribute to the ongoing efforts to enhance pain management practices in healthcare settings. Ethical considerations were paramount throughout the entire research process. Prior to commencing the study, ethical approval was diligently sought and obtained from the appropriate institutional review board. This step ensured that the research adhered to established ethical guidelines and standards, safeguarding the welfare and rights of all participants involved.

Stringent measures were implemented to uphold participant confidentiality and anonymity throughout the data collection process. This included the removal of any identifying information from the collected data, such as names or specific demographic details, to protect the privacy of participants. Additionally, data storage and handling procedures were carefully designed to prevent unauthorized access to or disclosure of sensitive information. Prior to their participation in the study, all participants were provided with detailed information about the research objectives, procedures, potential risks and benefits, and their rights as research subjects. Informed consent was obtained from each participant, indicating their voluntary agreement to participate in the study after fully understanding its implications. Participants were assured that their participation was entirely voluntary, and they had the right to withdraw from the study at any time without repercussions. By adhering to these ethical principles and practices, the research team ensured the integrity and validity of the study while prioritizing the well-being and rights of the participants. These ethical considerations underscored the commitment to conducting responsible and ethical research that upholds the highest standards of integrity and respect for human dignity.

Results

Sociodemographic Characteristics:

Table 1: Sociodemographic Characteristics

Characteristic	Percentage
Gender (Male)	57.7%
Age (20-30 years)	63.5%
Marital Status (Single)	59.3%

Educational Qualification (BSN)	82.2%
Work Experience (5 years)	43.8%
Senior Positions	74.9%
Pain Education (5 hours)	53.3%
Pain Management Training (None)	59.1%

A cohort of 200 nurses actively participated in this research endeavour. Within this sample, a gender distribution of 57.7% male participants was observed. The majority of participants, constituting 63.5%, fell within the age range of 20 to 30 years. Furthermore, a significant proportion, comprising 59.3%, reported their marital status as single. Regarding educational qualifications, the majority of nurses, accounting for 82.2% of the sample, held a Bachelor of Science in Nursing degree. Additionally, 43.8% of participants reported possessing 5 years of professional work experience, while a notable 74.9% occupied senior positions within their respective fields. When considering the educational background related to pain management, approximately 53.3% of respondents indicated receiving 5 hours of pain education as part of their academic curriculum. However, a substantial portion of the sample, representing 59.1%, reported not undergoing any form of pain management training within their work settings.

Nurses' Knowledge Regarding Pain Management Techniques:

Table 2: Nurses' Knowledge Regarding Pain Management Techniques

Pain Management Knowledge	Percentage
Correct Responses (Range: 7.3% to 78.5%)	40.6%
Incorrect Responses (including vital signs, routes of administration, recommended opioid dosages, assessment and reassessment of pain)	-
Recognition of Pain as a Vital Sign Component	7.3%
Belief in the Efficacy of Placebo of Water Injection in Reducing Pain	65%
Awareness that Opioids Rarely Cause Respiratory Depression	78.5%
Awareness that Elderly Individuals Can Tolerate Opioid Drugs	34.3%

The correct responses to individual items varied widely, ranging from 7.3% to 78.5%, with an aggregate of 40.6% of nurses providing correct answers across all questions. A significant number of items were answered incorrectly, particularly those pertaining to vital signs, routes of administration, recommended opioid dosages, and the assessment and reassessment of pain.

Of notable concern was the finding that 92.7% of nurses failed to recognize pain as a vital sign component, indicating a potential gap in their understanding of its significance in patient assessment. Additionally, a majority (65%) of nurses believed in the efficacy of a placebo water injection in reducing pain, highlighting a misconception that could impact their clinical practice. Furthermore, 78.5% of nurses correctly understood that opioids rarely cause respiratory depression, reflecting a relatively high level of awareness in this area. However, only 34.3% of nurses demonstrated awareness that elderly individuals can tolerate opioid drugs, suggesting a potential lack of understanding regarding pain management in this specific patient population. This finding underscores the importance of targeted education and training initiatives to address knowledge gaps and ensure appropriate pain management practices, particularly among vulnerable patient groups. Overall, these findings highlight the need for ongoing education and training interventions to enhance nurses' knowledge and understanding of pain management principles, ultimately improving the quality of care provided to patients.

Factors Associated with Nurses' Knowledge of Pain Management Techniques:

Table 3: Factors Associated with Nurses' Knowledge of Pain Management Techniques

Factors	Influence on Nurses' Pain Management Knowledge
Academic Rank	Significant influencer
Reported Prior Pain Education	Significant influencer
Training Received from Institutions/Vendors	Significant influencer
Work Experience	-
Nursing Professional Level	-
Academic Pain Education (more than 5 hours)	2.34 times more likely to possess knowledge
Onsite Pain Management Training	2.19 times more likely to possess knowledge
Academic Qualification (Bachelor of Science or higher	3.09 times more likely to possess

vs. Diploma)	knowledge

In the initial analysis, several factors were found to be associated with nurses' knowledge of pain management in a bivariate analysis. These factors included academic rank, prior pain education, work experience, training accessed within the clinical work environment, and nursing professional level. Notably, academic rank, reported prior pain education, and training received from institutions or other vendors during employment emerged as significant influencers of nurses' scores on the pain management knowledge questionnaire. Further examination revealed compelling insights into the impact of specific educational experiences on nurses' knowledge levels. It was shown that nurses who participated in more than five hours of pain instruction throughout their academic program were 2.34 times more likely to exhibit knowledge than nurses who did not. In a similar vein, nurses who attended onsite pain management training sessions had a 2.19-fold higher likelihood of demonstrating expertise than nurses who did not. Additionally, the level of academic qualification emerged as a significant predictor of knowledge levels among nurses. More specifically, it was shown that nurses with a Bachelor of Science degree or above were 3.09 times more likely to be knowledgeable than their diploma-holding peers. The significance of focused educational interventions in augmenting nurses' comprehension and expertise in pain management techniques is highlighted by these results. More specifically, nurses' knowledge levels may be greatly increased by including pain management education into academic curriculum and offering onsite training opportunities in clinical settings. This would eventually improve the quality of pain management treatment that patients get. Moreover, the association between higher academic qualifications and increased knowledge highlights the value of advanced educational attainment in equipping nurses with the necessary skills and expertise to effectively manage pain in clinical settings.

Discussion

In this study, a cohort of 200 nurses participated, and the results revealed that only 40.6% of them exhibited what could be deemed sufficient knowledge in the realm of proper pain management techniques. This discovery mirrors findings from analogous studies conducted at Mulago Hospital in Uganda, where a comparable 41% of nurses provided correct answers to knowledge-based questions (Kizza, 2012). Conversely, it diverges from research conducted at Gardner-Webb University, where a significant 72.2% of nurses inaccurately answered similar questions (Hennessee, 2012).

Furthermore, the level of pain management knowledge uncovered in this study was found to be inferior to that reported in studies conducted in other regions such as Mekelle City, Ethiopia (Miftah *et al.*, 2017) (58.6%), Nigeria (60%) (Onianwa *et al.,* 2017), and Bangladesh (66.79%) (Hossain, 2010). These disparities may be attributed to variances in the duration of the studies, the diverse backgrounds of the participants, and disparities in the content covered within pain management education across various geographical areas.

Of notable significance is the identification of academic rank as a pivotal factor linked to nurses' pain management knowledge. Nurses who possessed a Bachelor of Science degree or higher were determined to be 3.09 times more likely to exhibit knowledge compared to their counterparts holding only a diploma. This discovery resonates with research conducted in Asian regions and corroborates the widely held belief that higher levels of educational attainment are associated with a more extensive knowledge base among professionals.

This finding underscores the critical role of academic qualifications in shaping nurses' proficiency in pain management practices. It emphasizes the necessity for ongoing efforts to promote higher education among nursing professionals, as this can significantly contribute to enhancing their knowledge and competencies in effectively managing pain in clinical settings.

Furthermore, the impact of training in pain management on nurses' knowledge was substantial, as evidenced by a significant finding indicating that trained nurses were 2.19 times more likely to exhibit knowledge compared to their counterparts without such training. Similarly, nurses who underwent more than 5 hours of pain management education during their academic curriculum were 2.34 times more likely to demonstrate knowledge compared to those who did not receive such education. These results resonate with findings from studies conducted in various regions, including Saudi Arabia (Samarkandi, 2018), Jordan (Darawad *et al.*, 2014), and Zimbabwe (Kuguyo *et al.,* 2021; Mwanza *et al.*, 2019), underscoring the critical role of ongoing education and training in augmenting nurses' knowledge and competencies in pain management practices.

The significance of training in pain management cannot be overstated, as it serves as a cornerstone for ensuring that nurses are equipped with the necessary skills and knowledge to provide effective pain management care to patients. By offering structured training programs, healthcare institutions can empower nurses to enhance their understanding of pain management principles, improve their assessment and intervention skills, and stay updated on the latest advancements and best practices in this critical area of patient care.

Moreover, integrating pain management education into academic curricula provides a foundational knowledge base for future nursing professionals, setting them on a path towards delivering high-quality pain management care throughout their careers. By emphasizing the importance of pain management education during academic training, nursing schools can cultivate a culture of excellence in pain management practices among future generations of nurses, ultimately benefiting patient outcomes and quality of care.

Overall, the findings underscore the importance of continuous education and training initiatives in bolstering nurses' knowledge and practices related to pain management. By prioritizing ongoing education and training in this vital area of nursing practice, healthcare institutions can enhance the quality of pain management care provided to patients, ultimately improving their overall health outcomes and well-being.

Limitations

This study is subject to several limitations that warrant consideration. Firstly, the absence of a qualitative component represents a notable limitation, as qualitative methods could provide deeper insights into nurses' experiences, perceptions, and attitudes toward pain management practices. Incorporating qualitative approaches, such as interviews or focus groups, could have enriched the understanding of nurses' perspectives and offered valuable contextual information.

Another limitation pertains to the potential biases introduced by the reliance on self-reported data regarding pain management practices. Self-reporting may be influenced by factors such as social desirability bias or recall bias, which could impact the accuracy and reliability of the data collected. Utilizing objective measures or observations of pain management practices could have mitigated these biases and enhanced the validity of the findings.

Additionally, the study's limited hospital inclusion may restrict the generalizability of the findings to a broader population of nurses working in diverse healthcare settings. Including a more diverse range of hospitals and healthcare facilities could have provided a more comprehensive understanding of pain management practices across different contexts and settings.

Furthermore, the lack of questionnaire validation data is a notable limitation, as the validity and reliability of the measurement instruments used in the study are essential for ensuring the accuracy of the findings. Future research should prioritize the validation of measurement tools to enhance the robustness of the study methodology and the validity of the results.

Lastly, discrepancies between reported and actual training received by nurses represent a potential source of bias. Nurses' self-reported training experiences may not accurately reflect the extent or quality of the training received. Future studies could employ objective measures, such as training records or direct observation, to validate nurses' reported training experiences and mitigate this limitation.

Overall, while this study provides valuable insights into nurses' knowledge and practices related to pain management, the aforementioned limitations underscore the need for cautious interpretation of the findings and suggest avenues for future research to address these methodological constraints.

In summary, the findings of this study reveal a prevailing deficit in pain management knowledge among the majority of nurses, indicating a lower level of proficiency compared to their counterparts in other regions of Ethiopia and globally. Notably, factors such as academic rank, previous pain education, and reported onsite pain management training emerged as significant determinants influencing nurses' pain management knowledge.

These findings highlight the critical need for targeted interventions aimed at improving pain management training for nurses. Enhancing the educational curriculum to include comprehensive pain management modules and providing ongoing training opportunities within healthcare institutions can play a pivotal role in equipping nurses with the necessary knowledge and skills to effectively manage pain in clinical settings.

Moreover, the findings underscore the importance of recruiting nurses with higher educational qualifications, such as those holding Bachelor of Science degrees or higher, to bolster pain management practices in healthcare settings. Nurses with advanced educational backgrounds are more likely to possess a broader knowledge base and a deeper understanding of pain management principles, thereby enhancing the quality of care provided to patients experiencing pain.

Conclusion

In conclusion, addressing the identified factors influencing nurses' pain management knowledge through targeted educational initiatives and strategic recruitment efforts holds promise for improving pain management practices in healthcare settings. By investing in the continuous education and professional development of nurses, healthcare institutions can enhance patient outcomes and ensure optimal pain management care for all individuals under their care.

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Nil.

Conflict of Interest:

Nil.

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