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KNOWLEDGE OF NURSES REGARDING FIRST AID MANAGEMENT OF BURN INJURY: A CROSS-SECTIONAL STUDY AT BURN UNIT, SAIDU TEACHING HOSPITAL, SWAT

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Abstract

Background of the study: *Burn wound is significant public health concern worldwide, accounting for round about 180,000 mortalities annually, according to the World Health Organization (WHO).[1]Most burn-related mortalities occur in under developing countries, where access to dedicated care and resources is imperfect. Worldwide, burn injury is ranked as the fourth leading cause* ***of*** *after road traffic accidents, falls, and interpersonal physical violence among injuries. Method: The research used a cross-sectional study to determine nurse comprehension of burn injury first aid methods at Saidu Teaching Hospital Burn Unit in Swat. Research participants were chosen through a calculation performed using Raosoft online calculator. A survey of 169 registered nurses took place through a confidence interval of 95% and margin of error at 5% and response distribution of 50%.* ***Result:*** *The age distribution of participants was across three age groups: 24–27 years, 28–31 years, and 32–35 years. Majority,* ***68.05%,*** *of the participants were married, while the remaining 31.95% were unmarried. This indicated that most of the respondents in the study belonged to the married category, with a smaller proportion being unmarried. Data was collected from nurses of different wards. 59.17 % of the participants were from ward, 5.33% were from burn unit. 22.49 % and 13.02 % were from ICU and emergency department respectively.* ***Discussion:*** *The findings of this study reveal a high overall knowledge level (75.15%) among nurses regarding the management of burn patients, with demographic and professional factors contributing*

significantly to variations in knowledge. These results are encouraging, especially when compared to a similar study conducted in Peshawar, where only 56% of participants demonstrated good knowledge, with 32% showing average knowledge and 12% reporting low knowledge. This discrepancy highlights potential differences in educational programs, training opportunities, and clinical exposure between the two settings.

INTRODUCTION

Burn wound is significant public health concern worldwide, accounting for round about **180,000 mortalities annually**, according to the World Health Organization (WHO).[1]Most burn-related mortalities occur in under developing countries, where access to dedicated care and resources is imperfect. Worldwide, burn injury is ranked as the **fourth leading cause of** after road traffic accidents, falls, and interpersonal physical violence among injuries.[2] Survival rate has improved in developed countries due to developments in burn care, the burden remains strangely higher in under developing countries, including Pakistan, due to insufficient first aid knowledge, delayed treatment, and lack of infrastructure.[3]

Burn injury is not only causing physical and psychological trauma but also has significant contribution to economic losses.[4] The World Health Organization estimated that burn injury results **in millions of disability-adjusted life years** lost annually, associated with prolonged hospital stay and rehabilitation needs.[1] In South Asia, burn account for **11% of all unintended injuries,** with women and children being predominantly susceptible due to domestic accidents involving open flames, boiling liquids, and unsafe cooking practices.[5]

In Pakistan, the incidence of burn injury is high alarmingly, with an expected **265,000 cases reported annually, of which 10% need hospitalization, and 6,000 die from complications.**[6] These injuries often result from domestic accidents, workplace hazards, and acts of violence, especially in rural areas where awareness and healthcare resources are limited. Burn units are very rare, and those that exist are often have lack of required and necessary resources.[7] In Swat, healthcare facilities face challenges such as a lack of well-trained health care professionals and insufficient access to evidence-based first aid protocols.

Regardless of the crucial role of nurses in the acute management of burn injury, multiple studies suggest that their knowledge and training in this area remain inadequate. Research conducted in tertiary care hospitals in Pakistan reported **60-70 percentage of nurses are unaware of first aid practices that is necessary at optimal level**, such as cooling the burn area with running water and avoiding injurious practices like applying traditional remedies. This knowledge gap can lead to poor patient expected outcomes, amplified infection rates, and lengthy recovery times.

Methodology

Study Design

The research used a cross-sectional study to determine nurse comprehension of burn injury first aid methods at Saidu Teaching Hospital Burn Unit in Swat. The cross-sectional study format provides a reliable option for measuring participant knowledge levels at present moment.

Study Settings

The Burn Unit of Saidu Teaching Hospital, Swat serves as the study site because it operates as a tertiary care facility that focuses on specialized burn patient treatment in the region.

Study Duration

The research lasted three months while collecting data and evaluating results before obtaining ethical permission at the beginning of the study.

Sample Size

Research participants were chosen through a calculation performed using Raosoft online calculator. A survey of 169 registered nurses took place through a confidence interval of 95% and margin of error at 5% and response distribution of 50%.

Sampling Technique
A census sampling was employed to include all eligible nurses working in the Burn unit during the study period. This approach ensured comprehensive data collection from the target population.

Inclusion Criteria
The study included nurses who met the following criteria:
- **Registered nurses** working in the Burn Unit of Saidu Teaching Hospital, Swat.
- Nurses with at least six months of experiences in burn care or emergency care of burn patient.
- Nurses who were to participate in the study and provided informed consent.
- Nurses who were available during the data collection period.

Exclusion Criteria
The following individuals were excluded from the study:
- Nurses with less than six month of experience in burn care or emergency care.
- **Student nurses or trainees** who were not fully registered.
- Nurses who declined to participate or did not provided informed consent.

Data Collection Procedure
Ethical approval was obtained from the relevant institutional review board of Saidu Teaching Hospital, Swat. Permission to conduct the study was sought from the hospital administration and the head of the Burn Unit.

1. **Participant Recruitment**:
Eligible nurses were identified based on the inclusion and exclusion criteria. They were briefed about the study's objectives, significance, and procedures. Written informed consent was obtained from those willing to participate.

2. **Data Collection Tool**:
A **structured questionnaire** was designed to assess nurses' knowledge of first aid management for burn injuries. The questionnaire included sections on:
- Burn severity classification.
- Initial interventions for burn injuries.
- Principles of wound care.
- Strategies for preventing burn complications.

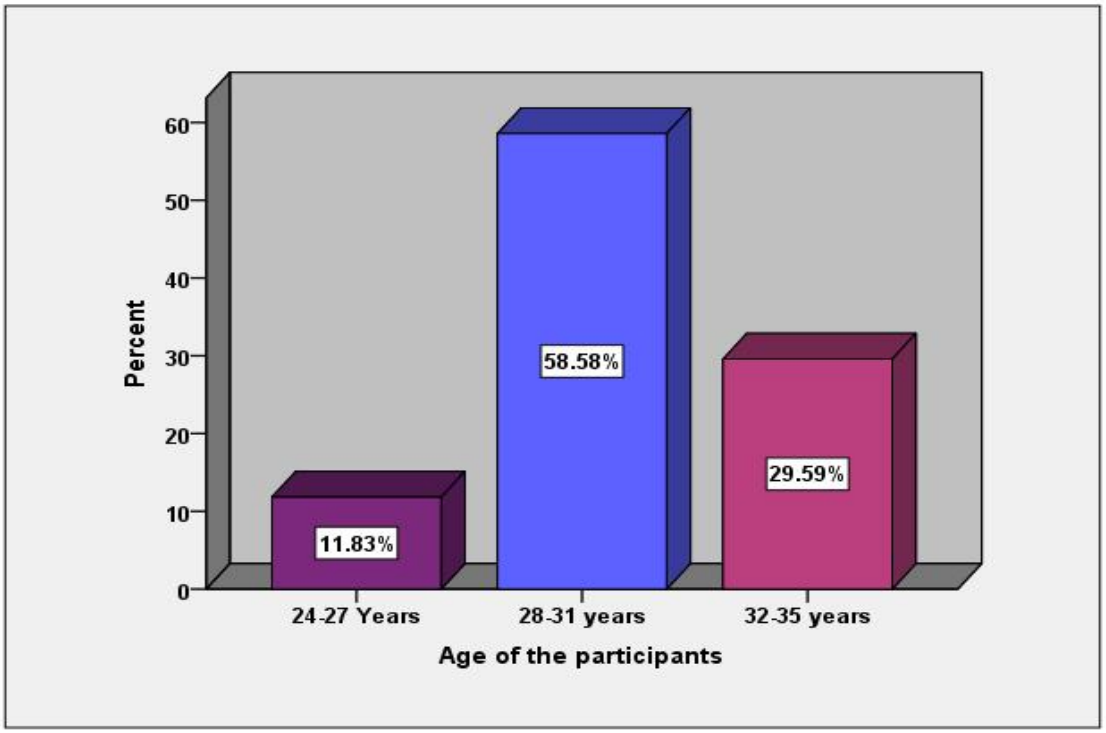
3. **Administration of the Questionnaire**:
Each participant completed the questionnaire individually in a private setting to ensure confidentiality and reduce the likelihood of biased responses. The researcher was present to clarify any questions and ensure proper completion of the tool.

4. **Data Security**:
Completed questionnaires were securely stored in a locked cabinet. All data received secure encryption before entry into an analysis database.

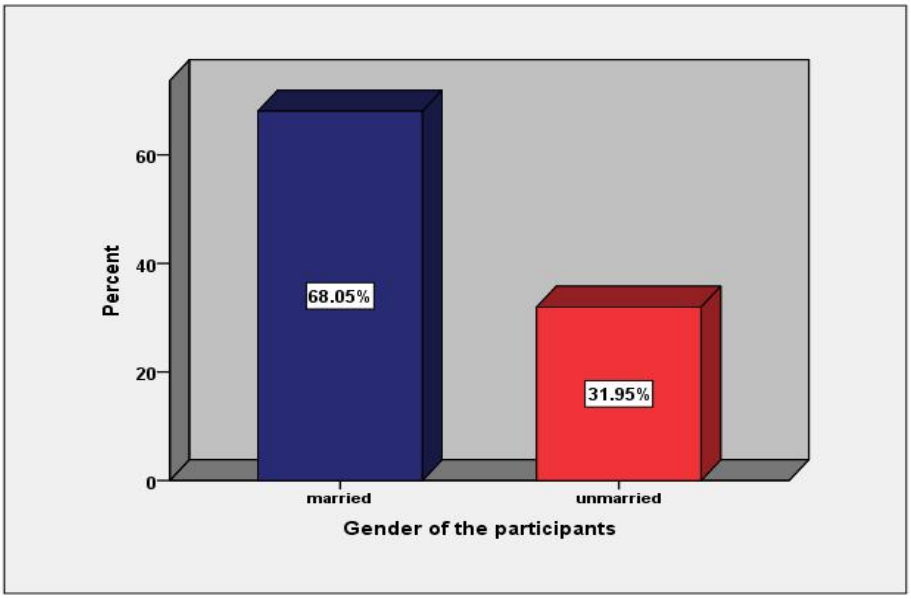
5. Data Analysis
The researchers completed their analysis through SPSS version 22.0 according to a clear procedure. A software-reviewed the data gathered from the returned questionnaires to verify both completeness and accuracy before entering it into the system. Participant demographic data including age and gender and years of experience were presented as frequencies and percentages and the overall knowledge scores were analyzed using means and standard deviations. Bar charts alongside other visuals depicted knowledge levels to boost comprehension among the audience.

Results and Analysis

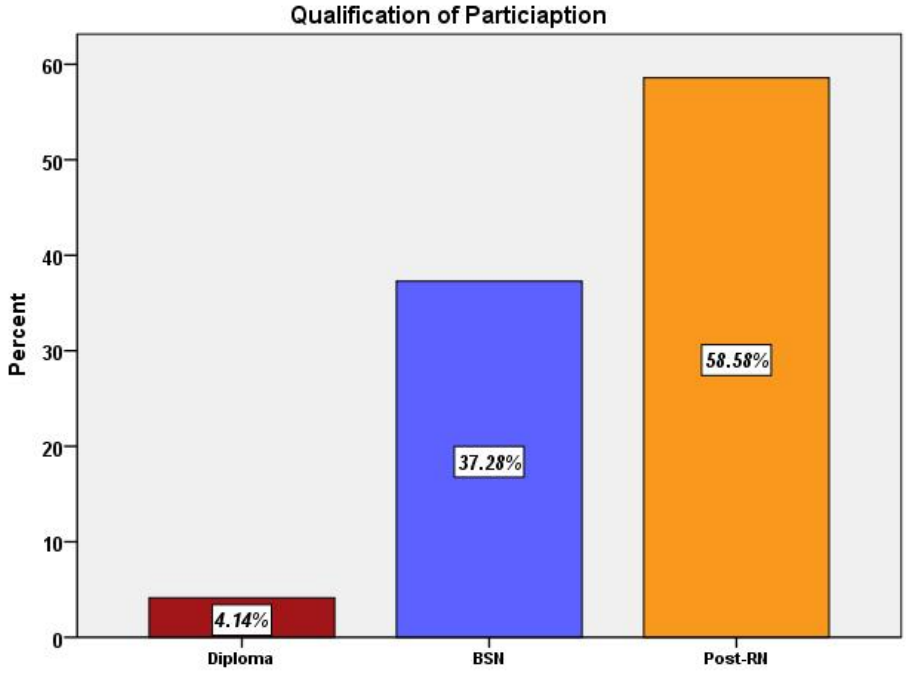
Demographics



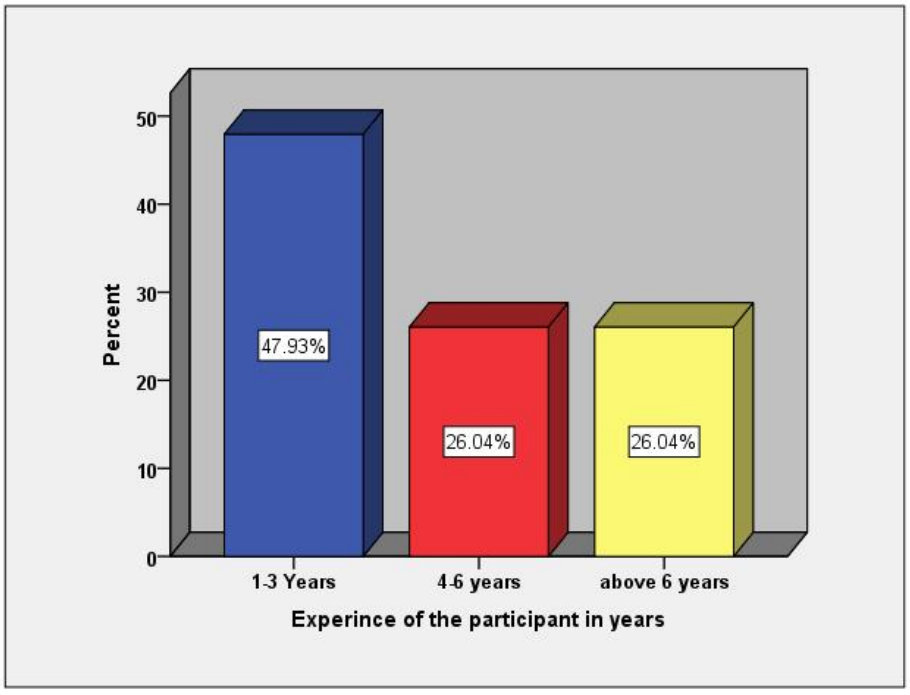
The age distribution of participants was across three age groups: 24–27 years, 28–31 years, and 32–35 years. The x-axis represents the age groups, while the y-axis indicates the percentage of participants in each group. The smallest age group, 24–27 years, accounts for 11.83% of the participants, whereas the largest group, 28–31 years, comprises 58.58% of the total. The remaining 29.59% of participants belong to the 32–35 years age group. This data shows that the majority of participants are in the 28–31 years age range, with the 24–27 years group having the least representation.



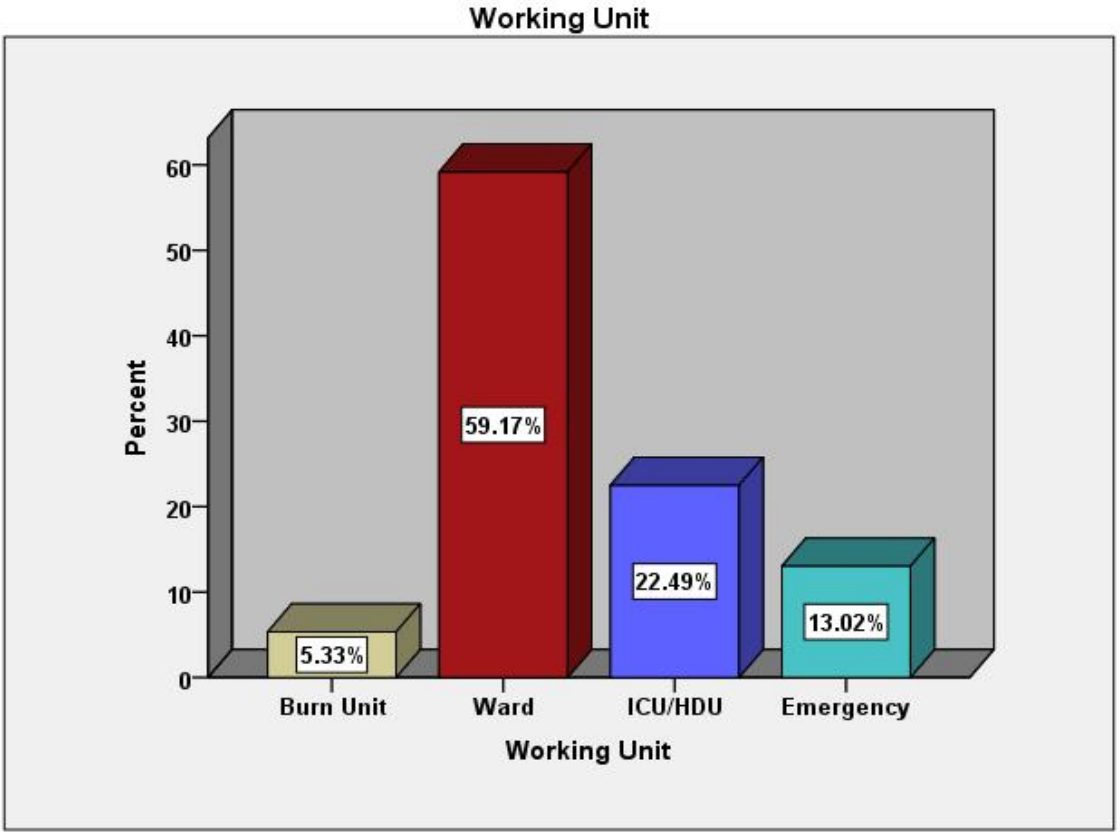
Majority, **68.05%**, of the participants were married, while the remaining **31.95%** were unmarried. This indicated that most of the respondents in the study belonged to the married category, with a smaller proportion being unmarried.



With respect to education, the participants were classified into three categories. **4.14%** of the participants held a diploma, **37.28%** had a BSN qualification, and **58.58%** had a Post-RN qualification.

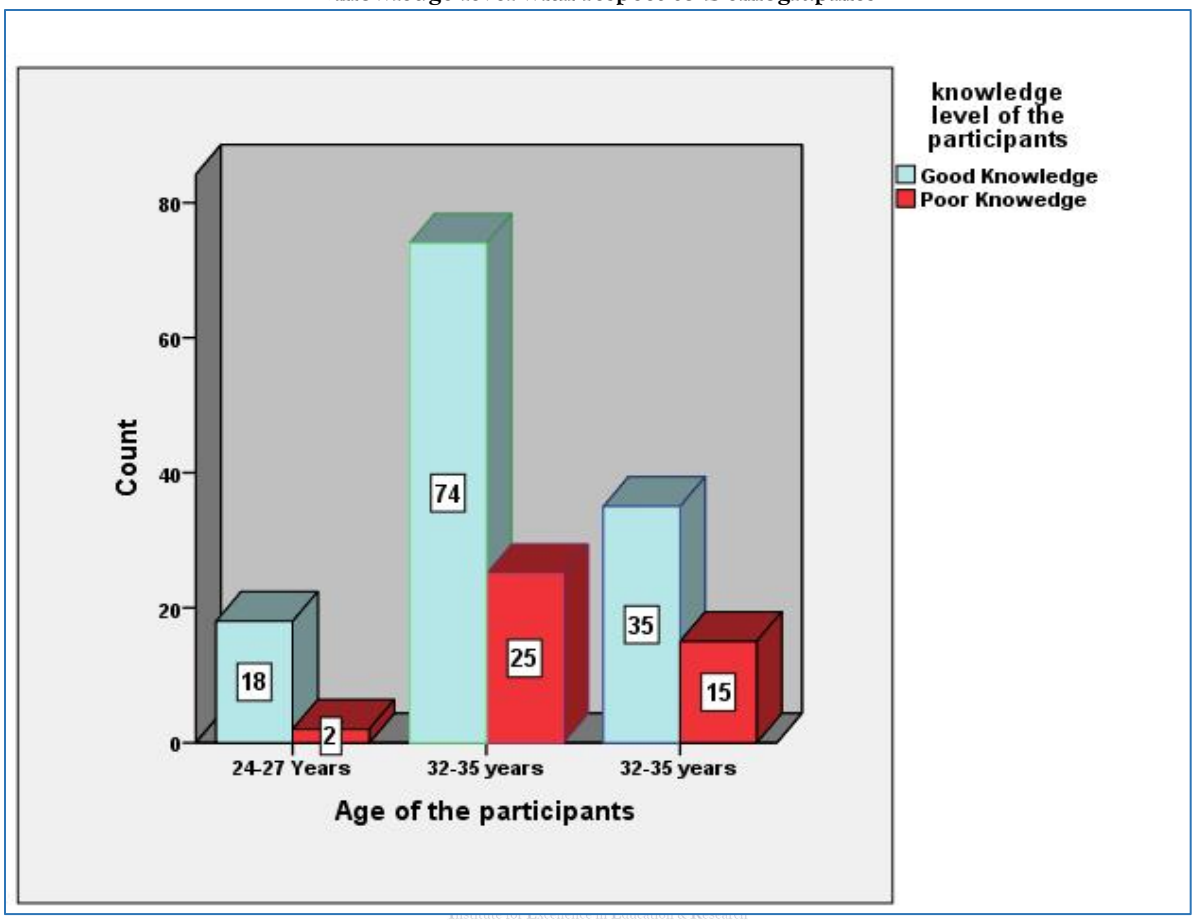


Experience wise, the participant were classified as having experience of 1-3 years, 4 to 6 years and above 6 years. 47.93 % of the participant were have 1-3 years of experience, 26.04 % were have 4 to 6 years of experience while 26 % were have above 6 years of experience.

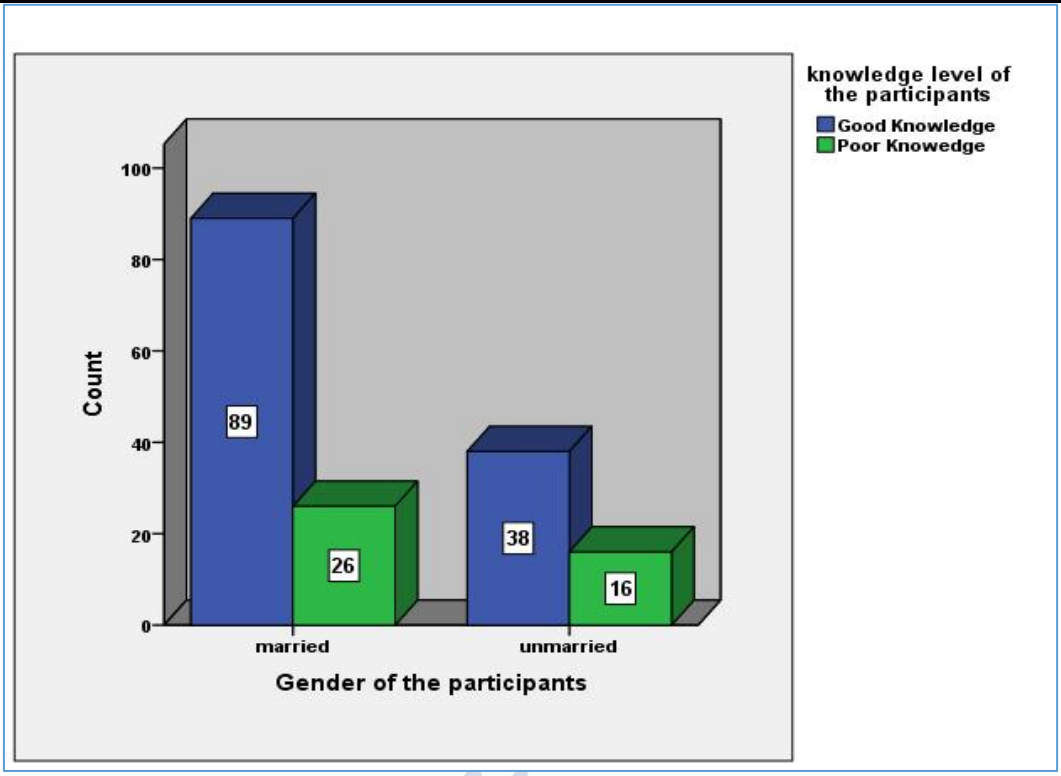


Data was collected from nurses of different wards. 59.17 % of the participants were from ward, 5.33% were from burn unit. 22.49 % and 13.02 % were from ICU and emergency department respectively.

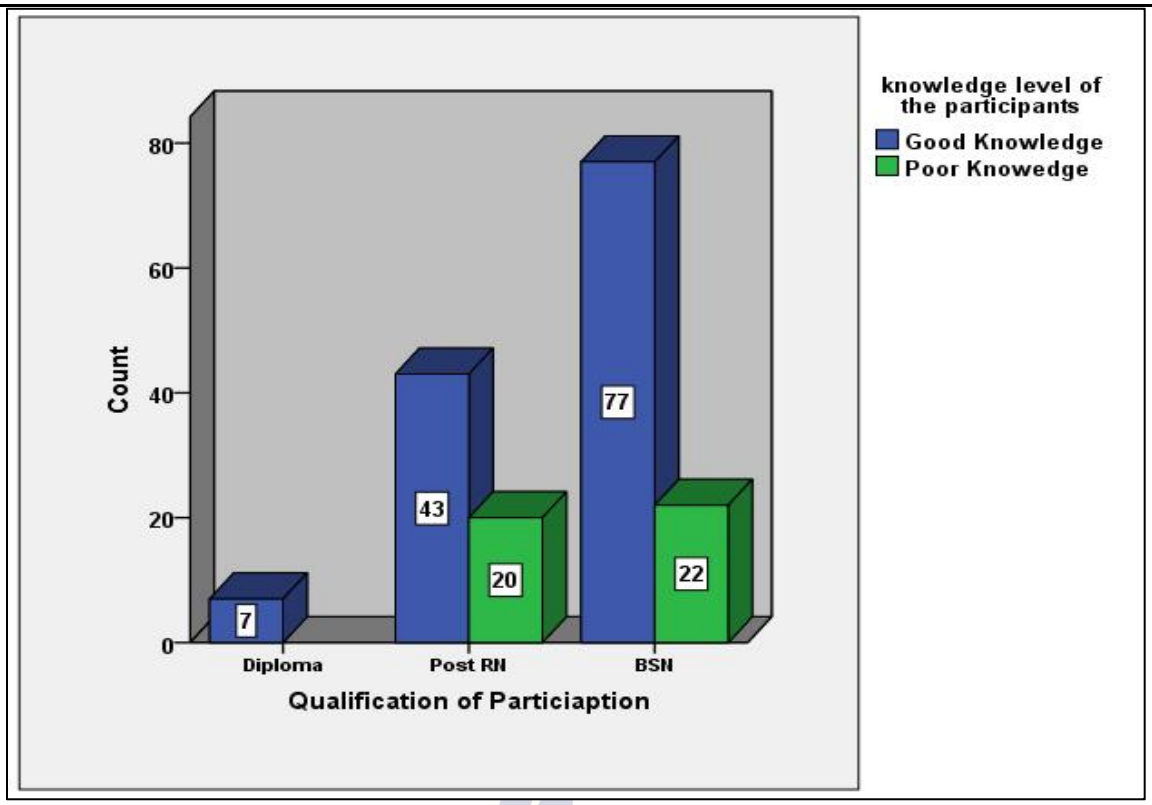
Knowledge level with respect to Demographics



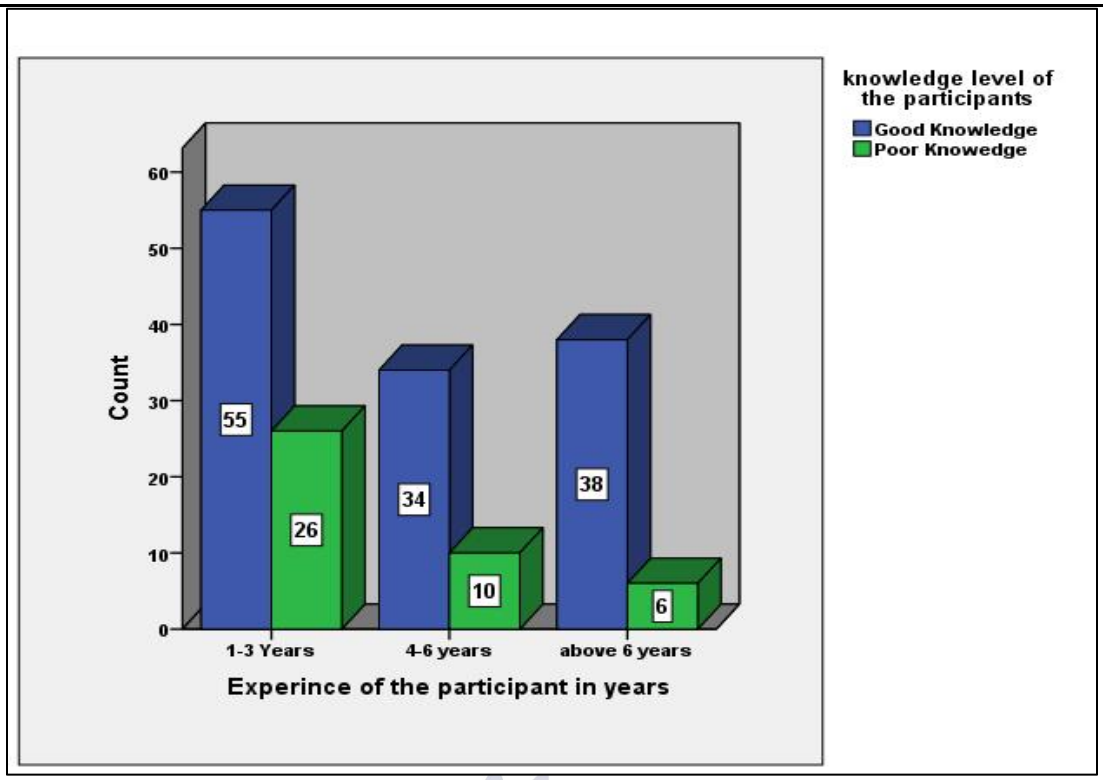
With respect to age of the participant, the knowledge was cross tabulate. 20 participants were there in the age group of 24-27. 18 were have good knowledge while 2 were poor knowledge. In the age group 28-31 years, total were 99 participants. 74 were have good knowledge while 25 were have knowledge. Moreover, 50 participant were there in the age group of 32 to 35 years. Among these, 35 were have good knowledge while the other 15 were have poor knowledge.



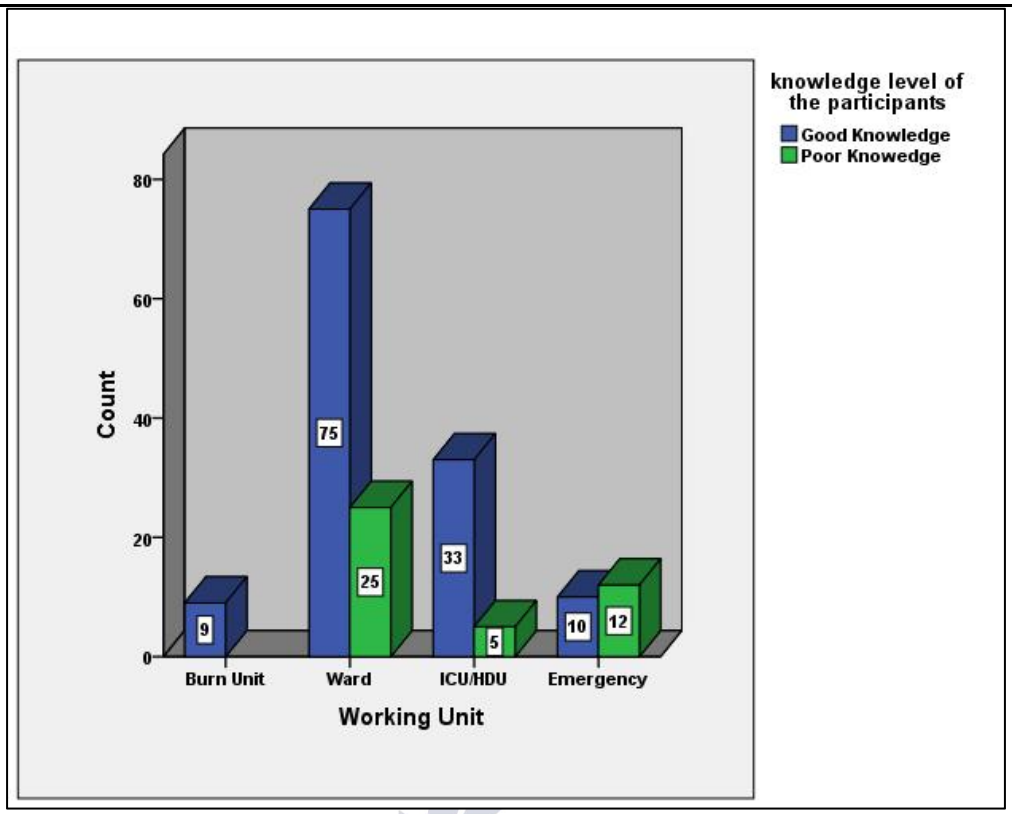
With respect to marital status, participants were categorized into married and unmarried class. In married group, total were 115 participants. 26 were have poor knowledge while 89 were have good knowledge. In unmarried class, total were 54 participants, among these 38 were have good knowledge while 16 were in the sub class of poor knowledge.



On the basis of Qualification, All the participant were categorized into three level of qualification that is Diploma, Post RN and BSN. In Diploma group all the 7 participants were have good knowledge. In Diploma level. 443 were have good knowledge while 20 were in the status of poor knowledge. In case of BSN, total were 99 participants. 77 participants, among these, were have good knowledge while 22 were have poor knowledge.

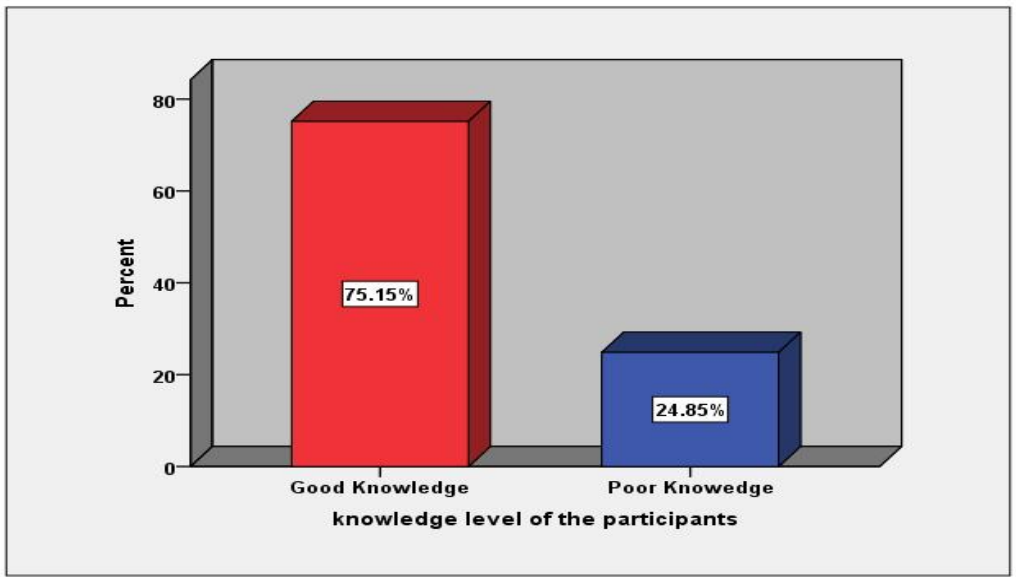


On the basis of experience, all the participants were classified in multiple group. Participants of 1-3 years of experience were76. Among these 55 were have good knowledge while 26 were have poor knowledge. The group of 4-6 years of experience, 44 participant have participated. Among these 34 were have good knowledge while 10 were have poor knowledge. In experience level of above 6 years, total were 44 participants. 34 were have good knowledge while 6 were have poor knowledge.



Nurses of four different ward have participated in the study. In the burn unit ther were total 9 participants and all were have good knowledge about management of burn patient. 100 participants were from wards. 75 were have good knowledge while 25 were have poor knowledge. From ICU and HDU, there were 38 participants. Among these 33 were have good knowledge while only 5 were have poor knowledge. 22 participant from emergency have participated in the study. 10 were have good knowledge while 12 were have poor knowledge.

Over all Knowledge level



All were 169 participant in the study. 75.15% were have good knowledge while 25.85% were have poor knowledge.

Discussion

The findings of this study reveal a high overall knowledge level (75.15%) among nurses regarding the management of burn patients, with demographic and professional factors contributing significantly to variations in knowledge. These results are encouraging, especially when compared to a similar study conducted in Peshawar, where only 56% of participants demonstrated good knowledge, with 32% showing average knowledge and 12% reporting low knowledge. This discrepancy highlights potential differences in educational programs, training opportunities, and clinical exposure between the two settings. When considering knowledge in relation to demographics, it was observed that participants in the 28–31 years age group had the highest proportion of good knowledge (74.75%). This aligns with the idea that nurses in this age group are likely to have a combination of theoretical knowledge from recent education and practical experience, which may enhance their understanding of burn management. Similarly, marital status also appeared to play a role, as married nurses exhibited a higher knowledge level compared to their unmarried counterparts. This could potentially be attributed to differing responsibilities and professional commitments that may motivate married individuals to enhance their clinical skills. Regarding qualifications, nurses holding Post-RN degrees demonstrated the highest knowledge levels, with all participants in this category showing good knowledge. This finding underscores the impact of advanced education on professional competence, reinforcing prior studies emphasizing the role of specialized training in improving clinical outcomes. However, the small representation of diploma-holding nurses (4.14%) limits broader generalizations about this group.

Experience was another significant factor, as nurses with more than six years of experience exhibited higher knowledge levels (77.27%) compared to their less experienced counterparts. This finding supports previous research indicating that longer professional experience contributes to better understanding and implementation of burn management protocols. Interestingly, this aligns with studies highlighting that prolonged exposure to primary healthcare (PHC) settings can improve knowledge and application of burn care practices. In terms of workplace settings, the study found that nurses working in burn units (100%) and ICUs (86.84%) exhibited significantly higher knowledge levels compared to those in general wards (75%) or emergency departments (45.45%). This disparity can be attributed to the specialized nature of burn units and ICUs, where staff receive focused training and are routinely exposed to burn-related cases. Conversely, emergency departments, despite being a critical entry point for burn patients, showed the lowest levels of knowledge, mirroring findings in prior studies where inadequate training led to suboptimal initial care. Interestingly, a recurring theme in the literature is the lack of emphasis on burn management during undergraduate and postgraduate training. Studies from Egypt and the Netherlands have reported significant deficits in knowledge among medical and nursing students, particularly regarding the Parkland formula, appropriate fluid types, and systemic antibiotic use. These findings resonate with the present study's identification of emergency department nurses as a vulnerable group requiring targeted education and skill-building initiatives.

Conclusion:

Burn injuries represent an ongoing substantial public health problem in all nations while Pakistan as an underdeveloped country faces heightened difficulties due to insufficient medical facilities coupled with poor public awareness. Researchers conducted this study to determine the first aid burn injury knowledge levels among nurses who work in the Burn Unit located at Saidu Teaching Hospital in Swat. This investigation demonstrates that nurses working in the burn unit have multiple knowledge and practice deficiencies.

The research study established that multiple nurses did not possess satisfactory understanding of crucial first aid procedures applicable to burn injuries. Although a few nurses showed understanding of standard care measures some medical staff maintained incorrect beliefs about inappropriate treatment methods. The identified lack of knowledge

creates patient welfare risks because it produces higher infection rates along with longer hospital periods and it may result in long-term consequences such as scar formation and contracture development. Educational initiatives requiring targeted objectives should be deployed to enhance healthcare knowledge and skills among nurse professionals in burn medicine. Nursing education that includes evidence-based burn care practices along with designed training programs and continuous professional development options will significantly advance burn patient healthcare standards. The provision of timely and effective burn unit care depends on resolving both infrastructure problems and resource improvements in burn facilities.

The study demonstrates critical knowledge about burn injury treatment while showing the necessity of complete training along with policy changes and more research to enhance burn care quality in Pakistan and other resource-constrained countries. Enhancing educational standards in nursing with improved healthcare facilities will allow the system to decrease burn injury consequences while saving lives and boosting patient quality of life after burns.

Conflict of interest:

The authors declare no conflict of interest.

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