

Self-Efficacy, Emotional Intelligence, and Clinical Core Competency among Nurses in Primary Health Care Centers



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Abstract:

Introduction: Primary healthcare centers are a vital component of health systems worldwide. In Bahrain, primary health care centers not only manage minor health issues but also serve as an emergency unit by providing first aid and resuscitation until patients are transferred to main hospitals. Therefore, qualified staff nurses with high levels of clinical competence, self-efficacy, and emotional intelligence are essential to ensuring quality care. This study evaluated levels of clinical core competency, emotional intelligence, and self-efficacy among Bahraini nurses employed in primary health care facilities and investigated the relationships among these factors.

Methods: A descriptive quantitative design was used. A cluster random sampling technique was used to select 218 nurses from different primary health care facilities in Bahrain. Data were gathered by using the Competency Inventory for Registered Nurse (CIRN), the Schutte Self-Report Emotional Intelligence (SSEIT), and the Nursing Profession Self-Efficacy Scale (NPSE).

Results: Most participants were female (73.9%), aged 26–30 years (50.9%), and held a bachelor's degree (93.1%). The majority had ≤5 years of experience (68.3). Nurses demonstrated moderate emotional intelligence. (3.72 ± 0.56), self-efficacy (3.31 ± 1.01), and satisfactory clinical competency (2.68 ± 0.88). For clinical competency, the highest scores were in legal-ethical practice (2.43 ± 0.94 and 2.39 ± 0.92 , respectively), and the lowest were in critical thinking and coaching. Additionally, we identified significant relationships among self-efficacy, emotional intelligence, and clinical core competency ($p < 0.01$).

Discussion: This study has several strengths. First, it is among the few studies examining the relationship between self-efficacy, emotional intelligence, and clinical competency among Bahraini primary health care nurses. Therefore, it provides valuable insights into an under-researched area. Second, the use of validated measurement tools and the inclusion of a diverse range of sociodemographic variables strengthened the reliability and depth of the findings. However, the design limits the ability to identify causal links between variables.

Conclusion: Ongoing staff development programs are essential to enhancing nurses' self-efficacy, emotional intelligence, and clinical competence. Practice implications include developing leadership skills, promoting clinical competency, and integrating emotional intelligence training into the nursing education curriculum.

Keywords: Emotional intelligence, Self-efficacy, Clinical competency, Primary health care centers, Nurses, Competency inventory, National health regulatory authority, Staff development, Quality of care, Bahrain.

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1. INTRODUCTION

As the first point of contact for those seeking to maintain and improve their health, primary health care centers are a crucial component of the health care system worldwide [1]. These centers are pivotal in delivering preventive services, including early disease detection, immunization, and health promotion [2]. Rather than being categorized strictly as patients, individuals attending primary healthcare facilities are often viewed as health consumers seeking professional consultation and interventions to improve their overall well-being [3]. In the Kingdom of Bahrain, primary healthcare centers have expanded their services to include providing immediate first aid and resuscitative measures before transferring patients to secondary or tertiary hospitals *via* ambulance services. Within this multifaceted and dynamic environment, primary health care nurses play a critical role, delivering comprehensive care that addresses both routine health needs and urgent medical situations [4].

Establishing trust in the nurse-patient relationship has been shown to enhance patients' sense of safety, emotional support, and confidence in the care they receive, which are strongly associated with increased patient satisfaction and improved health outcomes according to the American Nurses Association. In primary healthcare settings, nurses are integral members of the emergency response team for first aid and resuscitation. Their responsibilities include administering emergency medications, documenting accurately, and carrying out physicians' orders [5]. To perform effectively in such high-pressure situations, nurses must demonstrate elevated levels of emotional intelligence, self-efficacy, and clinical competency. Emotional intelligence helps nurses manage stress and connect empathetically with patients [6], while self-efficacy builds confidence in performing complex tasks under pressure [7]. Moreover, maintaining clinical competence aligned with professional standards is critical for safe and effective practice, as outlined in Benner's model of skill acquisition in nursing [4].

A key component of providing nursing care is clinical competency is to provide safe and excellent care for individuals, families, and communities, a variety of skills, knowledge, attitudes, beliefs, and abilities must be combined. Clinical competency enhances the quality of care provided to patients and helps reduce missed areas.

Emotional intelligence in nursing is defined as the ability to identify one's own and others' sentiments, monitor oneself, and control one's emotions while speaking with others [8]. Emotional management is a crucial skill for healthcare professionals, leading to more effective patient-centered care, stronger professional relationships with patients, and greater patient satisfaction and concordance [9]. Developing emotional intelligence is vital to increasing nurses' professional competency. Higher emotional intelligence makes nurses more likely to participate in continuing education programs [10]. A systematic review found that nurses must develop social and emotional competencies because of the nature of their occupation [11].

According to Ekerman & Brand, nurses with higher EI are less likely to report burnout and work stress [12]. These findings shed additional light on the aspects of emotional intelligence that are crucial to nurses' stress and burnout, including the capacity to effectively regulate both positive and negative emotions (emotional management) and to regulate intense emotions (emotional control).

Albert Bandura defined self-efficacy as "judgments of how well one can execute courses of action required to deal with prospective "situations". Self-efficacy plays a role in both clinical and academic contexts in the nursing profession [7].

According to Ministry of Health statistics, the number of patients who visited primary health care centers in 2022 was 4,469,574, up from 3,374,572 in 2021. These centers serve an estimated 1.5 million Bahraini and non-Bahraini citizens [13]. As a result, patients in healthcare facilities often interact with nurses. According to Bahrain National Health Regulatory Authority (NHRA) statistics, approximately 71 complaints were filed against Bahrain's healthcare system in 2013, 43.6% of which were against nurses or involved nursing care [14]. In 2019, 13 of the 33 reported incidents were against nurses.

1.1. Research Problem

Nurses working at primary health care centers serve a varied patient population with diverse health care needs, creating a challenging environment. Enhancing a nurse's clinical competency helps overcome these challenges and meet high patient demands. However, excellence in clinical competence does not stand alone—it is deeply linked with nurses' beliefs in their capabilities (self-efficacy) and their ability to recognize, understand, and manage emotions, their own and those of others (emotional intelligence). To the researcher's knowledge, no evidence-based research has examined primary health care nurses' competency. Given this, the present study could help identify gaps related to self-efficacy, emotional intelligence, and primary health care nurses' competency level. This study investigates how these three constructs interact in primary healthcare settings in the Kingdom of Bahrain and explores their combined impact on nurses' clinical competencies.

1.2. Research Question

- [1] What are the levels of self-efficacy among nurses in primary healthcare settings?
- [2] What are the clinical core competency levels among nurses in primary healthcare settings?
- [3] What is the level of emotional intelligence among nurses in primary healthcare settings?
- [4] What is the relationship between self-efficacy, emotional intelligence, and clinical core competency?

2. MATERIALS AND METHODS MATERIALS

2.1. Research Design

This quantitative, descriptive, correlational, cross-sectional study addressed the research questions and variables. This study explored emotional intelligence,

clinical competency, and self-efficacy among nurses working in primary health care centers in Bahrain. It also examined the relationships among these variables. The primary limitation of the cross-sectional study design is that, because it assesses exposure and outcome simultaneously, it generally provides no evidence of a temporal relationship between exposure and outcome [15].

2.2. Settings

The study was conducted at selected primary health care centers in Bahrain. Bahrain has 27 health centers across four main regions. The health centers included in the study were Mohamed Jassim Kano, Isa Town, Sheik Jabber Alsabah, Jidhafs, Yousif Abdulrahman Engineer, Hamad Kano, BBK, and Halat Bu Maher.

2.3. Population

The registered nurses completed their probation period and were working in treatment rooms at primary health care centers in Bahrain.

2.4. Sampling Technique

A Cluster random sampling technique was used to determine the study settings and subjects. In terms of health sector distribution, Bahrain consists of four main governorates. Overall, Bahrain has 27 health centers. Two health centers were randomly selected from each governorate.

2.5. Sample Size

The sample size was estimated using Epi Info software version 10 with the following parameters. The sample included a population of 542 nurses, a 95% confidence level, an anticipated frequency of 50%, and an acceptable error of 5%. The calculation yielded a sample size of 208 nurses. In the present study, we included 218 staff nurses.

2.6. Sampling Criteria

Inclusion criteria consisted of the following:

- Nurses who work at primary health care centers
- Nurses whose experience was not less than 6 months and who had completed their probation period.

Exclusion criteria were as follows:

- Nurses who work in mothers' and children's health
- Nurses working in the elderly mobile unit.

2.7. Data Collection Procedure

2.7.1. Phase I- Selection of Primary Health Care Centers and Sample

The primary health care centers were distributed according to the governorates. Two health centers were chosen by random selection. The study obtained formal administrative approval. Ethical approval was obtained from the ethical committee of the College of Health and Sport Science. A random sample of 218 staff nurses was selected.

2.7.2. Phase II- Preparation for Data Collection

The staff nurses provided their informed written agreement. The first page of the questionnaire included detailed explanations of the study, along with the researcher's contact information, to allow participants to ask any questions. The questionnaire was distributed in printed English. The study explanation, the right to refuse to participate, and informed consent were explained to participants. Withdrawal from the study was allowed at any time during the study. The study maintained data confidentiality and anonymity.

2.7.3. Phase III- Data Collection

The questionnaire was distributed to staff nurses who were willing to participate. Staff nurses completed the clinical competency, self-efficacy, and emotional intelligence questionnaires. The questionnaire took 45 minutes to complete.

2.8. Measurement Tools

The data were collected via self-administered questionnaires; they are as follows:

Part I- Demographic data sheet

Part II- Competency Inventory for Registered Nurses

Part III- Schutte Self-Report Emotional Intelligence

Part IV- Nursing Profession Self-Efficacy Scale

2.8.1. Part I-The Competency Inventory for Registered Nurse (CIRN)

2.8.1.1. Description of the Tool

The CIRN was developed based on the Chinese nursing competency framework [16]. It used the ICN framework of competencies for generalist nurses as a guideline. The CIRN consists of 58 items with seven dimensions. These dimensions include the following:

- [1] Clinical care dimension (10 items): 2, 3, 5, 9, 12, 15, 20, 24, 27, 38.
- [2] Leadership dimensions (9 items): 13, 14, 28, 32, 33, 36, 39, 43, 48.
- [3] Interpersonal relation (8 items): 4, 18, 22, 23, 30, 34, 35, 54.
- [4] Legal/ethic practice (8 items): 10, 11, 25, 31, 37, 44, 45, 49.
- [5] Professional development (6 items): 6, 26, 29, 52, 53, 55.
- [6] Teaching-coaching (6 items): 8, 17, 19, 40, 41, 46.
- [7] Critical thinking-research aptitude (8 items): 1, 7, 16, 21, 42, 47, 50, 51

2.8.1.2. Scoring and Interpretation

The participants will rate their responses on a 4-point Likert scale ranging from 0-4. 0 = not competent, 1 = slightly competent, 2 = somewhat competent, 3 = competent enough, 4 = highly competent. The tool is interpreted as follows.

High level of competency = 165-220

Middle level of competency = 110-165

Low level of competency = ≤ 110 .

2.8.1.3. Validity and Reliability

The overall Cronbach's alpha is 0.908, and the Cronbach's alphas for the seven dimensions range from 0.718 to 0.903.

2.8.2. Part II- The Schutte Self-Report Emotional Intelligence (SSEIT)

2.8.2.1. Description of the Tool

It was developed based on Salovey and Mayer's conceptual model of emotional intelligence [17]. It consists of 33 items with four categories. The four factors are as follows: (a) Perception of emotions, (b) Management of one's own emotions, (c) Management of others' emotions, and (d) Utilization of emotions.

2.8.2.2. Scoring and Interpretation

Responses are based on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5)

2.8.2.3. Validity and Reliability

Internal consistency analysis revealed a Cronbach's alpha of 0.90 for the 33-item scale. $r(63) = 0.32$.

2.8.3. Part III- Nursing Profession Self-Efficacy Scale (NPSE) Version 2

2.8.3.1. Description of the Tool

The tool used in this study is the second version, which was reduced to seven items. It assesses two dimensions of nursing professional self-efficacy: care delivery (four items) and professionalism (three items) [18].

2.8.3.2. Scoring and Interpretation

The tool consists of seven items in two domains: Care Delivery (4 items) and Professionalism (3 items), and each item is rated on a 5-point Likert scale, where 1 is no confidence, 2 is quite confident, 3 is moderately confident, 4 is very confident, and 5 is completely confident. Higher scores indicate higher nursing professional self-efficacy.

2.8.3.3. Validity and Reliability

We used internal reliability ($r = 0.817$) and Mokken scalability ($H_s = 0.4071$) to assess the tool's reliability, and found it reliable. Factor validity was confirmed by CFA ($CFI \approx 0.946$, $RMSEA \approx 0.069$).

2.9. Ethical Considerations

We obtained approval from the administration of the College of Health and Sport Sciences, followed by approval from the Ethical Research Committee, before the study began. The study aligns with the principles of human research outlined in the Declaration of Helsinki (2015).

We obtained informed consent from participants after providing all necessary information, including the

purpose, objectives, and methods. We ensured the privacy and confidentiality of the data obtained and respected participant anonymity. All participants had an equal chance to participate because they were selected randomly, and they were informed of their right to withdraw at any time.

2.10. Statistical Analysis

The data were entered and analyzed using SPSS 27. Quantitative data were analyzed using means and standard deviations, whereas categorical variables were represented by frequencies and percentages. We utilized independent-samples t-tests to compare mean scores between two separate groups, and ANOVA to compare means between several independent groups. The Chi-square test was used to identify significant relationships between two categorical variables, while the Fisher-Freeman-Halton exact test was used if more than 20% of expected values were less than 5. Pearson's Correlation Coefficient was used to measure the correlation between two quantitative variables. In all the statistical tests, a p -value of less than 0.05 was considered statistically significant, and a p -value of less than 0.01 was considered highly statistically significant.

3. RESULTS

3.1. Part 1: Sociodemographic Characteristics of Participants

Table 1 presents the sample's demographic characteristics. More than half of the participants were 26-30 years old, with a mean age of 28.5 ± 4.5 years. Most participants were female (73.9%) and married (72.5%). Regarding educational status, 93.1% held a bachelor's degree, 4.6% held diplomas, and 2.3% held master's degrees.

Graduation years vary among participants: 16.5% graduated between 1998 and 2015, while the remaining participants graduated between 2016 and 2020 (41.7%) and between 2021 and 2024 (41.7%). More than 80% of the participants had completed the basic life support (82.1%) course, more than half completed the electrocardiogram course (50.5%), and only 31.7% had a valid advanced cardiac life support course.

The average work experience was 4.7 ± 3.6 years, and 78.4% of participants had five years or less of work experience in primary health care centers.

Table 2 presents the working characteristics of the study participants. In terms of shift coverage, 96.3% of the participants covered morning shifts, followed by evening and night shifts (83.5% and 70.2%, respectively).

The estimated number of patients seen per week varies across different primary healthcare settings, with the highest average number of patients encountered in the triage area (1159 ± 867 patients), followed by the observation room (463 ± 371 patients) and dressing room (385 ± 318 patients).

Table 1. Sociodemographic characteristics of the participants. N=218.

Variables	n (%)
Age in years	-
≤25 years	55 (25.2)
26-30 years	111 (50.9)
>30 years	52 (23.9)
Mean ± SD	28.5 ± 4.5
Median (P ₂₅ -P ₇₅)	27 (25-30)
Gender	-
Male	57 (26.1)
Female	161 (73.9)
Marital status	-
Single	44 (20.2)
Married	158 (72.5)
Divorced	15 (6.9)
Widowed	1 (0.5)
Level of education	-
Diploma	10 (4.6)
Bachelor	203 (93.1)
Master	5 (2.3)
Year of graduation	-
1998-2015	36 (16.5)
2016-2020	91 (41.7)
2021-2024	91 (41.7)
Special training course	-
ECG	110 (50.5)
ACLS	69 (31.7)
BLS	179 (82.1)
Others	54 (24.8)
Total years of experience	-
≤5 years	149 (68.3)
>5 years	69 (31.7)
Mean ± SD	4.7 ± 3.6
Median (P ₂₅ -P ₇₅)	4 (2-6)
Total years of experience at primary health care centers	-
≤5 years	171 (78.4)
>5 years	47 (21.6)
Mean ± SD	3.7 ± 3.1
Median (P ₂₅ -P ₇₅)	3 (1-5)

3.2. Part-11: Self-Efficacy of Primary Health Care Center Nurses

Table 3 shows that 43% of the participants reported that they had high self-efficacy, whereas 34.9% reported that they had moderate levels of self-efficacy, and 22% reported that they had only a low level of self-efficacy.

Table 2. Working characteristics of the participants.

	N=218
Shift work	
Morning	210 (96.3)
Evening	182 (83.5)
Night	153 (70.2)
Estimated number of patients seen per week in triage	-
<1000	102 (46.8)
1000-1500	59 (27.1)
>1500	57 (26.1)
Mean ± SD	1159 ± 867
Median (P ₂₅ -P ₇₅)	1000 (500-1600)
Estimated number of patients seen per week in observation room	-
<300	90 (41.3)
300-600	62 (28.4)
>600	66 (30.3)
Mean ± SD	463 ± 371
Median (P ₂₅ -P ₇₅)	370 (160-680)
Estimated number of patients seen per week in dressing room	-
<300	102 (46.8)
300-600	70 (32.1)
>600	46 (21.1)
Mean ± SD	385 ± 318
Median (P ₂₅ -P ₇₅)	320 (120-580)
Estimated number of patients seen per week in emergency room	-
<10	102 (46.8)
10-20	77 (35.3)
>20	39 (17.9)
Mean ± SD	13 ± 11
Median (P ₂₅ -P ₇₅)	10 (4-20)
Estimated number of patients seen per week in minor operation theater	-
<10	84 (38.5)
10-20	77 (35.3)
>20	57 (26.1)
Mean ± SD	16 ± 16
Median (P ₂₅ -P ₇₅)	11 (6-21)

Table 4 highlights participants' responses to the self-efficacy scale using the mean response for each statement in the questionnaire. The participants reported the highest self-efficacy in promoting patient confidentiality and privacy (3.48 ± 1.29), safeguarding health and safety at the community and social levels (3.46 ± 1.16), and ensuring that healthcare is always delivered in line with the highest professional standards (3.41 ± 1.20), whereas the lowest aspect of self-efficacy was reported in those participating in nursing research (2.88 ± 1.19). The

overall self-efficacy score was 3.31 ± 1.01 , indicating moderate efficacy.

3.3. Part 111: Emotional Intelligence Levels of the Participants

Table 5 shows the participants' emotional intelligence levels. More than half of the participants (52.8%) had a high level of emotional intelligence, 28.9% had a moderate level, and 18.3% had a low level. Specifically, most participants 50.5% and 48.2% reported high levels of managing their own emotions and perceiving their emotions, respectively, while the lowest levels were used for using their emotions (46.3%).

3.4. Part IV: Competency Inventory for Registered Nurses: Level of Primary Health Care Nurses

Table 6 shows the levels of clinical competency among nurses working in primary health care centers. Most

participants (41.3%) have low levels of clinical competency, and only 28.4% of participants score high. However, 30.3% reported a moderate level of clinical competency. Notably, the highest levels of competence are in legal/ethical practice (33%) and professional development (31.2%), while the lowest levels are in critical thinking-research aptitude (21.1%) and teaching-coaching (23.4%).

3.5. Part VI: Correlation analysis of Self-efficacy, Emotional intelligence, and Clinical Competency

Table 7 shows the Pearson correlation analysis between self-efficacy and emotional intelligence among the study participants. The analysis revealed a strong positive correlation ($r = 0.831$, $p = 0.001$), indicating a statistically significant relationship between the two variables. This significance level suggests that higher emotional intelligence is strongly associated with higher self-efficacy.

Table 3. Degree of Self-efficacy Competency among the participants (N = 218).

Dimensions	Low	Moderate	High
	Frequency - Percent	Frequency - Percent	Frequency - Percent
Self-efficacy	48 (22%)	76 (34.9%)	94 (43.1%)

Table 4. Deviations for the item-wise scores of the Nursing Profession Self-Efficacy Scale among primary health care nurses (N= 218).

Statements	Mean $\pm$ SD
1. Practice following evidence-based nursing to deliver safe and effective care	3.33 $\pm$ 1.17
2. Safeguard health and safety at the community and social levels	3.46 $\pm$ 1.16
3. Ensure healthcare is always delivered in line with the highest professional standards	3.41 $\pm$ 1.20
4. Promote patient confidentiality and privacy	3.48 $\pm$ 1.29
5. Take part in nursing research	2.88 $\pm$ 1.19
6. Collaborate with nursing associations and professional representatives to ensure the best standards of care in my practice	3.32 $\pm$ 1.17
7. Report any abuse or unethical behavior of colleagues to the appropriate Regulatory Authority	3.31 $\pm$ 1.31
Self-efficacy (Overall)	3.31 $\pm$ 1.01

Note: Mean $\pm$ SD was computed out of 5.

Low (Mean 1-2.33), Moderate (Mean 2.34-3.67), and High (Mean 3.68-5).

Table 5. Degree of emotional intelligence among the participants (N = 218).

Dimensions	Low	Moderate	High
	Frequency - Percentage	Frequency - Percentage	Frequency - Percentage
Perception of emotion	44 (20.2%)	69 (31.7%)	105 (48.2%)
Managing own emotions	42 (19.3%)	66 (30.3%)	110 (50.5%)
Managing others' emotions	43 (19.7%)	73 (33.5%)	102 (46.8%)
Utilization of emotion	45 (20.6%)	72 (33%)	101 (46.3%)
Emotional intelligence	40 (18.3%)	63 (28.9%)	115 (52.8%)

Table 6. Degree of self-efficacy, emotional intelligence, and competency among the participants (N = 218).

Dimensions	Low	Moderate	High
	n (%)	n (%)	n (%)
Clinical care	89 (40.8%)	70 (32.1%)	59 (27.1%)
Leadership	81 (37.2%)	77 (35.3%)	60 (27.5%)
Interpersonal relation	77 (35.3%)	77 (35.3%)	64 (29.4%)
Legal/ethical practice	67 (30.7%)	79 (36.2%)	72 (33%)
Professional development	77 (35.3%)	73 (33.5%)	68 (31.2%)
Teaching-coaching	92 (42.2%)	75 (34.4%)	51 (23.4%)
Critical thinking-research aptitude	94 (43.1%)	78 (35.8%)	46 (21.1%)
Competency inventory	90 (41.3%)	66 (30.3%)	62 (28.4%)

The relationship between self-efficacy and clinical status was assessed using Karl Pearson's correlation coefficient, and the results are presented in Table 8. Correlation analysis showed that self-efficacy and clinical competency are positively correlated and statistically significant at the 0.001 level, indicating that as self-efficacy increases, clinical competency also increases.

Table 7. Pearson correlation analysis between self-efficacy and emotional intelligence.

Correlation between self-efficacy and emotional intelligence	Correlation	0.831**
	P-value	0.001

Table 8. Pearson correlation analysis between self-efficacy and clinical competency.

Correlation between self-efficacy and clinical competency	Correlation	0.746**
	P-value	0.001

Table 9. Pearson correlation analysis between clinical competency and emotional intelligence.

Correlation between clinical competency and emotional intelligence	Correlation	0.802**
	P-value	0.001

Table 9 shows the relationship between clinical competency and emotional intelligence. Clinical competency and emotional intelligence are strongly and significantly positively correlated ($p < 0.001$). As emotional intelligence increases, clinical competency increases.

Table 10. Multiple linear regression for impact of self-efficacy and emotional intelligence on clinical competency.

Variables	Multiple Correlation (R)	Coefficient of Determination (R^2)	F-value	Coefficient (B)	P-value
Constant				-0.389	0.005**
Self-efficacy	0.815**	0.664	212.378	0.223	<0.001**
Emotional intelligence				0.583	<0.001**

Note: Dependent Variable: Competency inventory; **Significant at 0.01.

3.6. Part V11: Multiple Linear Regression Analysis for Impact of Self-efficacy and Emotional Intelligence on Clinical Competency

Multiple regression analysis was performed to determine which of the factors contributed to clinical competency. This clinical competency score was used as the dependent variable, and the other two variables as independent variables.

The linear regression equation is as follows:

Clinical Competency = $-0.389 + 0.223 \times \text{Self efficacy} + 0.583 \times \text{Emotional intelligence}$

Table 10 displays the results of a multiple linear regression analysis examining the impact of self-efficacy and emotional intelligence on the clinical competency inventory scores of participants.

The results indicate a highly significant, very strong multiple correlation ($R = 0.815$) between the dependent variable (Clinical Competency) and the independent variables (Self-efficacy and Emotional intelligence). Moreover, Self-efficacy and Emotional intelligence explain 66.4% of the variation in the Clinical Competency inventory ($R^2 = 0.664$). The regression model was statistically significant ($F = 212.378$, $p < 0.001$), showing that self-efficacy has a highly significant effect on the Competency Inventory ($p < 0.001$); as Self-efficacy increases by one unit, the Competency Inventory increases by 0.223 units ($B = 0.223$). Emotional intelligence also has a highly significant impact on the Competency Inventory ($P\text{-value} < 0.001$); as Emotional intelligence increases by one unit, the Competency Inventory increases by 0.583 units ($B = 0.583$). These findings suggest that enhancing self-efficacy and emotional intelligence may substantially improve clinical competency.

Table 11. Pearson correlation coefficients for self-efficacy, emotional intelligence, and clinical core competency.

-		MEAN_SE	MEAN_EI	MEAN_CIRN
MEAN_SE	Pearson Correlation	1	.813**	.746**
	Sig. (2-tailed)	-	.000	.000
	N	218	218	218
MEAN_EI	Pearson Correlation	.813**	1	.765**
	Sig. (2-tailed)	.000	-	.000
	N	218	218	218
MEAN_CIRN	Pearson Correlation	.746**	.765**	1
	Sig. (2-tailed)	.000	.000	-
	N	218	218	218

Note: **. Correlation is significant at the 0.01 level (2-tailed).

Table 11 shows the relationship between variables using the Pearson correlation coefficient. The results show a positive, significant relationship between the scales. In other words, an increase in one variable is associated with an increase in the other. For example, as emotional intelligence increases, self-efficacy increases, and the same pattern holds for the subscale variables.

4. DISCUSSION

Primary healthcare nurses play a versatile role, providing high-quality patient care that includes duties ranging from managing chronic diseases to promoting health and preventing disease. Because many patients access primary health care as their first point of contact, nurses in these settings must be competent, emotionally stable, and self-efficient to ensure continuity, safety, and quality of care. These attributes enhance the nurses' capacity to respond effectively to diverse clinical situations and contribute to improved patient outcomes and satisfaction within the primary health care context. Issues related to nursing performance in health care organizations have been gaining greater attention because they influence the quality of care [19].

4.1. Self-Efficacy, Emotional Intelligence, and Clinical Competency Levels of the Participants

In the present study, results showed that most participants had moderate self-efficacy. According to research, over half of the nurses exhibited high levels of self-efficacy [20]. In nursing practice, self-efficacy is essential, especially when assessing the quality of care nurses provide. These differences may be attributed to using a self-evaluation tool rather than experimental or observational methods.

When categorizing self-efficacy statements about participating in research, the results of the present study show a very low mean score (2.88 ± 1.19) compared with the other six statements. This finding aligns with Bougmiza *et al.*, who found that most nurses have little or no knowledge of research-related aspects [21]. Another study in Qatar shows that relatively few studies have been conducted and published by nurses in the same area, although the research culture is still in its infancy [22].

Duffy *et al.*'s findings show that nurses' limited interest in initiating research stems from many personal barriers, suggesting results similar to those of the studies mentioned [23].

Variations in self-efficacy rates may reflect differences in research tools, objectives (some studies targeted research self-efficacy rather than general self-efficacy), and populations and settings.

The current study found that the participants' emotional intelligence levels were generally moderate. This result is consistent with Talman *et al.*, who discovered that nurses scored on average on tests of emotional intelligence [24]. In addition, Talman *et al.* found that most nurses had intermediate emotional intelligence [19]. However, other research has found that nurses had somewhat lower levels of emotional intelligence, indicating that organizational, cultural, and environmental factors may affect emotional intelligence in various healthcare contexts.

The lowest level of emotional intelligence was in the perception of emotions aspect (3.32 ± 0.89), while the highest was in the managing emotions aspect (3.37 ± 0.91). This suggests that participants had a relatively lower ability to recognize and interpret emotional cues than to regulate and control emotional responses, reflecting differing levels of awareness and emotional regulation skills among the study nurses.

Clinical competency is essential for career advancement, job self-assurance, and providing patients with safe and efficient care. Nurses with higher clinical competency are expected to develop stronger therapeutic relationships with patients and use their skills more effectively in clinical settings [25]. Findings from the competency inventory scale showed a concerning trend: 30.3% of participants had moderate clinical competency. In comparison, other studies show that 20.5% of participants in Ethiopia [26] and 67.5% of participants in Finland had a high level of competency [27]. This discrepancy may result from variations in healthcare systems, nursing school educational facilities, access to and availability of teaching centers, technological advancements, and the quality of health facilities.

Despite generally low clinical competency scores, nurses' clinical competence varied across categories. Interestingly, nurses reported the highest competency levels in legal/ethical practice and professional development, reflecting efforts to adhere to ethical standards, including policy and professional conduct codes. The consequences of breaches in legal and ethical areas may encourage nurses to stay well informed and compliant. Thus, higher competency in legal and ethical practice may be linked not only to policy and education but also to the weight of the potential consequences tied to these principles. A study reported comparable findings in Ethiopia, as most nurses had the highest competence scores on the professional development dimension [28]. This also aligns with an Ethiopian study in which participants scored higher on the legal/ethical dimension but lower on the teaching-coaching component [26].

Conversely, critical thinking, research aptitude, and teaching-coaching were the weakest clinical competency domains. This is concerning, as these competencies are essential to evidence-based practice and to effectively guiding and mentoring less experienced staff. This finding aligns with earlier studies reporting limited use of research-based knowledge among nurses [29]. Such limitations suggest that nurses' professional perspectives remain relatively narrow, with continued reliance on traditional approaches to care.

The findings that most nurses had moderate-to-high self-efficacy and emotional intelligence but low clinical competency suggest a gap between internal confidence and actual skill proficiency. This also suggests a potential deficit in nurses' preparedness and ongoing development. In particular, while self-efficacy reflects a nurse's belief in their ability to perform tasks and emotional intelligence helps them manage emotions and relationships effectively, these aspects alone may not reflect clinical competence and performance. Clinical competency involves hands-on clinical skills, critical thinking, leadership, and the ability to apply knowledge in real-world situations—areas that require regular training, supervision, and assessment.

This mismatch may stem from limited opportunities for practical training, leadership roles, critical thinking, research experience, and reflective feedback in Bahrain's primary care centers. Nurses may feel confident and emotionally capable, but without ongoing support and structured professional development, their clinical skills may not reach the required level.

4.2. Predictors of Self-efficacy Levels among the Participants

The present study findings revealed that participants aged 30 years and above who have not married yet, participants who graduated between 1998 and 2015, and night-shift workers had significantly higher self-efficacy scores (3.68 ± 0.91 , 3.65 ± 0.83 , 3.62 ± 1.01 , 3.41 ± 0.94 , respectively).

One possible explanation for the high self-efficacy noticed among participants aged 30 years and above is the impact of clinical experience. With years of practice,

participants aged 30 years and above are more likely to have encountered a wide variety of clinical situations, which can enhance their confidence and self-efficacy. This is further supported by the statistically significant association between self-efficacy and year of graduation, with higher self-efficacy among nurses who graduated in the period between 1998 and 2015. Moreover, nurses above 30 years may have benefited from ongoing professional development and medical education, which further reinforce a sense of competence and confidence in their abilities. Comparable findings in previous research identified a strong positive association between age and self-efficacy [30]. However, conflicting evidence exists: a study by Kazim & Al Tamimi found no significant association between age and self-efficacy among nurses [31].

4.3. Predictors of Emotional Intelligence Levels among the Participants

Being relatively older (≥ 30 years), being single, graduating between 1998 and 2015, having undergone ACLS training, working night shifts, not working evening shifts, and seeing more than 1500 patients per week emerged as significant predictors of higher emotional intelligence among nurses.

Consistent with the present study's findings, several recent studies similarly found that participants aged over 30 years had higher levels of emotional intelligence. This is probably because EI rises with age [32].

This finding could be attributed to increased emotional maturity, frequent exposure to different social and life events, and improved emotional processing and regulation with age. However, some studies found no link between age and emotional intelligence levels [19]. Nonetheless, some studies found that young nurses had higher levels of emotional intelligence than older nurses.

The present research found that single participants had higher emotional intelligence levels than married and divorced participants. This could be linked to the emotional distress and interpersonal conflicts that divorced individuals might experience. Nonetheless, some studies reported no association between marital status and participants' emotional intelligence levels [33], while others reported the opposite. Consistent with the present study's results, one study also noted an association between marital status and emotional intelligence level [34].

Here, nurses who covered night shifts and those seeing more than 1500 patients per week had higher levels of emotional intelligence. These findings may reflect how high-pressure environments influence emotional intelligence. This aligns with previous studies suggesting that work-related stressors, when managed effectively, can contribute to the development of emotional intelligence over time [35].

However, the study also found that these factors did not significantly improve emotional utilization the ability to use emotions to guide thinking, decision-making, and

problem-solving. This may be because the high demands of such environments leave little time for reflection or deeper emotional processing. As a result, while nurses may become more emotionally aware and controlled, they may struggle to apply and utilize their emotions in clinical practice.

Although the present study found no association between emotional intelligence level and participant sex, some studies reported such an association. For example, one study found that male nurses demonstrated higher levels of emotional intelligence compared to female nurses [36].

4.4. Predictors of Competency Levels among the Participants

Several studies documented the strong association between years of experience and clinical competency [15, 28].

In parallel, the present study found that nurses with more service experience demonstrated significantly higher competence levels across all clinical competency areas, including interpersonal relations, legal and ethical practice, professional development, teaching, coaching, and critical thinking and research aptitude, than less experienced nurses. Several factors could explain this finding. First, as years of experience increase, experienced nurses have more opportunities to develop their skills, critical thinking, and leadership abilities in real-world settings. Secondly, experienced nurses are likely to have encountered a wider variety of legal and ethical dilemmas and professional challenges, contributing to a deeper understanding of best practices and ethical standards. Additionally, older nurses are often engaging in continuous professional development activities, such as workshops and courses, which enhance teaching, coaching, and research capabilities.

Clinical competence ($p = 0.024$) * and emotional intelligence ($p = 0.005$) ** differ significantly between those who work evening shifts and those who do not. Furthermore, as in the present study, some studies found that shift type affected nurses' overall competency levels [35]. Several factors may explain why nurses working evening shifts had lower levels of clinical competence than their counterparts. First, compared with morning shifts, evening shifts have fewer educational and teaching activities. Second, supervision and guidance are less available in the evening, which may limit opportunities for real-time feedback and professional development. Third, evening shift nurses usually have fewer opportunities to collaborate and communicate with other healthcare team members and leaders, resulting in less exposure to multidisciplinary learning and support. In line with this, the present study findings also show significantly lower levels of clinical care, leadership, and interpersonal relations skills observed among nurses covering evening shifts.

4.5. Correlation between Self-efficacy, Emotional Intelligence, and Clinical Competence Levels

The results showed that self-efficacy correlated strongly and positively with emotional intelligence. Emotional intelligence, which involved managing one's own and others' emotions, perception of emotions, and utilization of emotions, reinforces self-efficacy. As individuals manage their emotions and social interactions more successfully, they build greater self-efficacy and belief in their capabilities across different situations.

Consistent with these findings, Molero Jurado *et al.* reported a positive and significant relationship between self-efficacy and emotional intelligence [37]. López-Núñez *et al.* also found similar results in a cross-sectional study of 1,593 college students [38].

The positive association between self-efficacy and clinical competence suggests that targeted interventions can significantly benefit nurses' professional practice by empowering them. Strategies such as continuing education, clinical training workshops, mentorship programs, and supportive leadership can enhance nurses' self-efficacy.

In this study, the association between emotional intelligence and clinical competence revealed a strong, positive, and statistically significant relationship between the two variables. This finding aligns with previous studies and suggests that nurses with higher emotional intelligence have the skills to manage complex clinical situations and make appropriate decisions [39]. This strong association also highlights the importance of incorporating emotional intelligence into ongoing professional education.

This study has several strengths. First, it is among the few studies to explore the relationship between self-efficacy, emotional intelligence, and clinical competency among primary healthcare nurses in the Kingdom of Bahrain. Therefore, it provides valuable insights into an under-researched area. Secondly, the use of validated measurement tools and the inclusion of a diverse range of sociodemographic variables strengthened the reliability and depth of the findings. Third, the study included a diverse range of sociodemographic factors, allowing a comprehensive exploration of how these factors influence self-efficacy, emotional intelligence, and clinical competency among nurses. However, the study has limitations. The design restricts the ability to establish causal relationships between variables. In addition, the reliance on self-reported data may introduce bias, as participants might have over- or underestimated their abilities. The sample was also limited to nurses in primary healthcare centers, which may affect the generalizability of the results to nurses in other sectors or settings.

5. LIMITATIONS

- The results may not be as applicable to nurses in other healthcare settings because the study was limited to nurses employed in Bahrain's main healthcare facilities.

- Leadership style, personnel level, and workload are examples of organizational and environmental elements that may have mediated effects but were not investigated.
- The researchers faced the challenge of data collection as staff worked in different shifts.
- No experimental action was done.

CONCLUSION AND RECOMMENDATIONS

This study underscores the relationships among self-efficacy, emotional intelligence, and clinical core competency among nurses working in primary health care settings in Bahrain. The findings showed that nurses generally demonstrated moderate levels of emotional intelligence and self-efficacy, along with satisfactory clinical competence. Positive correlations among the three variables indicate that higher emotional intelligence and self-efficacy contribute significantly to improving clinical competence. Moreover, demographic factors such as age, years of experience, educational level, and participation in training programs emerged as significant predictors influencing these study variables. These results highlight the importance of both personal and experiential factors in shaping professional effectiveness.

To improve clinical competency in the primary health care system, it is crucial to strengthen emotional intelligence and self-efficacy through ongoing education, mentoring, and an emotionally supportive work environment. Skilled nurses with high self-efficacy and emotional intelligence are essential, as primary care nurses care for a wide range of patients. Clinical competency is also essential for carrying out routine nursing tasks. Policymakers and nurse administrators should focus on structured capacity-building initiatives that strengthen nurses' self-assurance, emotional resilience, and reflective practice. By cultivating these qualities, the healthcare system can ensure a more skilled and flexible nursing workforce that can meet the changing requirements of Bahrain's key health sectors and, consequently, achieve the Sustainable Development Goals 2030.

RECOMMENDATIONS

Based on the findings of the current study, the following recommendations are suggested:

- Ongoing staff development programs are essential for enhancing nurses' self-efficacy, emotional intelligence, and clinical competence.
- Nursing education curricula should incorporate emotional intelligence training, foster leadership abilities, and promote clinical competency.
- Reflective practice and feedback mechanisms should be integrated to strengthen nurses' critical thinking and clinical judgment skills.
- Nurse administrators should introduce a peer support system to help newly recruited nurses adapt effectively and build confidence.

FUTURE PROSPECTS

The level of self-efficacy, emotional intelligence, and clinical core competency needs to be assessed in the nurses after conducting training programs.

- Further study, including nurses from various settings such as governmental hospitals, can be conducted to compare results.
- Qualitative studies on the factors that impact self-efficacy, emotional functioning, and clinical competency should be conducted to identify the causes of lower levels.
- In-depth observational studies of nurses' exact levels across these three variables can provide more insight by monitoring their responses to different situations.

AUTHORS' CONTRIBUTIONS

The authors confirm their contributions to the paper as follows: Y.N.: Study conception and design; Y.N.: Data collection; Y.N., N.M., M.B.: Analysis and interpretation of results; Y.N.: Draft manuscript. All authors reviewed the results and approved the final version of the manuscript.

LIST OF ABBREVIATIONS

SE	= Self-Efficacy
EI	= Emotional Intelligence
CIRN	= Competency Inventory for Registered Nurses
PHC	= Primary Health Care Centers
CCC	= Clinical Core Competency
NHRA	= National Health Regulatory Authority

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Scientific Research and Publication Committee, College of Health and Sport Science, University of Bahrain, No. 46/2023-24 dt.

HUMAN AND ANIMAL RIGHTS

All procedures involving human participants were conducted in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent was obtained from all participants included in the study.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

All the data and supporting material is available within the article.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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