

Research Article

Research Self-Efficacy and Research-Related Behavior Among Nurses in Qatar: A Cross-Sectional Study

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Abstract

AIM: Research self-efficacy helps predict the individual interest and confidence in conducting research. The study was conducted to identify the research self-efficacy among nurses working in a group of tertiary hospitals and their research-related behavior.

METHOD: The study design was descriptive cross-sectional and conducted among nurses at Hamad Medical Corporation, Qatar Convenient sampling was done and 500 is the sample size. Data were collected through an online survey during 2 months in 2019 by using a validated "Nursing Research Self-Efficacy Scale" questionnaire. The scale includes 38 items under five domains, and the response was collected on a Likert scale from 1 to 5. The authors of the scale suggested excellent reliability score for the subscales, ranging from .94 to .97 and the existence of subscales was supported by exploratory and confirmatory factor analysis.

RESULTS: A completed survey was collected from 780 nurses. The mean self-efficacy score was 2.92 ± 0.97 . The mean score for the subscale of obtaining science-based knowledge resources was the highest (3.24 ± 1.03) and the lowest for critically read and evaluate qualitative research literature (2.63 ± 1.12). Nurses with higher educational qualifications and those who enrolled in any educational program further to their nursing education have statistically significantly high research self-efficacy.

CONCLUSION: The overall research self-efficacy of working nurses is moderate. However, nurses' confidence in the ability to perform critiquing research and understand the concept and methodology in research is minimal. Introduction of nurse-tailored research training, which covers fundamental aspects of research to an advanced level, will help make them more confident in research.

Keywords: Cross-sectional studies, nursing education, nursing research, self-efficacy, social cognitive theory

Introduction

The concept of self-efficacy is based on Bandura's self-efficacy theory (Bandura, 1991), which was later renamed social cognitive theory. Self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Irie, 2021). Self-efficacy beliefs determine how people feel, think, motivate themselves, and behave. Such beliefs produce these diverse effects through four major processes, which include cognitive, motivational, affective, and selection processes. The stronger their cognitive perception of self-efficacy, the higher they set their goals and commitment to achieve the goals (Germino, 2020).

Nurses comprise an essential part of our health-care delivery system and their services are inevitable in improving a patient's condition at any stage of disease and hospitalization. Nurses are not only committed to patient care but also function as advocates for the families of the patients. The scope of nursing service is not limited to the patient care service but includes preventing, promoting, and rehabilitative services (Flaubert, 2021).

Nurses need advanced knowledge and confidence to do research. To implement the intervention to improve evidence-based nursing practice, they need self-efficacy in research. An individual's interest in conducting research is highly predicted by research self-efficacy, and it will measure the confidence in performing different tasks to achieve the desired goal (Bishop & Bieschke, 1998). Professional and personal characteristics influence the self-efficacy of researchers. Self-efficacy is directly correlated to the research capacity of nurses (Jiang et al., 2019). It is believed that high research self-efficacy will lead to greater research involvement and increased productivity in research. Evidence-based nursing practice is strongly correlated with self-efficacy. Enhancing self-efficacy will encourage the attainment and application of clinical evidence for practice and it would benefit from a focus on helping health-care providers become more easy with actions related to the acquisition of evidence and generating new knowledge from the acquired evidence (Boswell et al., 2020).

It is evident that in general, nurses are less confident in their evidence-based practice capacities, even though they are very familiar with the term evidence-based practice and they

have a positive attitude toward it (Thiel, Ko, & Turner, 2019). However, nurses with literature review training, research training, or evidence-based practice training had higher self-efficacy scores compared to the scores of those without such training (Lamoureux et al., 2018). A descriptive study to assess the perceptions of nurses on their comfort and confidence regarding evidence-based practice shows that nurses with a baccalaureate degree or higher education reported increased comfort and confidence with evidence-based practice implementation. It is also reported that the nurses with more years of experience demonstrated increased comfort and confidence with evidence-based practice regardless of their education level (Weaver et al., 2019).

It is high time we assessed whether adequate research facilities and research-supporting culture exist in the nursing community to provide evidence-based practice in better patient care, and such studies to understand the research self-efficacy among nurses are very scarce. A study conducted at the first Magnet hospital in South America to detail the profile of the research experience, beliefs, and self-efficacy of clinical nurses reported varying degrees of research experience and observed positive beliefs and perceptions about research skills but did not translate into effective scientific production (Leão et al., 2013).

To update the knowledge and to make advancements in the nursing field for improving health care and better patient care practice, research utilization is considered as one of the important components since using nursing research evidence in practice leads to better patient outcomes (Hutchinson & Johnston, 2004). To enhance the status of the nursing profession along with effective and efficient patient care, research-based nursing care is very important (Chen et al., 2013).

High-quality nursing care depends on sound scientific knowledge as well as technical and humanistic competence. Motivation and support of nursing research are essential in enhancing these abilities (Leão et al., 2013). Structured nursing research activities help nurses grow professionally by updating their knowledge in the field, evaluating their practices, and caring for their patients (Mlambo et al., 2021).

The barriers to implementing research were extensively researched, but limited studies discussed the solution. The barriers to evidence-based practice among nurses are similar (Duncombe, 2018). The nursing literature contains a wealth of information in this regard, and it is obvious that the next step is to find ways to value the impact of relevant interventions on research utilization (Jabonete & Roxas, 2022).

Classically, nursing research is still confined to academic institutions and clinical nurses face various obstacles in developing research projects. To implement research programs that engage clinical nurses, it is vital to know nurses' beliefs, self-efficacy, and experience in research along with their academic background to establish the most adequate strategies (Tingen et al., 2009).

Research is considered one of the major components of academic health-care systems. Individuals' interest in conducting

research is highly predicted by research self-efficacy (Bishop & Bieschke, 1998). In addition, the assessment of self-efficacy is an important component of career development (Betz & Borgen, 2000). Hence, establishing collective learning, promoting collective research efficacy, and establishing sound research processes are required to deliver quality patient-centered care (Dellenborg et al., 2019).

Self-efficacy measure in research is getting more attention nowadays. Self-efficacy of researchers is influenced by their professional and personal characteristics. Factors like age, educational status, years of experience, and positive attitude toward research influence research self-efficacy positively, and research anxiety influences research self-efficacy negatively (Soe et al., 2018). Supportive peers and mentors contribute to positive research experiences, which may significantly predict research self-efficacy (Love et al., 2007).

In 2013, Evelyn and Andrea (Swenson-Britt & Berndt, 2013) developed Nursing Research Self-Efficacy Scale—"NURSES," a psychometric scale to measure the research self-efficacy of nurses and suggested that this tool might be helpful to Magnet journey health-care delivery institutions as a means of assessing their nursing staff with regard to evidence-based nursing practice. This can be used as a baseline for development of their nurses in conducting and applying research to their practice. Many Magnet journey hospitals assessed the research self-efficacy among nurses using the same scale (Leão et al., 2013).

In our study, a standardized tool was used to determine and measure nurses' self-efficacy in the public health sector of Qatar regarding research-related skills. Also, this study explores the research-related behaviors of nurses.

Research Questions

1. To estimate the research self-efficacy among nurses related to the research-related behavior across Qatar.
2. To find out the association between the sociodemographic factors and the self-efficacy score.

Method

Study Design

The study method was an cross-sectional descriptive survey design.

Sample

More than 8,000 nurses from different parts of the world are working in various capacities under the nursing department of the health-care organization. The multi nationality work force leads to a variety of experiences and different levels of research knowledge. The survey disseminated to all nurses in the corporation through webmaster e-mail. Questions were designed to evaluate the eligibility for inclusion in the studies. As majority of the nurses were overseas, a portion of them were out of the country during the survey time. The targeted sample size was 6000. Due to lack of research funding and manpower to administer the survey, the authors adopted the a convenient sampling method. A sample size of 500 was considered as the accepted

level to ensure the normality and generalizability of the study result. However, a total of 780 nurses actively participated in the survey. This higher number was achieved due to the nature of the online survey methodology, which allowed for a broader reach and increased response rate among nurses during the data collection period. Data were collected between August and September 2019.

There are 14 secondary and tertiary public hospitals across the country. The nursing community represents the largest workforce in the public health-care community, and they are working in the capacity of clinical nurses who deliver primary bedside care to the patients to the executive director level. All nurses working in these facilities comprised the target population.

Inclusion and Exclusion Criteria

The potential participants include staff nurses, charge nurses, head nurses, nurse and midwife specialist, nurse educators, and other administrative staff. All nurses with a valid license to work in the nursing department were included in the study. Those with less than 1-year experience in the current organization were excluded from the study.

Recruitment

The subjects' participation in the study was entirely voluntary and anonymous. An invitation for this study was sent to the eligible nurses through their official e-mail with an information sheet and the survey link. Four reminders were sent to the participants to encourage their participation in the study. The survey was open for 2 months, and no other follow-ups or contact were done with the participants.

Data Collection Tools

Data were collected from the participants through an online survey using SurveyMonkey (<http://www.surveymonkey.com/mp/audience>). The first part of the data collection tool was for the demographic details including age, gender, educational details, role in the organization, and years of experience and the second part assessed the research-related behavior of the nurses. The research-related behavior of the participants were measured with 10 items of questions and the total score ranged from 0 to 90. The research self-efficacy was collected by using NURSES questionnaire. Both research-related behavior scale and NURSES questionnaire were developed by Evelyn and Andrea (Swenson-Britt & Berndt, 2013). Permission was obtained from the authors to use the tools. Nursing Research Self-Efficacy Scale is a psychometric scale with 38 items to measure the research self-efficacy of nurses. The scale comprises five subscales: obtaining science-based knowledge resources (6 items), critically read and evaluate quantitative research literature (6 items), critically read and evaluate qualitative research literature (7 items), understanding and applying theory (9 items), and collective research efficacy (10 items). Each question from all subscales used a 5-point Likert scale ranging from 1 (very little) to 5 (quite a lot). The first four subscales are designed to measure the individual research self-efficacy, and the last subscale is designed to measure nurses' perceptions regarding their unit's collective support of research use. The authors of the scale have reported the reliability and validity of the scale. Validity assessment of the scales was done with sample adequacy, principal

components analysis (PCA), and confirmatory factor analysis (CFA). Kaiser–Meyer–Olkin measure of sample adequacy was reported as 0.979. In a Principal Component Analysis (PCA), five distinct factors were identified, each with its set of loaded items. These items exhibited loading values ranging from 0.79 to 0.95. Together, these factors collectively accounted for 78.9% of the total extracted common variance. The CFA model for the "NURSES" yielded significant χ^2 values ($p = .000$). The reliability of the subscales was excellent; Cronbach's alpha score ranged from .94 to .97. A pilot study was conducted among 37 nurse educators to check the feasibility of the study.

Statistical Analysis

Data were extracted to an Microsoft Excel sheet and cleaned and coded. Data analysis was done using the Statistical Package for the Social Sciences Statistics version 26.0 (IBM SPSS Corp.; Armonk, NY, USA). Data analysis included descriptive statistics of demographics (mean, standard deviation, percentage, ratio, and quartiles), research-related behavior of nurses, and five subscales of the "NURSES." The association between demographic variables and subscales of the "NURSES" scale was determined by using Pearson r correlation and analysis of variance (ANOVA). In each case, $p < .05$ was considered statistically significant. Analysis of variance and Tukey's post hoc test were done to evaluate the association between these with a composite self-efficacy scale and its subscale.

Ethical Consideration

The study passed the review by the Institutional Review Board, of the health-care organization under the Ministry of Public Health, with protocol no. MRC-01-19-055. All participants were informed that the survey was voluntary and completed survey implied consent for the study. No identifiable data were collected.

Results

A total of 780 nurses completed the survey (the response rate of the study was 13%). The average age was 36 ± 9.92 years, with a range of 23–63. The female-to-male ratio was 3:1. Among the respondents, 75% were graduate registered nurses with the primary role of patient care, and the remaining 25% were doing other clinical duties, including nursing administration, education, and research. As for the educational level, 71.8% held bachelor's degrees, 18.5% held postgraduate or doctor of philosophy (PhD) degrees, and 9.7% held diploma or associate degrees. Of the respondents, 22.4% were enrolled in an education program to further their nursing education when the study was conducted. The average year of experience was 12.73 ± 6.57 years, with a minimum of 1 and a maximum of 39.

The research behavior index score was calculated, and the mean index score of research-related behavior was 24.08 ± 14.74 , with a minimum of 0 and maximum of 90. The three quantiles (Q1, Q2, and Q3) of the index score were 13.33, 20, and 33.33, respectively.

The nursing research self-efficacy mean score was 2.92 ± 0.97 , with a minimum of 1 and a maximum of 5. The mean score for

Table 1.
Mean Score of Nursing Research Self-Efficacy Scale (N = 780)

Item	Mean	SD	Domain No.
Obtain Res	3.24	1.03	1
Collective Efficacy	2.99	1.10	2
Und/App Theory	2.95	1.09	3
Quant Res	2.75	1.14	4
Qual Res	2.63	1.12	5
Self-efficacy (total mean score)	2.92	0.97	-

Note: Collective Efficacy=Collective research efficacy; Obtain Res=Obtaining science-based knowledge resources; Qual Res=Critically read and evaluate qualitative research literature; Quant Res=Critically read and evaluate quantitative research literature; Und/App Theory=Understand and apply theory.

each subscale was calculated separately (Table 1). The score was the highest for obtaining science-based knowledge resources (3.24 ± 1.03) and the lowest for critically read and evaluate qualitative research literature (2.63 ± 1.11).

The sociodemographic variables were compared with different subscales of nurses' research self-efficacy. There is no statistically significant correlation between age and years of clinical experience with any of the self-efficacy subscales and the composite score. The results are given in Table 2. The mean score is statistically significantly different (p = .006) between bedside primary nurses (mean=3.19) and other administrative nurses (mean=3.42) for the subscale "Obtaining science-based

Table 2.
Correlation of Nursing Research Self-Efficacy Score With Age and Years of Experience (N = 780)

Item		Age	Years of Experience
Obtain Res	r*	.009	-.026
	Sig. (two-tailed)	.811	.466
Quant Res	r	.026	-.015
	Sig. (two-tailed)	.476	.677
Qual Res	r	.041	.011
	Sig. (two-tailed)	.249	.758
Und/App Theory	r	.049	.021
	Sig. (two-tailed)	.171	.552
Collective Efficacy	r	.024	.003
	Sig. (two-tailed)	.510	.931
Self-efficacy (composite score)	r	.035	.002
	Sig. (two-tailed)	.327	.960

Note: * Pearson correlation coefficient; linear correlation between the variables was measured.

Collective Efficacy=Collective research efficacy; Obtain Res=Obtaining science-based knowledge resources; Qual Res=Critically read and evaluate qualitative research literature; Quant Res=Critically read and evaluate quantitative research literature; Und/App Theory=Understand and apply theory.

knowledge resources" and for all the other subscales it was not. However, for all the subscales and the composite score the mean difference is highly statistically significant among the nurses currently enrolled in an education program further to their nursing education (Table 3).

All the subscales were highly statistically significant among different educational groups (Table 4). For the composite self-efficacy score, the mean score was high among the master's/PhD degree holders (mean=3.43) compared to diploma/associate degree holders (mean=2.96) and bachelor's degree holders (mean=2.78), which are statistically significant (p = .016). Also, the difference is statistically significant between the bachelor's and master's/PhD groups, where the latter had a high score. A similar trend was followed by all the subscales except "Working together" where the statistically significant difference was only observed between the Master's/PhD degree holder group and bachelor's degree holder group (Supplementary Table 1). These results indicate that research self-efficacy was high among nurses with higher educational qualifications.

Discussion

The major aim of the study was to find out the research self-efficacy of the nurses and its relationship with personal and professional characteristics. A higher level of nursing research self-efficacy is associated with better research skills, increased confidence, and better outcomes for patients. There are studies emphasizing that the personal characters and the self-efficacy could be a predictor of good clinical skills among nurses (Alosaimi, 2021). The study investigated overall research self-efficacy and its five different subscales in which participants showed the highest mean score for the subscale "Obtaining science-based knowledge resources" and the lowest mean for "Critically read and evaluate qualitative research literature" subscale. This finding indicates that the working nurses were comparatively more confident in the basic aspects of research like bibliographic database and searching and finding research articles, and they are not that much confident in critically reading and evaluating qualitative and quantitative research, and this might reflect in their research practice. This will reflect in the research culture and research output of practicing nurses. A study conducted in the same region on academic profile, beliefs, and self-efficacy in research of clinical nurses highlighted that even though writing with adherence to the research standards and with logical sequence, clarity, precision, and grammar was compromised, the nurses' ability to perform literature reviews using databases, understanding evidence from the literature, and theoretical knowledge on research works might be higher compared to the more complex aspects of the research. Such skills were improved through the journal club and other basic research-related activities (Leão et al., 2013).

Another study on the development of nursing research in Qatar found that the number of studies carried out and published by nurses in the same region is very few, but the research culture is in a developing stage (Nashwan et al., 2017). However, a recent study conducted in the same country shows that nurses are still perceiving organizational, self-perceived, and research-related barriers (French & Stavropoulou, 2016). These factors

Table 3.
Association Between Demographic Variable and Self-Efficacy and Its Domains (N = 780)

Item	Variables	Mean (SD)	t	p
Obtain Res	Gender			
	Male (n=195)	3.19 (0.99)	-0.75	.45
	Female (n=585)	3.26 (1.04)		
	Job role			
	Bedside nurse (n=590)	3.19 (1.00)	-2.76	.006*
	Others (n=190)	3.42 (1.10)		
Enrolled in education program	Yes (n=175)	3.52 (1.07)	4.02	.000*
	No (n=605)	3.17 (1.01)		
	Gender			
	Male (n=195)	2.82 (1.12)	0.93	.35
Quant Res	Female (n=585)	2.73 (1.14)		
	Job role			
	Bedside nurse (n=590)	2.71 (1.10)	-1.72	.09
	Others (n=190)	2.87 (1.23)		
	Enrolled in education program			
	Yes (n=175)	2.97 (1.24)	2.94	.003*
No (n=605)	2.68 (1.10)			
Qual Res	Gender			
	Male (n=195)	2.67 (1.08)	0.47	.64
	Female (n=585)	2.62 (1.13)		
	Job role			
	Bedside nurse (n=590)	2.62 (1.08)	-0.64	.53
	Others (n=190)	2.67 (1.22)		
Enrolled in education program	Yes (n=175)	2.87 (1.18)	3.16	.002*
	No (n=605)	2.57 (1.09)		
	Gender			
	Male (n=195)	2.94 (1.07)	-0.20	.84
Und/App Theory	Female (n=585)	2.95 (1.09)		
	Job role			
	Bedside nurse (n=590)	2.93 (1.06)	-0.98	.32
	Others (n=190)	3.02 (1.68)		
	Enrolled in education program			
	Yes (n=175)	3.19 (1.12)	3.32	.001*
No (n=605)	2.88 (1.07)			
Collective Efficacy	Gender			
	Male (n=195)	2.95 (1.09)	-0.63	.53
	Female (n=585)	3.01 (1.10)		
	Job role			
	Bedside nurse (n=590)	2.99 (1.09)	-0.01	.99
	Others (n=190)	2.99 (1.13)		
Enrolled in education program	Yes (n=175)	3.15 (1.12)	2.20	.03*
	No (n=605)	2.95 (1.09)		

(Continued)

Table 3.
Association Between Demographic Variable and Self-Efficacy and Its Domains (N = 780) (Continued)

Item	Variables	Mean (SD)	t	p
Composite score	Gender			
	Male (n=195)	2.91 (0.95)	-0.09	.93
	Female (n=585)	2.92 (0.97)		
	Job role			
	Bedside nurse (n=590)	2.89 (0.95)	-1.19	.24
	Others (n=190)	2.99 (1.03)		
Enrolled in education program	Yes (n=175)	3.14 (0.99)	3.44	.001*
	No (n=605)	2.85 (0.95)		

Note: * Significant at .05 level. t-Test was used to compare the means. Collective Efficacy=Collective research efficacy; Obtain Res=Obtaining science-based knowledge resources; Qual Res=Critically read and evaluate qualitative research literature; Quant Res=Critically read and evaluate quantitative research literature; Und/App Theory=Understand and apply theory.

contribute to low research-related behavior among nurses. A study conducted on the barriers to the application of the research findings highlighted that the lack of adequate facilities to implement the ideas, ineffective support system, and many personal obstructions lead the nurse to have little interest in initiating research studies (Duffy et al., 2015).

The score for subscales like "Working together, cooperative spirit" was also high, indicating that nurses are more confident and comfortable with teamwork. A previous study pointed out that the working environment is a significant factor in research interest among nurses, and teamwork helps in facing the barriers effectively and delegation of duties related to research; the multidisciplinary team can facilitate research and share research findings effectively (Al-Lenjawi et al., 2022).

Education and training have a significant impact on nurses' research confidence. Those who have enrolled in educational courses exhibit a high confidence level in research-related activities. This can be read in conjunction with a study conducted on nurses' use of evidence in acute care support and their research capacity, which revealed that education level was a positive influence on knowledge of common research language. Also, confidence in evidence-based practice, strongly depended on both nurses with higher education and those who had a certification on related topics (Bahadori et al., 2016). Research exposure is more for nurses pursuing higher degrees which boosts their knowledge and confidence to carry out projects. Hence, health-care organizations should support and initiate research capacity-building programs to promote research culture.

Majority of nurses have no or very minimal knowledge in research-related aspects. Introduction of nurse-tailored research training, which covers fundamental aspects of research to an advanced level, will help make nurses become more confident in research-related activities. There is a pressing need for research education among clinical nurses to enhance their research capacity, and rigorous nursing research may provide

Table 4.
Association Between Educational Qualification and Nursing Research Self-Efficacy Score and Its Domains (N = 780)

Item	Education	N	Mean	Std. Deviation	p
Obtain Res	Diploma/associate degree	76	3.27	1.02	.000*
	Bachelor's degree	560	3.09	1.01	
	Master's/PhD	144	3.83	0.92	
	Total	780	3.24	1.03	
Quant Res	Diploma/associate degree	76	2.80	1.12	.000*
	Bachelor's degree	560	2.55	1.07	
	Master's/PhD	144	3.52	1.08	
	Total	780	2.75	1.14	
Qual Res	Diploma/associate degree	76	2.81	1.13	.000*
	Bachelor's degree	560	2.45	1.06	
	Master's/PhD	144	3.24	1.08	
	Total	780	2.63	1.12	
Und/App Theory	Diploma/associate degree	76	2.97	1.05	.000*
	Bachelor's degree	560	2.81	1.07	
	Master's/PhD	144	3.48	1.02	
	Total	780	2.95	1.09	
Collective Efficacy	Diploma/associate degree	76	2.95	1.00	.000*
	Bachelor's degree	560	2.94	1.09	
	Master's/PhD	144	3.23	1.12	
	Total	780	2.99	1.09	
Composite score	Diploma/associate degree	76	2.96	0.92	.016*
	Bachelor's degree	560	2.78	0.94	
	Master's/PhD	144	3.43	0.91	
	Total	780	2.92	0.97	

Note: * Significant at .05 level. "ANOVA" test was used to compare the means.

Collective Efficacy = Collective research efficacy; Obtain Res = Obtaining science-based knowledge resources; Qual Res = Critically read and evaluate qualitative research literature; Quant Res = Critically read and evaluate quantitative research literature; Und/App Theory = Understand and apply theory.

a body of knowledge that helps advance nursing practice. Research plays a crucial role in shaping the nursing profession as it evolves with the needs of society and advances in medical science, assisting nurses in providing effective, evidence-based care. Health-care organizations and nursing leaders should provide more learning opportunities and empower them to utilize research in their daily practice. By doing so, nurses will be better equipped to deliver high-quality care based on the best available evidence.

Study Limitations

The study used an online survey, and the shorter duration of the study gave rise to a low response rate. Lower response rate has been reported for similar studies in the same setting (Nashwan et al., 2016). A convenient sampling makes the generalizability of the study limited. However, considering the time and resource constraints, the sampling method was more feasible compared to random sampling and face-to-face or paper-based data collection. Despite the limitation of the study, a good number of

participants with diverse clinical experience and nurses with different job roles participated in the research, and the findings of the study have important implications for nursing administration in the capacity development of nurses aimed at boosting the evidence-based nursing practice.

Conclusion and Recommendations

The overall research self-efficacy of working nurses is moderate, but their confidence in their ability to perform critiquing research and understanding the research concepts and methodologies is minimal. However, it has been observed that higher education and training in research may improve their skill and confidence in performing research-related tasks. Despite the availability of numerous research courses and training locally and internationally, there is a scarcity of options specifically tailored for nurses. Given that evidence-based practice requires integrating research evidence with clinical practice expertise, it is crucial for nurses to feel confident in research-related activities.

Ethics Committee Approval: Ethical committee approval was received from the Institutional Review Board, of the health-care organization under the Ministry of Public Health, Qatar with protocol no. MRC-01-19-055.

Informed Consent: Written informed consent was obtained from the participants who agreed to take part in the study.

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Supplementary Table 1.*Tukey's Post Hoc Comparison of Educational Group for the Self-Efficacy and Its Domains*

Item	Education	Education	Mean Difference	Standard Error	P-Value	95% CI	
						Lower Bound	Upper Bound
Obtain Res	Diploma/associate degree	Bachelor's degree	0.18	0.12	0.29	-0.10	0.46
		Master's/PhD	-0.56*	0.14	0.000	-0.89	-0.23
	Bachelor's degree	Diploma/associate degree	-0.18	0.12	0.29	-0.46	0.10
		Master's/PhD	-0.75*	0.09	0.000	-0.96	-0.53
Quant Res	Diploma/associate degree	Bachelor's degree	0.25	0.13	0.13	-0.05	0.56
		Master's/PhD	-0.72*	0.15	.000	-1.08	-0.36
	Bachelor's degree	Diploma/associate degree	-0.25	0.13	0.13	-0.56	0.05
		Master's/PhD	-0.97*	0.10	0.000	-1.21	-0.74
Qual Res	Diploma/Associate	Bachelor's degree	0.36*	0.13	0.02	0.05	0.67
		Master's/PhD	-0.43*	0.15	0.01	-0.79	-0.07
	Bachelor's degree	Diploma/associate degree	-0.36*	0.13	0.02	-0.67	-0.045
		Master's/PhD	-0.79*	0.10	0.000	-1.02	-0.55
Und/App Theory	Diploma/associate degree	Bachelor's degree	0.16	0.13	0.43	-0.14	0.46
		Master's/PhD	-0.51*	0.15	0.002	-0.86	-0.16
	Bachelor's degree	Diploma/associate degree	-0.16	0.13	0.43	-0.46	0.14
		Master's/PhD	-0.67*	0.10	0.000	-0.90	-0.44
Collective Efficacy	Diploma/associate degree	Bachelor's degree	0.01	0.13	0.99	-0.30	0.32
		Master's/PhD	-0.28	0.16	0.17	-0.64	0.09
	Bachelor's degree	Diploma/associate degree	-0.01	0.13	0.99	-0.33	0.30
		Master's/PhD	-0.29*	0.10	0.01	-0.53	-0.05
Composite score	Diploma/associate degree	Bachelor's degree	0.18	0.11	0.27	-0.09	0.44
		Master's/PhD	-0.48*	0.13	0.001	-0.79	-0.16
	Bachelor's degree	Diploma/associate degree	-0.18	0.11	0.27	-0.44	0.09
		Master's/PhD	-0.65*	0.09	0.000	-0.86	-0.45

* Significant at 0.05 level. t-Test was used to compare the means.

Collective Efficacy=Collective research efficacy; Obtain Res=Obtain science-based knowledge resources; Qual Res=Critically read and evaluate qualitative research literature; Quant Res=Critically read and evaluate quantitative research literature; Und/App Theory=Understand and apply theory.