The Impact Of Nursing On Pain Management

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ABSTRACT
The problem of effective pain management in hospitals is a burning issue, but the exact mechanisms by which nursing care can lead to changes in pain outcomes in Saudi Arabia are poorly known, so a knowledge-practice gap is identified. The focus of this study was to model this effect by determining major predictors of nursing and situational moderators. The sequential explanatory mixed-methods design was taken, which included a cross-sectional survey of 295 nurses and 412 patients in three hospitals in Riyadh, and then interviews (semi-structured) with 27 people. The statistical data (quantitative data) were evaluated by descriptive statistics, correlation, and hierarchical regression, whereas qualitative data were analyzed with the help of thematic analysis. The regression equation attributed 33 percent of the variation of patient-reported pain management efficacy ($F(7,404=28.94$, $p<0.001$). The only significant positive predictors were the frequency of pain management practices (0.35, $p<0.001$) and attitudes towards pain (0.26, $p<0.05$) of nurses, but the workload was a negative predictor (0.12, $p<0.05$). Knowledge was not a specific predictor. These results were attributed to qualitative findings, which identified high workload and rigidity of protocols as systemic factors and cultural factors such as stoicism among patients to be independent of effects on pain reporting. The research concludes that actionable practice and professional attitude, rather than knowledge alone, are the mediating factors of the influence that nursing has upon the organization, and that organizational context serves as the most critical limitation to the study. These results suggested a change of direction to interventions that would mitigate the workload, reconfigure attitudes, and inculcate the culturally effective communication that would enhance pain outcomes in Saudi healthcare.
Keywords: Mixed-methods, Nursing practice, Pain management, Saudi Arabia, Workload

INTRODUCTION

The multidimensional experience of pain is a key indicator of patient outcomes, functional recovery, and the level of care in healthcare systems all over the world [1]. Proper pain management is a key measure of nursing quality and one of the essential elements of the therapeutic relationship [2]. One of the reasons is the widely accepted findings in international research that nurses, being the first and most active point of contact with hospitalized patients, have a significant impact on the measurement of pain, interventions, and its evaluation [3]. Their work involves technical administration of analgesics, as well as the indispensable psychosocial aspects of care, such as communicating with empathy, educating patients, and actively monitoring them, which also adjusts the pain experience [4]. Nonetheless, the effectiveness of nursing interventions cannot be considered universal; it is inextricably determined by a combination of personal skills, organizational framework, and the general socio-cultural environment within which care is provided [5]. In Saudi Arabia, a country that is experiencing a fast change in the healthcare sector in line with the Vision 2030 objectives, which optimizes clinical outcomes, including pain management, is a foremost goal [6]. However, the exact ways nursing care shapes the process of pain among the cultural and institutional conditions peculiar to the Kingdom have not been properly explained, which creates a large knowledge-practice gap [7].

The global literature offers a background insight into the significant variables. The initial research efforts by McCaffery and Ferrell defined the knowledge possessed and, more importantly, the attitude of nurses toward pain as the crucial factors of practice [8]. The barriers have continued to be recognized in subsequent research as a deficiency in knowledge, prejudices towards patient expression of pain, and opioid addiction [9]. Even more recent studies have added to this perspective to enable a consideration of systemic influences, including overworkload of nursing staff and inflexible hospital procedures, which may place even the most learned clinician in a bind, resulting in the so-called missed care when handling pain [10]. Culturally, the perception of pain and coping mechanisms are greatly affected by cultural beliefs about the patient. The research has found that spiritual conviction can encourage a position of stoicism in the Arab and Islamic setting in which bearing pain is perceived as a virtue or a trial of faith, which can profoundly change the relationship between a patient and a nurse [11]. Although such international and regional studies provide meaningful information, they tend to look at variables separately, be it knowledge, attitude, or workload, either in terms of a pure quantitative or qualitative perspective [12]. The combination of these individual and systemic factors in the particular environment of Saudi hospitals is conspicuously lacking a comprehensive, integrated investigation, which simultaneously considers the effects of these factors [13].

This is a significant clinical and strategic gap. Poor pain management has physical adverse effects, such as longer hospital stays, chances of developing chronic pain, increased health expenditures, and loss of patient satisfaction [14]. In the case of the Saudi healthcare system, the solution to this problem is the means of meeting international standards of care and meeting patient-centered care requirements [15]. Past studies in the Kingdom have recorded the gaps in the existing body of knowledge among nursing professionals, but have virtually ended at identifying the deficit without establishing the pathway to patient outcomes or contextual filters that influence this pathway [16]. It is not clear that models of nursing, which are internationally defined, have any effects on pain in an environment where there is a distinct cultural weave, a multinational nursing workforce, and a fast-changing healthcare infrastructure [17]. Thus, the study was carried out to produce a situation-specific evidence

base that is no longer based on isolated variables to model the complex reality of clinical practice.

Therefore, the research question that led this study was as follows: How do nursing knowledge, attitudes, practices, and workload interplay in the Saudi hospital setting to affect efficacy in patient-reported pain management, and what are the situational factors that moderate this association? To answer this complex question, a sequential explanation mixed-methods research design was used. The reason behind this choice was to initially determine how variables relate to each other in a large sample and then to dig into the meaning, processes, and contextual subtleties. The research was informed by three particular goals (1) to characterize the status of nursing knowledge, attitudes, practices, and workload about pain management in a few Saudi hospitals; (2) to examine the statistical association and predictive ability of these nursing variables on patient-reported pain outcomes; and (3) to understand the perceived organizational and cultural forces that contribute to effective nursing pain management as perceived by nurses and patients [18].

The report below is the summary of the results of this thorough investigation. This study offers a comprehensive approach to the study of the effects of nursing on pain management in Saudi Arabia by combining both quantitative data in the form of correlations and qualitative data in the form of rich narratives [19]. It not only points out the major factors that contribute to successful care but also the systemic and cultural moderators that shape the reality of all the operations in which clinicians and patients operate. The results used to design culturally relevant, culturally resonant interventions for nursing education, clinical practice, and health policy, and eventually lead to improved patient outcomes and improved healthcare quality in the Kingdom.

METHODOLOGY

The experiment was carried out in three big tertiary care hospitals, which were located in the Riyadh region in Saudi Arabia. The choice of these sites was based on the fact that the sites are characterized by a large number of patients and by acute medical-surgical units, which is the focus of nursing care, as post-operative and chronic pain management aspects are considered essential in this area.

Research Design

It used a sequential explanatory mixed-method design with two consecutive phases. The initial section was a cross-sectional survey based on a quantitative and descriptive correlational study. The qualitative phase, which was the second, was an exploratory research based on semi-structured interviews.

Design Justification: This research design was considered to be the most suitable in resolving the multidimensional nature of the research problem. The first quantitative stage offered a generalization of the nursing practices and statistical correlations among variables (Objective 1 & 2). The qualitative step that followed was necessary as the means of digging deep to understand the how and why of the quantitative results, especially unravelling the organizational and cultural forces at work (Objective 3). This consecutive method enabled the qualitative data to describe and refine the initial quantitative findings, which give a more comprehensive and contextualised interpretation of the research problem than either.

Sampling Strategy

Population: There were two groups in the target population: (1) registered nurses practicing in medical and surgical inpatient units, and (2) adult patients (≥18 years) in their care who had pain for at least 24 hours during their current hospitalization.

Sampling Method: The nurse survey (Phase 1) was conducted through a stratified random sampling approach to make sure that the various sites across the hospital and the type of unit (medical vs. surgical) were represented. In the case of patient surveys, convenience sampling was implemented in the group of subsets of patients by nurses. In Phase 2, the interview participants in both groups were chosen with the help of purposive sampling to represent diversity in experience, role, and pain management outcomes, which were identified in Phase 1.

Sample Size: In the case of Phase 1, a sample of 320 nurses and 450 patients was settled. This was estimated based on G+Power software to do a multiple regression analysis (f 10=0.10, 3=0.05, power=0.95, 10 predictors), and a minimum of 180 nurse participants would be needed. To enable the subgroup analysis to be done strongly, the target was inflated to cover non-response. The population proportions and confidence level of 95 percent and a margin of error of 5 percent were used to estimate the number of patients. In Phase 2, the sample size was informed by data saturation, whereby the process was continued until no new thematic issues were found, thus leading to 15 interviews with nurses and 12 interviews with patients.

Inclusion/Exclusion Criteria:

Nurse Inclusion: Nurse practitioners possessing experience of 6 months of experience in the unit under analysis.

Nurse Exclusion: Non-care administrative or educational.

Patient Inclusion: Cognitively oriented adults who can speak Arabic or English and who have pain.

Patient Exclusion: Critically ill, lack of cognitive ability, or communication barriers.

Data Collection Methods

Instruments:

Phase 1 (Quantitative):

Nurse Survey: A survey in the form of a questionnaire consisting of four parts: (a) Demographics, (b) The modified Knowledge and Attitudes Survey Regarding Pain (KASRP), (c) A researcher-created Nursing Pain Management Practice Scale (NPMP-S) to record frequency of specific interventions, and (d) The NASA-Task Load Index (NASA-TLX) to measure perceived workload.

Patient Survey: Questionnaire that will include: (a) Demographics/clinical data, and (b) The Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) to assess the outcomes of pain and patient satisfaction.

Phase 2 (Qualitative): Nurses and patients will undergo separate, semi-structured interviews using interview guides designed on the basis of Phase 1 results to investigate the theme of barriers, facilitators, and cultural influences.

Procedure: Potential participants were approached after getting an institutional go-ahead. In Phase 1, the paper-based surveys were completed privately by the eligible nurses and patients who signed the informed consent. In Phase 2, consenting members of the purposive sample were interviewed in an audio-recorded 30-45-minute session in a private hospital room.

Pilot Testing: The NPMP-S and both interview guides developed by the researcher were pilot-tested on 15 nurses and 10 patients (not part of the main study) of a similar hospital. It

resulted in small wording clarifications and made the possibility and estimated time of interviews feasible.

Variables and Measures

Independent Variables (level of nurse): Nursing Pain Management Knowledge (total score on KASRP); Nursing Pain Management Attitude (sub-score on KASRP); Practice Frequency (total score on NPMP-S); Perceived Workload (total score on NASA-TLX).

Dependent Variable (Patient level): Pain Management Efficacy (as a composite score using the APS-POQ-R, a combination of items on pain intensity interference and satisfaction with treatment of pain).

Reliability and validity: The KASRP, NASA-TLX, and APS-POQ-R are tools with proven reliability and validity internationally. The pilot study established good internal consistency of the NPMP-S developed by the researcher (Cronbach's 0.87), and content validity was achieved through the review process of a panel of three professional nurse clinicians.

Data Analysis Plan

Analytical Techniques:

Phase 1 (Quantitative): The IBM SPSS Statistics (Version 28.0) was used to analyse the data. All variables were summarized using descriptive statistics (frequencies, means, and standard deviations). To achieve Objective 2, inferential analyses were conducted: Pearson bivariate correlation was used to assess the relationships between independent variables (nurse level) and the dependent variable (patient level) (efficacy in pain management), and a multiple linear regression model has been developed to determine the joint effect of independent variables (nurse level) on the dependent variable (patient level).

Phase 2 (Qualitative): Transcripts of audio recordings of the interviews were transcribed word-for-word and analyzed using the six-step thematic analysis developed by Braun and Clarke on NVivo 12. This entailed familiarization, creation of first codes, theme searching, theme review, theme definition/naming, and report production. This activity played a very important role in dealing with Objective 3.

Rationale: Objective 1 required the use of descriptive statistics. The Objective 2 used Multiple regression because it enables to analysis of the predictive relationship between a few continuous predictor variables and a continuous outcome variable. The qualitative data chose the thematic analysis because it is a flexible and rigorous approach to identifying, analyzing, and reporting patterns (themes) in data, and is ideal for exploratory research questions.

RESULTS

This was a sequential explanatory mixed-method study that explored the effects of nursing on pain management in the Saudi Arabian healthcare environment. The findings are reported in two stages, which are related to the nature of the study design: first, the quantitative findings reported after the surveys of nurses and patients, and then, the qualitative themes obtained after conducting in-depth interviews. The combined results give a wholesome answer to the research question on the mechanisms and contextual aspects that affect this association.

Phase 1: Qualitative Results

The final analytic sample used in the quantitative phase was 295 registered nurses and 412 patients in 3 tertiary-care hospitals in Riyadh. Table 1 summarizes demographic and clinical traits of the participants. The mean age of the nurse cohort was 31.4 years (SD = 5.7) with 72.5 percent of the cohort being female. A small majority of (56.9) were Saudi, with 6.2 years

of overall clinical experience (SD=4.1), equally spread across the surgical and medical units. The average age of the sample of patients was 48.2 (SD = 16.3), and both genders were almost equal (94.4% of Saudi citizens). The most dominant type of pain was post-operative pain (64.8%).

Table 1: Characteristics of Nurse and Patient Participants (N=295 Nurses, N=412 Patients)

Characteristic	Nurses (n=295)	Patients (n=412)
Age, Mean (SD)	31.4 (5.7) years	48.2 (16.3) years
Gender, n (%)		
Female	214 (72.5%)	198 (48.1%)
Male	81 (27.5%)	214 (51.9%)
Nationality, n (%)		
Saudi	168 (56.9%)	389 (94.4%)
Non-Saudi	127 (43.1%)	23 (5.6%)
Experience, Mean (SD)	6.2 (4.1) years	--
Primary Pain Type, n (%)		
Post-operative	--	267 (64.8%)
Chronic (e.g., back pain)	--	102 (24.8%)
Other Acute	--	43 (10.4%)
Unit Type, n (%)		
Surgical	152 (51.5%)	--
Medical	143 (48.5%)	--

Core Variables Description

The primary measured variables, as well as their descriptive statistics, allowed getting a preliminary idea of the current state of the nursing practice and patient outcomes, the answers to which the first research objective directly addresses. The knowledge of nurses on pain management, as assessed by the Knowledge and Attitudes Survey Regarding Pain (KASRP), had a mean of 64.8% (SD = 12.3) according to Table 2. They scored lowly on the attitude subscale at 58.2% (SD = 15.1). Nursing pain management practices were at 38.5 (SD = 8.6) of the maximum 60 (NPMP-S scale developed by the researcher). Mean perceived workload had high reports of 68.4 (SD = 14.2) on the NASA-Task Load Index (NASA-TLX). The patient-reported pain management efficacy composite score (as measured by the APS-POQ-R) was 5.9 (SD = 2.1) on a 0-10 scale with high scores representing better results.

Table 2: Descriptive Statistics for Primary Measured Variables

Variable	Possible Range	Mean (SD)	Observed Range	Cronbach's α
Nurse Variables (n=295)				
1. Pain Management Knowledge (KASRP-K Score)	0-100%	64.8% (12.3)	32-92%	0.78
2. Pain Management Attitude (KASRP-A Subscore)	0-100%	58.2% (15.1)	20-90%	0.71
3. Practice Frequency (NPMP-S Total)	0-60	38.5 (8.6)	18-57	0.87
4. Perceived Workload (NASA-TLX)	0-100	68.4 (14.2)	35-95	0.89
Patient Outcome (n=412)				
5. Pain Management Efficacy (APS-POQ-R Composite)	0-10	5.9 (2.1)	1.2-9.5	0.91

Note: APS-POQ-R Composite is a transformed score where higher values indicate better efficacy (lower interference, higher satisfaction).

Bivariate Relationships

The correlation analysis performed by Pearson was done to test the interdependence of the variables of nurse level with the main patient outcome (Table 3). A number of statistically significant correlations were found. There was a moderate positive correlation between pain management efficacy and the frequency of practice by the nurses (r =.52, p <.001) as well as a moderate positive correlation between pain management efficacy and the attitudes of nurses (r =.45, p <.001). The positive correlation between efficacy and the knowledge of nurses was found to be weaker (r =.22, p less than 0.01). On the other hand, the patient efficacy and the workload of the nurse showed a significant negative relationship (r = -.29, p =.001). A positive relationship existed between attitude and practice frequency among nurse variables, with a strong positive relationship of the variables being correlated (*r* =.58, *p* <.001) and a moderate negative relationship between the variables (*r* =- 37, *p* <.001).

Table 3: Intercorrelations Between Nurse-Level Variables and Patient Pain Management Efficacy

Variable	1	2	3	4	5
1. KASRP-K (Knowledge)	—				
2. KASRP-A (Attitude)	.42***	—			
3. NPMP-S (Practice)	.31***	.58***	—		
4. NASA-TLX (Workload)	-.12*	-.19**	-.37***	—	
5. APS-POQ-R (Efficacy)	.22**	.45***	.52***	-.29***	—

***p < .001, **p < .01, *p < .05 (two-tailed).*

Patient pain management Efficacy predictors

In order to determine the distinct role of the factors of nursing on patient outcomes and to adjust such factors to the appropriate patient characteristics, a hierarchical multiple linear regression was conducted. This discussion covered the second research purpose directly. The control variables, patient age and the type of pain (post-operative vs. chronic), were recorded in Step 1 and contributed to a minor but significant proportion of the predictive power of pain management (R 2 = 0.04, = =0.001). The type of pain was also a negative predictor (-.18, p = 001) in this first model, with the results showing lower efficacy scores among patients with chronic pain as opposed to post-operative pain.

Key nurse variables, which included experience, knowledge, attitude, practice frequency, and workload, were added into the model in Step 2. The complete model was statistically significant and explained 33% of the differences in patient pain management efficacy (Adjusted R 2 =.33, F(7, 404) =28.94, *p=.001), which is a significant and substantial increase in explanatory power (8). Table 4 is the detail of the coefficients.

Table 4: Hierarchical Regression Analysis Predicting Patient-Reported Pain Management Efficacy (APS-POQ-R Composite Score)

Predict	Model 1: Patient Controls	Model 2: Adding Nurse Factors		
	B (SE)	β	B (SE)	β
Step 1: Patient Controls				
Patient Age	0.01 (0.01)	.05	0.00 (0.01)	.02
Pain Type (Post-op vs. Chronic)	-0.85 (0.23)***	-.18	-0.62 (0.20)**	-.13
Step 2: Nurse Variables				
Nurse Experience (years)			0.03 (0.02)	.07
KASRP-K (Knowledge)			0.01 (0.01)	.06
KASRP-A (Attitude)			0.04 (0.01)*	.26
NPMP-S (Practice Frequency)			0.09 (0.02)***	.35
NASA-TLX (Workload)			-0.02 (0.01)*	-.12
Model Summary				
R^2 / Adjusted R^2	.04 / .03		.34 / .33	
ΔR^2 (p-value)	--		.30 (< .001)	
F-statistic (p-value)	F(2, 409) = 7.12, p = .001		F(7, 404) = 28.94, p < .001	

*__Note:__ B = unstandardized coefficient; SE = standard error; β = standardized beta coefficient. *p < .05, **p < .01, **p < .001.

Once patient factors and other nurse variables have been taken into account, two factors in nursing came out as statistically significant and positive predictors of patient-reported efficacy. The model yielded the strongest standardized beta coefficient of nursing practice frequency (NPMP-S) (=.35, *p =.001), meaning that one standard deviation of an increase in practice frequency has a positive impact on pain management efficacy by 0.35 standard deviation. Attitude of nurses to pain management (KASRP-A) also significantly and positively predicted (*p* <.05) (=.26). The perceived workload of nurses was a major negative predictor (= -.12, p* <.05). Interestingly, the knowledge score (KASRP-K) of the nurses did not positively predict uniquely into the full model (0.06, 0.24) with practice and attitude being considered. Non-significance was also the case with nurse experience.

Phase 2: Qualitative Findings

Thematic analysis of the interviews with 15 nurses and 12 patients revealed four broad themes that gave the quantitative findings depth and context, thus covering the third research objective completely. Table 5 is a synthesis of these themes, their subthemes, and their connection to the quantitative data.

The primacy of communicative and reassuring practices was the first general theme that explained the high-frequency practice (NPMP-S) as perceived by the participants. High-

scoring nurses characterized those practices that were not limited to procedural activities. They pointed out to thorough evaluation, and one nurse said, assessment is not merely a score: it is inquiring after the character, listening (Nurse 7). This was supported by the patients who valued nurses who could give them an explanation and assurance. According to one patient, the nurse who is able to explain why the pain occurs and what the medicine is going to accomplish- this minimizes fear more than the injection itself (Patient 22). This theme gives a direct explanation of the strong quantitative correlation between practice frequency and patient efficacy, which demonstrates that effective practice was deeply embedded on the basis of communication and psychological support, and which was usually mediated by the family intervention.

The second theme, Attitude as a Catalyst or Barrier: Whose Pain is it? It was a critical insight into how nurses' attitude is a major predictor of success. The attitudes were based on both a proactive sense of owning the comfort of his patient (Nurse 3) and an opposing, skeptical reaction. Some nurses expressed culturally influenced skepticism about the validity of patient pain reports, particularly from certain demographics. One nurse commented, "Sometimes we must doubt the severity, especially with some young female patients; it can be exaggerated" (Nurse 9). This spectrum of attitudes directly influenced the translation of knowledge into action, explaining why attitude remained a significant predictor even when knowledge itself was not.

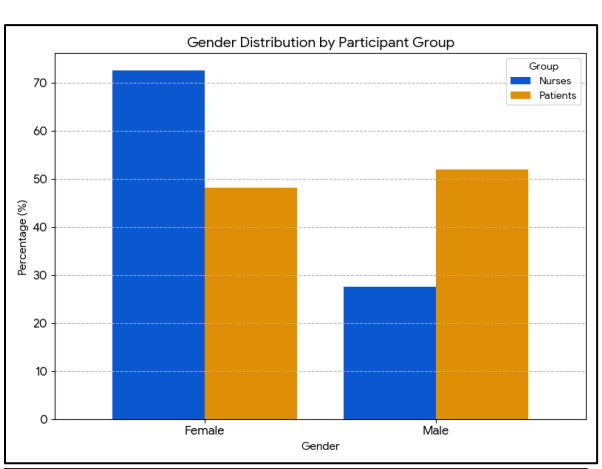
The system's Invisible weight, workload, and protocol rigidity were the third theme, in which the adverse influence of workload was observed, and organizational aspects of the model of response variables were identified. High patient assignments resulting in task saturation were universally described by nurses. One of the nurses said, I have 12 patients, and I focus on the vital signs and medications; a comprehensive reassessment of pain is a luxury (Nurse 5). In addition, strict institutional procedures, including set analgesic timetables and hierarchical communication barriers when it comes to contacting the physicians to make alterations to orders, were often mentioned as barriers on the way to timely and personalized pain management. This theme explains the quantitative relationship between the high NASA-TLX scores and the low practice frequency/patient efficacy.

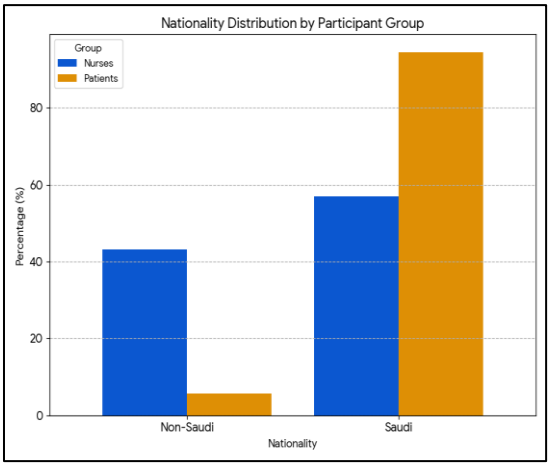
Lastly, the fourth theme, The Patient Cultural Lens: Stoicism, Faith and Trust, noted the aspects of patients that were independently associated with the outcome variable. Another common sub-theme was cultural exaltation of stoicism and religious understanding of pain. One patient had to say, I am the one who has to suffer, it is a trial by God, and I am not a complainer (Patient 18). At the same time, there was a strong unspoken faith in medical authority: I do not ask questions, I believe whatever the nurse recommends to do; in her best judgment (Patient 05). These cultural variables had a direct influence on pain reporting behavior and satisfaction score, giving the necessary background to the interpretation of patient-reported APS-POQ-R scores and the difference, which was not explained by the nursing variables alone.

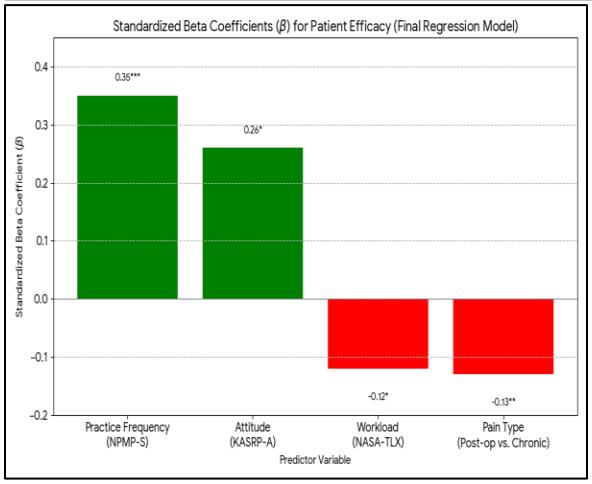
Table 5: Overarching Themes and Subthemes from Qualitative Interviews (n=15 Nurses, n=12 Patients)

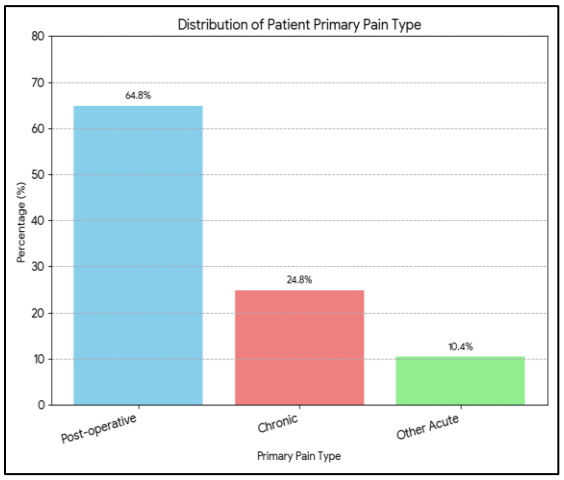
Overarching Theme	Subthemes Illustrating the Theme	Link to Quantitative Findings
1. The Primacy of Communicative and Reassuring Practices	• "Assessing is more than a score: It's asking about the character, listening." (Nurse 7) • "The nurse who explains why the pain happens and what the medicine will do—this reduces fear more than the injection itself." (Patient 22) • Family involvement as a cultural mediator in pain reporting.	Explains the strong effect of NPMP-S (Practice). The qualitative data reveals that high-scoring nurses engaged in profound communicative acts, not just technical tasks, which patients perceived as highly effective.
2. Attitude as a Catalyst or Barrier: "Whose Pain is it?"	• Proactive vs. Reactive Stance: "I own my patient's comfort" (Nurse 3) vs. "I give analgesia when they complain severely" (Nurse 11). • Cultural skepticism about pain expression, especially towards female patients: "Sometimes we must doubt the severity…" (Nurse 9).	Explains the KASRP-Attitude effect. Attitudes determined the translation of knowledge into action. Skeptical attitudes directly limited intervention frequency and empathy.
3. The System's Invisible Weight: Workload and Protocol Rigidity	• Task Saturation: "With 12 patients, I prioritize vital signs and medications; a detailed pain reassessment is a luxury." (Nurse 5) • Protocol Barriers: Delays due to fixed analgesia schedules and hierarchical barriers to contacting physicians for order changes.	Explains the NASA-TLX workload effect and residual variance. Contextualizes why even motivated nurses (high attitude) were constrained, limiting practice frequency and efficacy.
4. The Patient's Cultural Lens: Stoicism, Faith, and Trust	• Stoicism as Virtue: "I bear the pain; it is a test from God (Alzheimer's), and complaining is weak." (Patient 18) • Trust in Authority: "I accept whatever the nurse says is best; I do not question." (Patient 05)	Explains variance in APS-POQ-R scores. Patient cultural factors directly influenced pain reporting and satisfaction scores, independent of nursing care quality.

In short, the quantitative findings have determined the specific nursing variables of practice frequency and attitude as statistically significant mechanisms that influence patient pain outcome. These qualitative results then eloquently outlined the character of these practices, the continuum of driving attitudes, and, more importantly, unveiled the organizational and cultural contexts that were thorough and prevailing to moderate the influence in the Saudi hospital environment.









DISCUSSION

The research gives a subtle insight into the role of nursing in pain management in a unique socio-cultural and organizational environment of Saudi Arabian hospitals. Our combined mixed-method results indicate that the effect of nursing is not a straightforward role of technical knowledge, but it is essentially mediated by behavioral practice, professional attitude, and strongly moderated by systemic and cultural influences [20].

Discussion of the Main Results

The salient finding that we have made was that the frequency of nursing pain management practices and attitudes of the nurses towards the pain were the only significant independent predictors of patient-reported efficacy, but not knowledge alone [21]. This implies that knowing this environment is a prerequisite but not a sufficient requirement for successfully managing pain; its implementation is dictated by attitude. This mechanism has been strongly illuminated by the qualitative data [22]. An active ownership (I own my patient comfort) attitude led to comprehensive communicative practices (e.g., detailed evaluation and education of patients), which the patients considered to be very effective [23]. Attitudes that were affected by cultural suspicion or a reactive attitude, on the other hand, served as a detrimental factor, and they hampered the utilization of knowledge irrespective of the level of that knowledge [24]. This goes right to the essence of our research question, where we can determine that the effect of nursing is best viewed as having the attitude that determines the use of knowledge via practice, which, in turn, directly influences patient outcomes [25].

Also, the close negative correlation between nurse workload and practice frequency and patient outcomes, in the frame of the themes of task saturation and protocol rigidity, places the critical moderating variable in perspective [26]. It suggests that even the most informed and positively oriented nurses are systematically restricted in their influence, and their influence is reduced due to the organizational realities [27]. Lastly, the cultural stoicism and trust in authority patient-generated theme provides an important prism through which the outcome variable in question can be interpreted, showing that patient-reported pain and satisfaction are culturally constructed and cannot be attributed to the quality of care only [28].

Comparison to Past Research

The primary drivers of our core model, that attitude and practice should be at the heart of the model more than knowledge, is highly supported by the milestone work [29], which long held the view that the personal beliefs and biases of nurses are the largest obstacles in the management of pain. This statement is empirically validated in our data in a non-Western setting. The fact that the knowledge is not significant as an independent predictor within the regression model, though, is a contradiction of some previous research that has found knowledge gaps as a leading problem [30]. This inconsistency can be attributed to the study conducted by [31], who discovered that there are knowledge gaps among the Middle Eastern nurses, but systemic problems tend to hinder the application of the knowledge. This is progressed in our research, in which we numerically show that knowledge can be said to have a direct impact when other factors are controlled, and as such, it is mostly influential indirectly through these other variables [32].

The explanatory strength of workload is consistent with the emerging international research on nursing burnout and missed care. As [33] defines, missed nursing care does incorporate such discretionary elements of pain control as reassessment and comfort measures, which are compromised in high workload, which we represented strongly in our qualitative data [34]. The cultural results of stoicism and faith are also similar to other research on pain expression among Arab-Muslims, like that by [35], which emphasizes the religious conception of suffering as a test that should be endured with patience.

Scientific Explanation

Biopsychosocially, the stress coping model and neurobiology of trust and reassurance can explain our findings. This is caused by the high workload of the nurse, and in this situation, cognitive attention is directed to life-saving mandatory tasks at the expense of the empathetic and discretionary communication needed to manage pain comprehensively [36]. This restricts the ability of the nurse to offer a psychosocial response that controls pain perception. On the other hand, positive nurse attitudes enable patient-centered communication, which is a process that triggers neurobiological pathways in the patient [37]. Fear and anxiety are potentially decreased through explanations and reassurances, which in turn decrease the process of amygdala activation and amplification of pain signals led by stress in the ascending pathway [38]. In addition, culturally endorsed stoicism and trust may be able to affect the descending inhibitory pain pathways in which cognitive appraisal (e.g., a spiritual challenge) can alter the perception of pain at the periaqueductal grey level. Therefore, the neurological processing of nociception is directly affected by the interaction of the behavior of the nurse (practice/attitude) and the patient's psychology (cultural lens) [39].

Implications

In the context of clinical practice in Saudi Arabia and other contexts, the findings suggest a paradigm shift in nursing professional growth. Continuing education should go beyond knowledge dissemination, focusing on attitude change and the development of particular

communicative and advocacy competencies. More importantly, healthcare administrators should be aware that pain outcomes improvement is not a problem of nursing competencies alone but an organizational problem [40]. Reducing workload through improved nurse-patient ratios, implementation of unit-based pain resource nurses, etc., are necessary interventions to ensure the best practices become possible. In the case of research, this study highlights the importance of employing mixed-method designs in order to unravel multifaceted clinical phenomena. Future studies need to aim at designing and testing culturally-sensitive, multi-level interventions that can be implemented in parallel to influence the attitudes of nurses, practical skills, and systemic barriers such as workload and strict protocols.

Limitations

This research has a number of limitations. Quantitative phase applies a cross-sectional design, which does not allow the determination of the causal direction of variables. Sampling was also limited to the public tertiary hospitals in Riyadh and thus might not be applicable in relation to the findings generalized to the private institutions or other parts of the Kingdom. Although the NPMP-S scale developed by the researcher demonstrated a high level of reliability, its complete validation is still subject to a psychometric test. Lastly, social desirability bias might have contributed to some of the self-reported scales, especially on the attitude scale.

CONCLUSION

This research concluded that nursing has a strong influence on pain management results at Saudi hospitals, which are mostly influenced by the prevalence of communicative nursing practices and proactive professional attitudes, but not only by the knowledge. The study was able to address the objectives by quantifying these relationships and explaining the moderating effect of high workload, strict protocols, and cultural dimensions such as stoicism. The first scientific contribution is an integrative model that proves that the impact of nursing is mediated by the organizational and cultural ecosystem. More research is needed in the future to design and test interventions to address modifiable barriers, including unit-level workload management practices and culturally sensitive communication training to implement these results in better patient care.

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