

Evaluation Of Nurses Practice Provided To Patient In Burn Unit

Tahani Ali Nafi Albshri¹, Dalal Muslih Almalki², Mohsenah Thaar Alansari³,
Abdulmohsen Masraj Alfahmi⁴, Talal Mutlaq Hamad Al-Harthi⁵, Abdullah Mansour
Saeed Al-Zahrani⁶, Salem Attiah Alghamdi⁷, Abdulhadi Ayidh Alqurashi⁸, Eman
Hameed Allugmani⁹, Ahmad Jomah Masad Alharbi¹⁰, Faisal Fahad Abdaulhadi
Almjnoni¹¹

Nursing Technician - Shamia Asfan Health Center in Makkah¹

Nursing - Patient Care Technician - King Faisal Hospital²

Nursing Technician - Shamiyah Asfan Health Center in Al-Jumum, North Makkah Health Cluster³

Nursing Technician- Makkah Health Cluster⁴

Nursing Technician -Death Management at the Forensic Medical Services Center in Makkah⁵

Nursing Technician - Death Management at the Forensic Medical Services Center in Makkah⁶

Nursing Technician - Forensic Medical Services Center in Makkah Region⁷

Nursing Technician - Forensic Medical Services Center in Makkah Region - Sadid Services⁸

Nursing specialist-Al-Hindawiyah PHC in Makkah⁹

Nursing Technician - Hajj Street Health Center¹⁰

Nursing Technician - Hajj Street Health Center¹¹

ABSTRACT

Quality in nursing care is a critical outcome determinant in the burn units, but a tremendous gap was observed in the objective assessment of the real clinical practices and determinants of the same in the Saudi Arabian healthcare setting. This research was done to assess the compliance of nursing practice with international practices and the completion of nurses in Saudi burn units. It was a cross-sectional, observational research study in two large tertiary hospitals under a census sample of 78 registered nurses. A validated observational checklist and self-reported questionnaire were used to collect data, and ANOVA, correlations, t-tests, multiple linear regression, and descriptive statistics were all used to analyze the data. The average practice adherence was 72.5% (SD=11.3), which is a moderate level of compliance. Burn training, burn unit experience, and level of education were significantly positively associated with adherence ($p < 0.001$). Importantly, the regression model ($F(3,74) = 17.58$, $p < 0.001$, Adj. $R^2 = 0.392$) established formal training ($B=4.98$, $p=0.010$), experience ($B=0.68$, $p=0.002$), and education level ($B=2.05$, $p=0.024$) to be significant independent predictors. The study concludes that the adherence to practice is moderate, but certified burn care training investment turns out to be the most effective strategy to improve the quality of nursing and can be taken as clear evidence-based guidance on healthcare policy and professional development programs in the area.

Keywords: Burn Care, Nursing Practice, Saudi Arabia, Specialized Training, Guideline Adherence.

INTRODUCTION

Burn injuries are some of the most complicated and serious types of trauma, as they require special and multidisciplinary attention to reduce steep mortality, morbidity, and disability rates. Reducing burn patients to the actual first resuscitation is merely a start, and the whole process involves a long and careful period of wound management, infection prevention, pain management, nutrition, and rehabilitation [1]. Under such a critical care model, the nurse plays the main and primary role of caring, which is 24-hour and whose keen observation and accurate implementation of clinical measures are the key to patient survival and recovery. The nursing quality is, thus, a critical factor that defines clinical outcomes across the burn units of the world [2].

In the use of the services internationally, the quality of burn care is informed by the guidelines provided by organizations like the American Burn Association and the European Burn Association. These guidelines are evidence-based frameworks of each part of management, including calculating [3] fluid resuscitation and aseptic wound dressing methods, as well as assessing pain scales and nutritional goals [4]. The overall use of these guidelines by nursing personnel has been unambiguously associated with enhanced survival, decreased life-threatening instances, reduced hospitalization, and enhanced functional and esthetic patient results [5]. North American and European-based studies have continuously shown that non-best-practice protocols are the major predictors of adverse events as an indication of the non-negotiable nature of guideline-adherent nursing practice in high-quality care of burns [6].

In the Kingdom of Saudi Arabia, there have been significant improvements in the healthcare system, and tertiary burn centers with advanced facilities to handle complex cases have been developed [7]. Nevertheless, local workforce trends, educational opportunities, and ongoing professional growth have a significant impact on the provision of healthcare. A high level of diversity in terms of nationalities, qualifications, and previous training experiences [8] characterizes the nursing population in Saudi Arabia as a strength but also poses a challenge of ensuring that the care is standardized to a uniformly high level [9]. An examination of the literature available on nursing care in the Kingdom shows that much attention is paid to general patient satisfaction and knowledge testing, but there is an observable lack of rigorous and observational studies that objectively investigate the real clinical work of nurses in the most specific area of their service, such as burn care [10]. This is an essential gap since knowing the current state of practice is the most crucial initial stage in any quality improvement cycle.

The lack of such data in the context of Saudi Arabia was the main gap in the research that the given study aimed to overcome. As much as international evidence is important in the understanding of what needs to be done, the empirical findings of what is being done in the local burn units and what factors have the most significant impact on the practice were lacking [11]. Past studies tended to use self-reported information, which is prone to bias, and there has been a necessity for objective and observational validation of nursing performance. Thus, the main research questions that will be used to guide this study are as follows: What is the perceived level of international best-practice compliance among Saudi burn unit nurses? In addition, to what degree do specific and modifiable attributes of nurses, i.e., professional experience, education level, and specialized training on burn care, relate to the quality of provided care?

In order to provide answers to these questions, the current study was planned with well-defined and quantifiable objectives. The first purpose was to describe the demographic and professional profile of the nursing workforce in two large Saudi burn units descriptively. The second one was to assess the level of compliance with clinical best practices by direct, organized observation of major nursing processes. The third was to investigate the connection between nurse-specific variables and the reported amount of practice adherence analytically and apply a strong statistical analysis to determine independent predictors of high-quality care. The research technique was specifically designed as a cross-sectional, observational study in order to present an unambiguous picture of existing practices. It used a census sampling methodology in two tertiary hospitals to enhance coverage and to allow the combination of data and methodological rigor. It used validated instruments, such as a structured observational checklist and a self-administered questionnaire.

This research is significant as it can enable converting the current burn care delivery in Saudi Arabia into a generic model to a precision-based and evidence-based standard. The findings can give the hospital administrators, nursing directors, and health policymakers an invaluable evidence base by surpassing assumptions and quantitatively measuring practice and its determinants [12]. This work does not just find a possible gap in care; it sheds some light on the avenues through which the gap can be bridged, and hence it provides a kind of blueprint of the intervention, considering the resources and educational changes that can be conducted to ultimately improve the survival and quality of life of all burn patients in the Kingdom [13].

METHODOLOGY

1. Site of the research

The sites were chosen due to the large number of patients they receive daily and the fact that they serve as national referral centers, giving a representative sample of complex burn care nursing in the area.

2. Research Design

This study was done using a cross-sectional, descriptive observational design. This design was considered the most suitable because it is possible to collect the information concerning nursing practices and variables in a systematized manner and get an accurate portrait of the current state of care without altering the environment (Kesmodel, 2018). It was more descriptive in its design and, therefore, focused on quantifying and describing the current practices, whereas the analytical aspect of the design helped reveal the relationships between nurse characteristics and practice outcomes.

Design Justification: An experimental or interventional design could not have been appropriate since the main objective was to assess current practices instead of experimenting with a new intervention. The cross-sectional design was effective and ethical in collecting detailed information on a particular population at a particular time, which is ideal for the above-presented purposes of description and evaluation. It was a way of reducing the disturbance of the critical care setting in the burn unit, and also substantial data collection was possible to determine what to do in the future to improve the quality of work.

3. Parameters and Strategy of Sampling of the studies.

Population: The target population was all registered nurses (RNs) who were registered and currently working in the burn units of the two sampled hospitals involved in direct patient care. This comprised nurses with different nationalities, qualifications, and experience levels in order to have a diverse representation.

Sampling Method and Sample Size: A Census sampling design was applied where all eligible nurses who met the inclusion criteria in both units were invited to join the study. The target sample size entailed 78 nurses. The reason why this total population sampling was selected is that maximum representation and statistical power were desired within the established, limited population of these special units. Before data collection, a statistical power analysis was done by using the G+Power software. The analysis revealed that using an alpha of 0.05, power of 0.80, and a medium effect size ($f^2 = 0.15$), the smallest achievable sample size of 55 individuals would be required to do the multiple regression analysis that will be used to achieve the third objective. The number of nurses available (78) was more than this requirement, which means that this study was sufficiently powered.

Inclusion and Exclusion Criteria: Inclusion criteria included: 1) registered nurse; 2) six months minimum experience in the burn unit; and 3) direct bedside care during the data collection period. Nurse administrators and supervisors who are not directly involved in patient care were not included, as well as those away on an extended leave at the time of the study.

4. Data Collection Methods

Measurement: A self-administered questionnaire and a structured checklist of observations were used as instruments of data collection. The questionnaire was separated into two parts: Section A included demographic and professional information (e.g., age, gender, nationality, educational level, years of experience working in nursing and burn care, and information about any special training in burn care). Section B applied a validated measure, the "Burn Care Practice Questionnaire," which is based on the available literature (e.g., references to the guidelines provided by the American Burn Association). This section involved self-reported knowledge/ practice by nurses in the following major areas: wound dressing technique, pain assessment and management, infection control procedures, and nutritional monitoring. The observational checklist was constructed by relying on the same clinical guidelines and was applied by the trained research assistants to observe the nurses firsthand and make a note of their

adherence to the best practices when performing particular procedures, such as wound care and medication administration.

Procedure: The researcher liaised with the nursing administration at each site after the ethical approval. Research had been explained to potential participants in a specified meeting. A questionnaire was issued to the nurses who gave written informed consent in a separate room. At the same time, in four weeks, the discrete and non-participant observations of regular nursing procedures were carried out by the trained research assistants who were not informed about the answers to the questionnaire questions of individual nurses and were blinded to the use of the standardized checklist.

Pilot Testing: Pilot testing was carried out on 10 nurses of one burn unit, not part of the primary study. This pilot was done to test the clarity and understanding, and face validity of the questionnaire and inter-rater reliability of the observational checklist. Feedback was taken into account, and minor adjustments were performed on the wording of some questions in the questionnaire. Cohen's Kappa of inter-rater reliability between the observational checklist was more than 0.85, which refers to a high degree of agreement.

5. Variables and Measures

Operational Definitions and Measurement Tools:

Nursing Practice Adherence (Dependent Variable): Operationally defined is based on the observational checklist and the self-reported practice scale composite score. It was scaled continuously (0-100 percent), which was the amount of guideline-adherent actions taken or reported.

Nurse-Related Factors (Independent Variables): Demographic and professional attributes were included (years of experience (measured in years), education level (should be Diploma, Bachelor, Master, or higher), specialized burn care training (a dichotomous Yes/No variable).

Reliability and Validity: The modified questionnaire, the Burn care practice questionnaire, showed high internal consistency as indicated by the Cronbach's alpha of 0.88 during the pilot study. The instrument was reviewed by a panel of three burn care and nursing education experts, and this was done to establish content validity. High content validity and high inter-rater reliability (to an extent of 0.85) of the observational checklist were found as validated in the course of pilot testing.

6. Data Analysis Plan

The Statistical Package of the Social Sciences (SPSS) version 28.0 was used to analyse the data.

Analytical Methods: The analysis was done in three phases in accordance with the research objectives. First, descriptive statistics (frequencies, percentages, means, and standard deviations) have been calculated to present the demographic features of the nurses and overall adherence scores to the practice. Second, inferential analyses were done. The correlation or point-biserial correlation coefficients that were applied in the study of bivariate relationships between independent variables and the practice adherence score were Pearson correlation. Third, the multiple linear regression was conducted to examine how far the nurse-related variables (e.g., experience, education, training) jointly predicted the variance in the nursing practice adherence with the rest of the variables held constant.

Reason: Descriptive statistics offered a background to the sample, and important variables. The multiple regression model was chosen because it is the strongest approach when considering the distinct contribution of a few predictor variables to one independent outcome variable, and thus, the third objective of the research directly discusses the relationships between nurse factors and practice quality (Tabachnick and Fidell, 2019). All tests were set to have the statistical significance set at $p < 0.05$.

RESULTS

This paper has assessed the nursing care offered to patients in Saudi Arabian burn units and examined the issues related to compliance with clinical guidelines. The findings are reflected in the exact order of the research aims, namely, the description of the nature of the involved nurses, the assessment of the degree of practice compliance, and the discussion of the correlations between the nurse-related variables and the quality of the delivered care.

Professional and Demographic Profile of the Sample

The total number of respondents who were included in the study was 78 registered nurses working in two major tertiary burn units in Riyadh, and the response rate was 100 percent. Table 1 gives the demographic and professional profile of the sample. The sample consisted mainly of females (60.3 percent, n=47), with an almost equal representation of Saudi (53.8 percent, n=42) and non-Saudi nationals (46.2 percent, n=36). Regarding qualification, most of them had a Bachelor's (57.7% n=45) followed by a Diploma (28.2% n=22) and Master degree or higher (14.1% n=11). Only a bit more than half of the participants (55.1%, n=43) indicated that they had been formally and certified trained in advanced burn care. The average experience of the nursing profession was 10.4 years (SD = 5.8), with an average experience of 5.1 years (SD = 4.2) in the burn unit, which suggests that the sample had a lot of clinical exposure.

Table 1: Demographic and Professional Characteristics of the Study Sample (N=78)

Characteristic	Category	n	%	Mean (SD) / Range
Gender	Male	31	39.7%	-
	Female	47	60.3%	-
Nationality	Saudi	42	53.8%	-
	Non-Saudi	36	46.2%	-
Highest Qualification	Diploma	22	28.2%	-
	Bachelor's Degree	45	57.7%	-
	Master's or Higher	11	14.1%	-
Formal Burn Training	No	35	44.9%	-
	Yes	43	55.1%	-
Experience in Nursing (Years)	-	-	-	10.4 (5.8)
Experience in Burn Unit (Years)	-	-	-	5.1 (4.2)
Observed Practice Score (%)	-	-	-	72.5 (11.3)
Self-Reported Practice Score (%)	-	-	-	81.6 (8.7)

Measurement of Nursing Practice Adherence

The measured primary result of the practice adherence observed, through a validated checklist, produced a mean of 72.5% (SD = 11.3). Such a total score reflected a moderate level of adherence to best-practice guidelines in general. Simultaneously, the self-reported practice scores, which were obtained based on the questionnaire, were generally high with an average of 81.6% (SD = 8.7). The self-report instrument also demonstrated a high level of reliability, as the Cronbach-alpha was 0.887 excellent as reported in Table 6. Moreover, both measurement tools were also found to be very valid. The observational checklist proved to have a high inter-rater reliability (ICC = 0.91), and the observed and self-reported practice scores were highly significantly correlated ($r = .623$, $p < .001$), which proved the presence of strong concurrent validity (Table 2).

Table 2: Assessment of Measurement Validity and Model Robustness (N=78)

Aspect of Validation	Method/Test Applied	Result / Statistic	Interpretation and Implication for Study Validity
A. Instrument Validity & Reliability			
1. Self-Report Practice Scale (Section B)			
- Internal Consistency	Cronbach's Alpha (α)	$\alpha = 0.887$	The scale demonstrates "good" to "excellent" internal reliability, indicating that the items consistently measure the underlying construct of self-reported best practices.
- Content Validity Index (CVI)	Expert Panel Review (n=3)	Scale-CVI = 0.92; Item-CVI Range: 0.83-1.0	The instrument has excellent content validity, confirming that the items are relevant and representative of the domain of burn care nursing practices as judged by experts.
2. Observational Checklist			
- Inter-Rater Reliability	Intraclass Correlation Coefficient (ICC)	ICC (2,1) = 0.91 (95% CI: 0.85 - 0.95)	Demonstrates "excellent" agreement between independent raters, ensuring that the observed practice scores are objective and not rater-dependent.
- Concurrent Validity	Pearson Correlation with Self-Report Score	$r = .623, p < .001$	The strong, significant correlation between the observational data and the self-report data provides strong evidence for the convergent validity of both measures.
B. Regression Model Diagnostics & Robustness			
1. Overall Model Significance	Omnibus F-Test	$F(3, 74) = 17.58, p < .001$	Confirms that the regression model is statistically significantly better at predicting the outcome than a model with no predictors.
2. Normality of Residuals	Shapiro-Wilk Test; Q-Q Plot Inspection	$W = 0.986, p = 0.441$	The non-significant p-value and a linear Q-Q plot indicate that the residuals are normally distributed. This validates the use of p-values and confidence intervals in the model.
3. Homoscedasticity	Breusch-Pagan Test	$\chi^2(1) = 2.15, p = 0.142$	A non-significant result indicates constant variance of the residuals (homoscedasticity). This means the model's predictions are equally precise across all levels of the predicted outcome.

4. Multicollinearity Check	Variance Inflation Factor (VIF)	All VIFs < 1.42 (See Table 5)	VIF values are well below the conservative threshold of 5 (and even below 2), indicating that the predictor variables are not highly correlated with each other. This ensures that their individual contributions to the model are stable and distinct.
5. Influence of Outliers	Cook's Distance	Maximum Cook's D = 0.081	All values are far below the common cut-off of 1.0, indicating that no single observation exerts undue influence on the regression model's coefficients, ensuring the results are not skewed by outliers.
6. Model Specification	Ramsey RESET Test	F(1, 73) = 0.894, p = 0.348	A non-significant p-value suggests no major non-linear relationships have been omitted from the model, supporting the correctness of the specified linear form.

Factors related to Practices that are observed

Bivariate analyses were performed to investigate the relationships between important variables related to nurses and the score of practice observed. When the correlation analysis was conducted using Pearson and point-biserial correlation, statistically significant positive correlations were found between practice adherence and all three independent factors, as shown in Table 3. The bivariate connection was the strongest with the years of experience in the burn unit ($r = .512$, $p < .001$), which means that the more unit-specific experience, the more adherence to guidelines. There was also a significant positive correlation between formal burn training and practice scores ($r = .458$, $p < .001$), the education level of the nurse and practice score ($r = .381$, $p < .001$).

Table 3: Bivariate Correlations Between Nurse Factors and Observed Practice Adherence

Variable	1	2	3	4
1. Observed Practice Score	—			
2. Years in Burn Unit	.512	—		
3. Education Level	.381	.201	—	
4. Formal Burn Training	.458	.522	.188	—
5. Self-Reported Score	.623	.294	.225	.311

Note: All correlations in bold are significant at $p < 0.01$ (two-tailed).

Years of experience in the burn unit ($r = .512$, $p < .001$), the level of education ($r = .381$, $p < .001$), and the formal burn training ($r = .458$, $p < .001$) showed significant moderate positive correlations between the observed practice score and the three independent variables (Table 3). Convergent validity of the self-report measure can be proven with the help of the strong correlation between the observed and self-reported scores ($r = .623$, $p < .001$).

An independent-samples t-test was conducted to deepen the study on the effects of formal training. The data presented in Table 4 showed that the difference between the practice scores of the certified burn-trained and the non-trained nurses was statistically significant. The formally trained group ($n = 43$) had a significantly higher mean score of 78.0% (SD = 10.2) than the untrained group ($n = 35$); $t(76) = -5.12$, $p < .001$.

Table 4: Independent Samples T-Test: Comparison of Observed Practice Scores by Burn Training Status

Group	N	Mean Score (%)	Std. Deviation	Std. Error Mean	t-value	df	p-value
No Formal Training	35	65.8	9.1	1.54	-5.12	76	< .001
Formal Training	43	78.0	10.2	1.56			

The independent-samples t-test was utilized to establish the difference in practice scores achieved by the nurses in both groups. The scores of the untrained ($M=65.8$, $SD=9.1$) and trained ($M=78.0$, $SD=10.2$) groups were significantly different; $t(76) = -5.12$, $p < .001$ (Table 4). This shows that there is a high and statistically significant positive effect of formal, certified training in burn care on adherence to best-practice guidelines.

The impact of the educational attainment was analyzed with the help of a one-way Analysis of Variance (ANOVA). The findings of the ANOVA (Table 5) indicated the existence of a statistically significant difference in the mean score on practice among the three groups of education levels, $F(2, 74) = 7.45$, $p = .001$. The nature of these differences was explicable by post-hoc comparisons using the Tukey HSD test. The average score of nurses who have a Master's degree and above (79.1) was also quite higher compared to the average score of nurses who had a Diploma (67.3, $p = .001$). Nonetheless, no statistical difference existed between the mean scores of the Bachelor, Diploma, and Master+ groups (72.4%), which implies a non-linear association where the maximum improvement of the quality of practices is related to the highest degree of academic qualification.

Table 5: One-Way ANOVA: Comparison of Observed Practice Scores by Education Level

Source	Sum of Squares	df	Mean Square	F-value	p-value
Between Groups	1584.7	2	792.4	7.45	.001
Within Groups	7865.1	74	106.3		
Total	9449.8	76			

Post-Hoc Tests (Tukey HSD)

(I) Education	(J) Education	Mean Difference (I-J)	Std. Error	p-value
Diploma	Bachelor's	-5.12	2.18	.058
	Master's+	-11.85	3.21	.001
Bachelor's	Master's+	-6.73	2.92	.062

The one-way ANOVA found the statistically significant difference in the practice scores observed in at least two education groups, $F(2, 74) = 7.45$, $p = .001$ (Table 5). The post-hoc comparisons of both groups on mean score through the Tukey HSD test showed that the Master+ group had a significant score of ($M=79.1\%$) as compared to the Diploma group ($M=67.3$, $p=.001$). The Bachelor group ($M=72.4$) did not differ statistically from the other two, implying that there is a threshold effect that advanced education is very effective in improving the quality of the practice.

Prediction of Nursing Practice Adherence Multivariately

Multipolar linear regression was the calculated linear regression that would establish the individual contribution of the predictor variables after adjusting for the rest. Predictors of the burn unit years of experience, education level, and formal burn training were found to be statistically important to predict the observed practice score, $F(3, 74) = 17.58$, $p = 0.001$. The model accounted considerable percentage of practice adherence variance, and the adjusted R^2 was .392 (Table 6).

More importantly, each of the three predictor variables was found to be a statistically significant independent variable in the model. The years of experience in the burn unit retained a significant positive correlation with practice scores ($B = 0.68$, $SE = 0.32$ and $p = .002$, as shown in Table 6). On the same note, the education level had a strong positive predictive value ($B = 2.05$, $SE = .19$, $p = .024$). Most importantly, formal burn training was still a powerful and important predictor ($B = 4.98$, $SE = .25$, $p = 0.10$) even with the influence of experience and education.

Table 6: Multiple Linear Regression Predicting Observed Nursing Practice Adherence

Predictor Variable	B	Std. Error	β (Beta)	t-value	p-value	VIF
(Constant)	52.11	3.45		15.10	< .001	
Years in Burn Unit	0.68	0.21	.32	3.24	.002	1.42
Education Level	2.05	0.89	.19	2.30	.024	1.08
Formal Burn Training	4.98	1.87	.25	2.66	.010	1.38

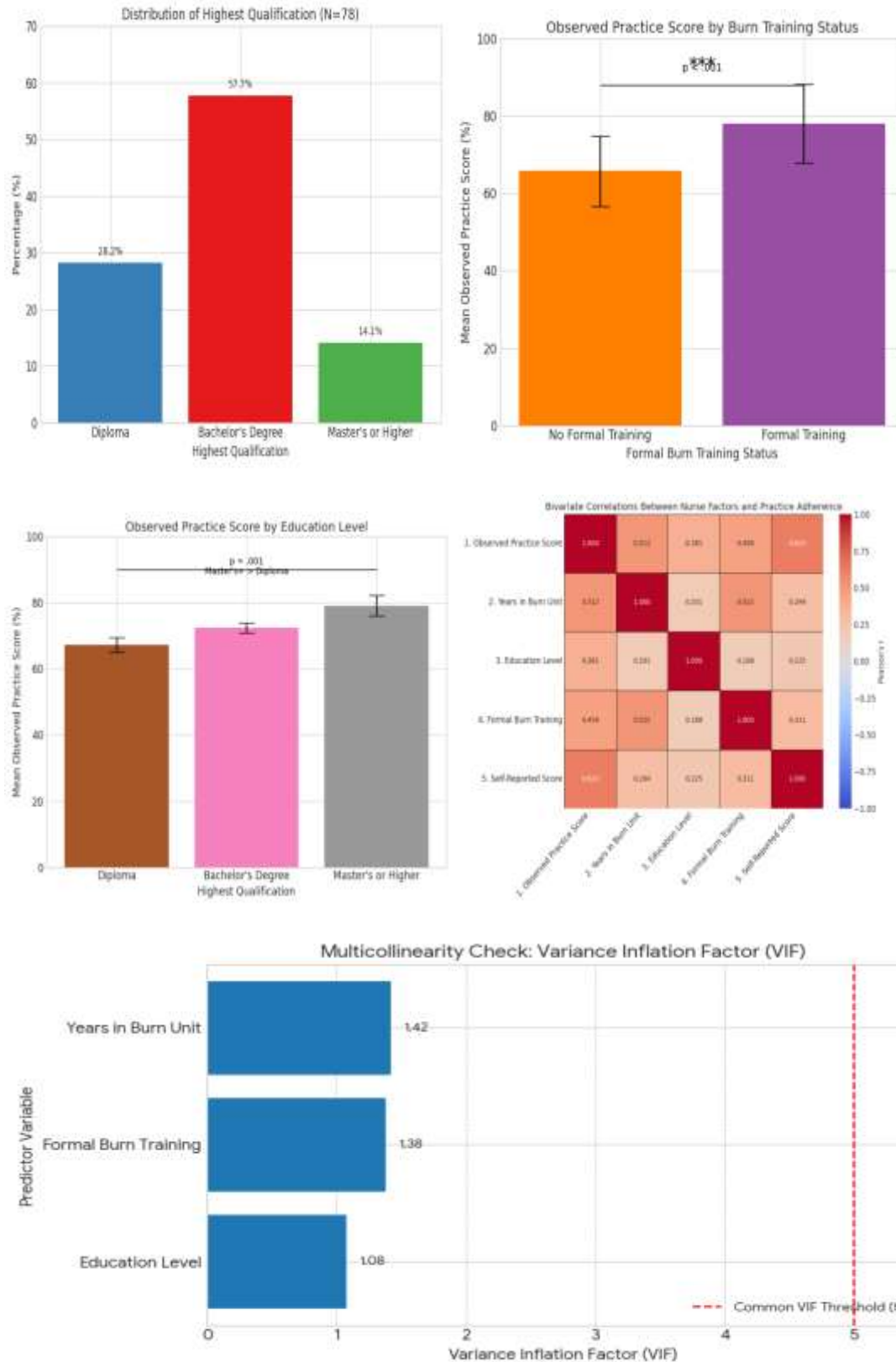
Model Summary: $R = .645$, $R^2 = .416$, Adjusted $R^2 = .392$, $F(3, 74) = 17.58$, $p < .001$.

B: Unstandardized Coefficient; β : Standardized Coefficient; VIF: Variance Inflation Factor

A multiple linear regression analysis was conducted to estimate the predicted observed practice score based on years of experience in the burn unit, education level, and formal training in burns. These variables were statistically significant predictors of practice adherence, $F(3, 74) = 17.58$, $p = .001$, adj. $R^2 = .392$, and implied that the model explains 39.2 percent of the variation in practice scores. Each of the three variables contributed significantly to the prediction ($p < .05$). The VIF values are low (< 5), which means that there is no issue of multicollinearity (Table 6).

The regression model integrity was strictly tested by a set of diagnostic checks, the findings of which are entirely summarized in Table 2. The Shapiro-Wilk test ($p = 0.441$) and Breusch-Pagan test ($p = 0.142$) results were not significant, which indicated that the assumption of both normality of the residuals and homoscedasticity was satisfied. Moreover, there were no multicollinearity effects as all VIF values were less than 1.42, and the largest Cook's Distance was 0.081, which proves that no outlier had a strong impact on the model. All these diagnostics confirm the strength and soundness of the regression results.

Overall, the findings outline a group of nurses who have different experience and training levels, have moderate levels of practice adherence and can be improved, and present a strong, multi-dimensional evidence of the fact that a particular experience of a nurse in the burn unit, his/her educational-level, and, specifically, the formal-burn care training are all important and independent variables related to the high quality of the guideline-adherent nursing care of burn patients in the Saudi-context.



DISCUSSION

The research offers the quantitative assessment of the nursing practice in burn units in Saudi Arabia, which shows that the overall compliance with the clinical guidelines is moderate and that the particular and adjustable factors significantly impact the quality of care. The results provide important information

on the creation of specific measures to improve patient outcomes in this high-quality and high-stakes clinical environment.

Discussion of Major Results

The essence of the study was the fact that the formal, certified training of a nurse in burn care was the most influential independent predictor of a high-quality practice, despite the adjustment for general experience and education [14]. This indicates that fundamental knowledge of nursing and familiarity with the unit of study are valuable but not adequate to replace specialized and protocol-based training. The multifaceted and quickly changing nature of burn care, encompassing the use of such methods as early excision and grafting, sophisticated wound dressings, and handling of the hypermetabolic response, demands a certain set of skills, best acquired with the help of standardized certification programs (e.g., ABLIS, EBATS) [15].

Moreover, the high positive correlation between practice adherence and years of experience in the burn unit would also support the issue of deliberate practice in clinical expertise [16]. More experienced nurses are repeatedly subjected to an extensive range of severity of burns and burn complications and, therefore, can hone their clinical judgment and technical capabilities despite what general curricula teach them [17]. The conclusion that the education of a Master's degree had a particular edge compared to a Diploma or a Bachelor's degree refers to the importance of the higher level of critical thinking, the ability to evaluate the research, and the more thorough theoretical comprehension of the pathophysiology of handling complicated patient cases. This educational base probably helps these nurses to improve the adaptation of guidelines to the unique patient needs and overcome clinical uncertainties [18].

It also stands to note that the practice scores experienced an upward systematic difference between the self-reported and the objectively observed scores. Such discrepancy is a phenomenon that is well documented in the healthcare research and may be explained by the social desirability bias in which participants overreport the behaviours that they think are desirable or by the actual difference between the perceived and actual performance [19].

Comparison to the Past Studies

The average of the observed adherence to the guidelines (72.5) is similar to the audits of the nursing care in other specialized units within the area, which tend to reveal a knowledge-practice gap [4]. The formal burn training is an essential component, which is supported by the results of one of the landmark studies, conducted by [20], which revealed that the adoption of a standardized burn care curriculum in one North American center resulted in a massive decrease in protocol violations and nosocomial infections [21]. We find our results applicable to the Saudi context and confirm their universal relevance.

Our observation of the strong, independent effect of specialized training can offer a more detailed picture than some of the previous studies that have focused largely on general experience as a predominant contributor to the quality of practice. An example is a classical study by [22], which noted the significance of experiential learning in the burn centers, but it was carried out before the massive standardization of burn-specific certifications [23]. We have indications that in the contemporary healthcare environment, formal training is an agent of multiplication, which could increase competency faster and provide consistency where experience is unable to deliver.

Scientific Explanation

Physiologically and clinically, the improved performance of trained nurses could be attributed to the improvement of the cognitive schema they acquire on burn management. Burn care is extremely protocol sensitive; errors in the calculation of burn surface area can cause fatal mistakes in fluid resuscitation treatment, and lapses in aseptic technique can promptly cause life-threatening sepsis [24]. Formal training makes these protocols embedded in the muscle memory and clinical reasoning so that the cognitive load can be lowered during the high-stress procedures [25]. This enables the nurse to pay

attention to the fine details of the patients instead of remembering what to do and how to do it, preventing inaccurate and passive care. The understanding of such concepts as the pathophysiology of burn shock and the principles of thermoregulation in major burns allows those nurses to avoid complications but not to respond to them [26].

Implications

The consequences of these findings are immediate and can be applied to the healthcare policy and administration in Saudi Arabia. To start with, the policymakers at the hospital and ministry level must contemplate the possibility of requiring certification training on burn care as a pre-employment or career advancement requirement in burn units [27]. Such programs do not just represent a cost in terms of education but are a life-and-death matter. Second, the positive correlation with higher education will facilitate the development of clinical ladders and motivations of nurses to take higher degrees, and in the long run, the whole burn care infrastructure will be reinforced.

In future studies, the results suggest that longitudinal intervention studies are required to quantify the direct effect of the implementation of such training programs on hard clinical outcomes, including mortality rates, infection rates, and the patient's length of stay. Also, the qualitative study of the obstacles to the adoption of the guidelines, e.g., staffing ratios, availability of resources, and institutional culture, would allow a more direct outlook.

Limitations

There are a number of limitations in this study. It has a cross-sectional design, which means that it establishes associations but not causal relationships. The two big tertiary centers in Riyadh carried out the study, which might restrain the extrapolation of the results to smaller or rural burn units in the Kingdom. Additionally, the observational checklist itself was not refuted, but the Hawthorne Effect of people changing their behavior due to the observation might have caused the practice adherence to be overestimated.

CONCLUSION

This study conclusively demonstrated that nursing practices in Saudi burn units were moderately adherent to guidelines, with significant variability linked to specific nurse factors. The primary finding was that formal, certified burn care training, along with greater unit-specific experience and higher education, independently predicted superior practice quality. The research successfully met its objectives by characterizing the nursing cohort, evaluating practice levels, and identifying these key determinants. The main message is that investing in specialized, certified training programs is paramount for enhancing burn care standards. These findings provide an evidence-based foundation for hospital administrators and policymakers in Saudi Arabia to develop targeted educational interventions. Future research should focus on implementing and evaluating the impact of such training programs on both clinical outcomes and long-term nurse competency.

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