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An Emotional Intelligence Training Program and Its Impact on Improved Nursing Performance in Madinah Hospitals

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Abstract

The paper was to examine digital transformation and strengthening sustainable procurement within Ghana's manufacturing sector where firms continually face challenges related to supplier readiness, cost constraints and weak enforcement of environmental regulations. Drawing conceptual research designs. The study synthesised literature on digital technologies, sustainable procurement and integrated findings from Ghanaian studies/documents barriers to sustainability adoption. The analysis evidenced digital tools such as e-procurement platforms, blockchain systems, artificial intelligence and traceability technologies offer significant opportunities for improving transparency, supplier evaluation and lifecycle monitoring. These technologies address limitations that historically weakened sustainability performance in Ghana& help firms respond to rising expectations from regulators and customers. The conceptual-framework developed in the study links institutional pressures, organisational capabilities and stakeholder relationships to demonstrate how digital transformation enables sustainable procurement outcomes. The findings indicate practical policy implications that emphasise phased digital adoption, capacity building and stronger regulatory support. Essentially, the study provides foundation for future empirical research, reinforces the importance of digital readiness as strategic requirement for achieving sustainability in manufacturing.

Keywords: Emotional Intelligence, Healthcare Training, Nursing Performance, Saudi Arabia, Vision 2030

Introduction

Emotional intelligence (EI) is defined as the capacity to recognize, understand, and manage one's own emotions and those of others, and to use this awareness to guide thinking and behavior (Goleman, 1995). In the demanding healthcare environment, EI has emerged as a critical professional competency, particularly in nursing, where practitioners must navigate complex, emotionally charged interactions with patients, families, and colleagues daily. The nursing workforce in Madinah hospitals, including King Fahd Hospital, Ohud Hospital, and Madinah Maternity and Children Hospital, serves a large and diverse patient population that includes pilgrims and residents, presenting distinct emotional and cultural demands that necessitate high levels of emotional competence.

The relationship between EI and nursing performance has attracted considerable scholarly attention. Alsufyani et al. (2022) demonstrated that EI positively impacts nurses' work performance in Saudi Arabia, with occupational stress serving as a key mediating variable. More recently, Cheraghi et al. (2025) confirmed a direct positive effect of EI on job performance ($\beta = 0.099$) and a significant reduction in occupational stress ($\beta = -0.316$). At the international level, a systematic review and meta-analysis by Kawashima et al. (2025), encompassing 23 studies and 1,155 participants, found that EI training significantly improved EI scores (SMD = 1.76), reduced stress (SMD = −1.51), and enhanced communication skills (SMD = 2.72) among nurses and nursing students. Similarly, Powell et al. (2024) reviewed EI training across the healthcare workforce and found that all included studies demonstrated an increase in EI following the intervention, with RCTs showing a significant positive effect (SMD = 1.51, $p < 0.01$).

Despite this growing body of evidence, structured EI training programs remain underutilized in many Saudi Arabian healthcare institutions. A recent assessment of nurses in Jeddah by Alhakami and Baker (2025) found only moderate overall EI scores (3.3/5.0), with self-control and emotionality scoring particularly low, highlighting the urgent need for targeted training. In the critical care context, Aljanfawi et al. (2026) confirmed a positive relationship between EI and job performance among critical care nurses in Saudi Arabia, while Fattah et al. (2023) reported that an EI training program significantly reduced burnout among critical care nurses. Furthermore, Altalhi and Alilyyani (2025) found that EI is significantly associated with resilience and reduced turnover intention among emergency nurses in Saudi Arabia. These findings underscore the clinical and organizational relevance of EI in the Saudi nursing context. Empirical studies focusing specifically on Madinah hospitals, however, remain scarce, representing a significant gap in the literature that this study seeks to address.

Review of Related Literature

Emotional intelligence (EI), as conceptualized by Goleman (1995), refers to the ability to perceive, understand, and manage emotions effectively, and it has become an essential competency in nursing practice. In healthcare settings, particularly in Saudi Arabia, growing evidence highlights the significant role of EI in enhancing nurses' performance and wellbeing. Studies have shown that EI is positively associated with job performance, as nurses with higher emotional competence demonstrate better communication, clinical decision-making, and teamwork (Alsufyani et al., 2022; Aljanfawi et al., 2026). Furthermore, EI contributes to reduced occupational stress, which is a critical factor influencing performance and patient care outcomes (Cheraghi et al., 2025). Research conducted in Saudi Arabia also indicates that nurses often exhibit moderate levels of EI, suggesting a need for structured training programs to improve emotional skills (Alhakami & Baker, 2025).

Additionally, EI has been linked to increased resilience and reduced turnover intention among nurses, highlighting its importance for workforce stability and retention (Altalhi & Alilyyani, 2025). Training interventions have demonstrated substantial benefits, including reduced burnout and improved leadership and professional development (Fattah et al., 2023; Frias et al., 2021). Systematic reviews further confirm that EI training significantly enhances emotional competence, stress management, and communication skills among healthcare professionals (Kawashima et al., 2025; Powell et al., 2024). Overall, the literature underscores EI as a critical factor in improving healthcare quality and nursing outcomes.

Objectives

This study is further motivated by the goals of Saudi Vision 2030, which places significant emphasis on transforming the healthcare sector by improving quality, patient safety, and workforce competence. Investing in EI training programs for nurses represents a strategic approach to achieving these national healthcare goals. The aim of this study is to evaluate the impact of a structured EI training program on nursing performance in hospitals in Madinah. Specifically, the study objectives are: (1) to assess the baseline level of EI among nurses in selected Madinah hospitals; (2) to design and implement a structured EI training program based on Goleman's five-component model (self-awareness, self-regulation, motivation, empathy, and social skills); (3) to measure the effect of the training program on key nursing performance indicators, including patient satisfaction, clinical decision-making, communication, teamwork, and stress management; (4) to examine the relationship between post-training EI scores and nursing performance outcomes; and (5) to provide evidence-based recommendations for integrating EI training into ongoing professional development programs in Madinah hospitals.

Methodology

Study Design and Setting

A quasi-experimental pre-test/post-test design with a control group was employed to evaluate the impact of the EI training program on nursing performance. This design was selected as widely used and appropriate for evaluating educational interventions in clinical settings where randomization is not always feasible (Fattah et al., 2023). The study was conducted in three major hospitals in Madinah, Saudi Arabia: King Fahd Hospital, Ohud Hospital, and Madinah Maternity and Children Hospital. These hospitals were selected based on their large nursing workforce and their role in serving the diverse patient population of the Madinah region.

Participants

A total of 120 registered nurses were recruited using stratified random sampling, with 60 nurses allocated to the intervention group and 60 to the control group. Stratification was based on the hospital and department to ensure proportional representation. Inclusion criteria required participants to hold a valid nursing registration, have more than 1 year of clinical experience, and be employed full-time. Nurses who were on extended leave or had previously participated in a formal EI training program were excluded. Table 1 presents the demographic characteristics of both groups.

Intervention

The intervention consisted of a structured 8-week EI training program, with weekly 2-hour sessions delivered to the intervention group. The curriculum was developed based on Goleman's (1995) five-component model of EI and was informed by the evidence-based training frameworks reviewed in the literature. Each session addressed one of the five core EI competencies: self-awareness, self-regulation, motivation, empathy, and social skills. Training methods included interactive workshops, role-playing exercises, reflective journaling, case-based discussions, and group activities. The control group received no EI training during the study period and continued with their standard professional development activities.

Data Collection Instruments

Data were collected at two time points: before the intervention (pre-test) and immediately after the 8-week program (post-test). Four validated instruments were used. The Trait Emotional Intelligence Questionnaire (TEIQue) was used to measure overall EI and its four sub-factors: well-being, self-control, emotionality, and sociability. The Nursing Performance Scale (NPS) assessed clinical performance across domains, including clinical skills, communication, teamwork, and professional behavior. The Nursing Stress Scale (NSS) measured the frequency of occupational stress. The Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ) assessed patient satisfaction with the nursing care received. All instruments had established reliability and validity and were administered in Arabic.

Analysis

Data were analyzed using IBM SPSS Statistics version 26. Descriptive statistics (mean, standard deviation, frequencies, and percentages) were used to summarize demographic and outcome variables. Paired samples t-tests were used to compare pre- and post-test scores within each group, while independent samples t-tests were used to compare post-test scores between the intervention and control groups. Pearson correlation analysis was conducted to examine the relationships between post-training EI scores, nursing performance, and occupational stress. Multiple linear regression was used to identify predictors of post-training nursing performance. A significance level of $p < 0.05$ was adopted for all statistical tests.

Table 1. Demographic Characteristics of Intervention and Control Groups.

Characteristic	Intervention Group (n=60)	Control Group (n=60)	p-value
Age (years), Mean ± SD	31.4 ± 5.2	32.1 ± 5.8	0.52
Gender: Female	48 (80%)	46 (76.7%)	0.64
Gender: Male	12 (20%)	14 (23.3%)	0.64
Nationality: Saudi	22 (36.7%)	24 (40%)	0.71
Nationality: Non-Saudi	38 (63.3%)	36 (60%)	0.71
Education: Diploma	18 (30%)	20 (33.3%)	0.69
Education: Bachelor's	36 (60%)	34 (56.7%)	0.72
Education: Postgraduate	6 (10%)	6 (10%)	1.00
Experience (years), Mean ± SD	7.3 ± 4.1	7.8 ± 4.5	0.55
Department: Medical/Surgical	24 (40%)	22 (36.7%)	0.71
Department: Critical Care	18 (30%)	20 (33.3%)	0.69
Department: Obstetrics/Pediatrics	18 (30%)	18 (30%)	1.00

Findings and Discussion

Baseline Characteristics

As presented in Table 1, the two groups were comparable at baseline with no statistically significant differences in age, gender, nationality, educational level, years of experience, or department distribution ($p > 0.05$ for all variables). The mean age of participants was 31.4 ± 5.2 years in the intervention group and 32.1 ± 5.8 years in the control group. Most of the participants in both groups were female (80% and 76.7%, respectively) and held a bachelor's degree in nursing (60% and 56.7%, respectively). The mean years of experience were 7.3 ± 4.1 and 7.8 ± 4.5 for the intervention and control groups, respectively. This baseline equivalence supports the validity of subsequent between-group comparisons.

Pre- and Post-Training Outcomes

Table 2 presents the pre- and post-training scores for all outcome measures in both groups. The intervention group demonstrated statistically significant improvements across all outcomes following the 8-week EI training program, while the control group showed no significant changes.

Table 2. Pre- and Post-Training Outcome Measures for Intervention and Control Groups

Outcome Measure	Intervention Pre-test	Intervention Post-test	Control Pre-test	Control Post-test	p-value*
TEIQue Global Score	3.2 ± 0.31	3.8 ± 0.28	3.1 ± 0.29	3.2 ± 0.30	**<0.001**
Self-Awareness	3.1 ± 0.35	3.9 ± 0.27	3.0 ± 0.33	3.1 ± 0.34	**<0.001**
Self-Regulation	3.0 ± 0.38	3.7 ± 0.31	3.0 ± 0.36	3.1 ± 0.35	**<0.001**
Empathy	3.3 ± 0.29	3.9 ± 0.25	3.2 ± 0.31	3.3 ± 0.30	**<0.001**
Social Skills	3.2 ± 0.33	3.8 ± 0.28	3.1 ± 0.32	3.2 ± 0.31	**<0.001**
NPS (Nursing Performance)	72.4 ± 8.3	86.7 ± 7.1	71.8 ± 8.6	72.5 ± 8.4	**<0.001**
NSS (Occupational Stress)	58.3 ± 9.2	44.1 ± 8.6	57.9 ± 9.5	57.2 ± 9.3	**<0.001**
Patient Satisfaction (PSNCQQ)	74.2 ± 6.8	84.5 ± 5.9	73.8 ± 7.1	74.1 ± 7.0	**<0.001**

*Note. *p-value for between-group difference at post-test (independent samples t-test). NPS = Nursing Performance Scale; NSS = Nursing Stress Scale; PSNCQQ = Patient Satisfaction with Nursing Care Quality Questionnaire; TEIQue = Trait Emotional Intelligence Questionnaire.*

Impact on Emotional Intelligence Scores

Post-training TEIQue global scores in the intervention group increased significantly from a mean of 3.2 ± 0.31 to 3.8 ± 0.28 ($p < 0.001$), while the control group showed no significant change (3.1 ± 0.29 to 3.2 ± 0.30). Significant improvements were observed across all five EI sub-components, with the largest gains in self-awareness (3.1 to 3.9) and empathy (3.3 to 3.9). These findings are consistent with the meta-analytic evidence of Kawashima et al. (2025), who reported a standardized mean difference of 1.76 for EI improvement following training in a sample of 1,155 nurses and nursing students. Similarly, Powell et al. (2024) found that all studies in their meta-analysis reported an increase in EI following healthcare workforce training, with RCTs yielding an SMD of 1.51. The present findings thus add to the growing body of evidence supporting the effectiveness of structured EI training in clinical nursing contexts.

Impact on Nursing Performance

NPS scores improved significantly in the intervention group, rising from 72.4 ± 8.3 to 86.7 ± 7.1 ($p < 0.001$), while the control group remained stable (71.8 ± 8.6 to 72.5 ± 8.4). This represents a clinically meaningful improvement of approximately 14.3 points, reflecting enhanced clinical skills, communication, teamwork, and professional behavior. The strong positive correlation between post-training EI scores and nursing performance ($r = 0.68$, $p < 0.001$) suggests that the improvement in performance was substantially mediated by increases in EI. This finding aligns with Alsufyani et al. (2022), who demonstrated a positive relationship between EI and work performance in Saudi nurses, and with Aljanfawi et al. (2026), who confirmed this relationship specifically among critical care nurses in Saudi Arabia. The improvement in performance across all five EI

domains suggests that a comprehensive, multi-component training approach is more effective than targeting a single EI competency in isolation (Chatzidimitriou et al., 2025).

Reduction in Occupational Stress

NSS scores decreased significantly in the intervention group, from 58.3 ± 9.2 to 44.1 ± 8.6 ($p < 0.001$), indicating a meaningful reduction in occupational stress. The control group showed no significant change (57.9 ± 9.5 to 57.2 ± 9.3). A significant negative correlation was observed between post-training EI scores and occupational stress ($r = -0.54$, $p < 0.001$), suggesting that higher EI is associated with greater resilience to workplace stressors. This finding is particularly critical in the context of Madinah hospitals, where nurses manage high-stress situations involving critically ill patients and pilgrims during the Hajj and Umrah seasons. The result corroborates the findings of Cheraghi et al. (2025), who demonstrated a significant direct effect of EI on reducing occupational stress ($\beta = -0.316$) in Iranian nurses, and of Alsufyani et al. (2022), who identified occupational stress as a key mediator between EI and work performance in Saudi Arabia. Furthermore, the reduction in stress is consistent with the meta-analytic findings of Kawashima et al. (2025), who reported an SMD of −1.51 for stress reduction following EI training.

Impact on Patient Satisfaction

Patient satisfaction scores (PSNCQQ) improved significantly in wards where the intervention group worked, rising from 74.2 ± 6.8 to 84.5 ± 5.9 ($p < 0.001$), while scores in control wards remained stable (73.8 ± 7.1 to 74.1 ± 7.0). This improvement of approximately 10.3 points underscores the direct clinical value of EI training for patient outcomes. As noted by Chatzidimitriou et al. (2025), EI enhances patient care through better ethical practice, empathic communication, and more effective therapeutic relationships. The finding that improvements in patient satisfaction were concurrent with improvements in nurse EI and performance provides strong support for the clinical relevance of this intervention. This is particularly significant in the Madinah context, where patient-centered care for a diverse, multicultural population is a key quality indicator.

Conclusion

This study provides compelling evidence that a structured 8-week EI training program can significantly improve nursing performance, enhance patient satisfaction, and reduce occupational stress in the demanding context of Madinah hospitals. The intervention produced statistically significant and clinically meaningful improvements across all measured outcomes, validating the efficacy of targeted emotional skills development in a clinical setting. The strong correlations between post-training EI and both nursing performance ($r = 0.68$) and stress reduction ($r = -0.54$) suggest that EI is a fundamental driver of professional nursing effectiveness.

Based on these findings, it is recommended that nursing administrators and hospital managers in Madinah invest in systematic EI development as a core component of their workforce strategy, in alignment with the goals of Saudi Vision 2030. Integrating EI training into nursing orientation programs, continuing education curricula, and leadership development initiatives can yield substantial returns in patient outcomes, staff well-being, and organizational performance. Particular attention should be paid to self-control and emotionality, which were identified as areas of relative weakness in the Saudi nursing workforce (Alhakami & Baker, 2025).

The study has several limitations that should be acknowledged. The quasi-experimental design, while appropriate for this context, does not allow for complete causal inference due to potential confounding variables. The study was conducted in only three hospitals in Madinah, which may limit the generalizability of findings to other regions of Saudi Arabia. The relatively short duration of the training program (8 weeks) may not capture the full long-term effects of EI development, and longitudinal follow-up studies are recommended. Social desirability bias may have influenced participants' self-reported responses, and the predominantly expatriate nursing workforce may have responded differently to the training due to cultural factors. Future research should explore the long-term sustainability of EI training effects, develop culturally adapted training materials for the diverse Saudi nursing workforce, and investigate the optimal duration and delivery modalities for EI training in healthcare settings.

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