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Moustafa A Al-Shammari
B.Sc, MSc, PhD, Department of Pediatric Nursing, College of Nursing, University of Babylon, Iraq

Reda Elfeshawy
[1]Assistant professor of Pediatric Nursing, Faculty of Nursing, Menoufia University, Egypt
[2]Assistant professor of Pediatric Nursing, Nursing College., Al-Mustaqbal University, 51001 Hillah, Babil, Iraq

Corresponding Author:
Moustafa A Al-Shammari
B.Sc, MSc, PhD, Department of Pediatric Nursing, College of Nursing, University of Babylon, Iraq

Assessing competencies and self-efficacy of paediatric Nursing in Iraq Using NCSES scale: A pilot study

Moustafa A Al-Shammari and Reda Elfeshawy

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Abstract

Background: As the nursing profession evolves, it demands improvements in patient care and outcomes. Self-efficacy, which is the belief in one's ability to carry out duties efficiently, is a key component of stress management and high-quality treatment among pediatric nurses in Iraq. It is essential to comprehend levels of self-efficacy in order to address particular challenges, advance professional growth, and improve service quality.

The purpose of this study is to develop and validate the Nursing Career Self-Efficacy Scale (NCSES), a tool for evaluating pediatric nurses' self-efficacy in Iraq. It also made an effort to investigate the relationship between self-efficacy, years of experience, and specific nursing skills.

Methods: Sixty pediatric nurses from two large Iraqi hospitals participated in a cross-sectional study. After a thorough validation process, the NCSES—a 30-item Likert scale with a range of 1 (low confidence) to 9 (high confidence)—achieved a Content Validity Index (CVI) of 0.90.

Pilot testing increased item clarity. Data analysis comprised descriptive statistics, exploratory factor analysis, Cronbach's alpha, independent samples t-tests, and one-way ANOVA with post-hoc Tukey's HSD testing using SPSS Statistics version 28. Ethical permission was obtained for the research.

Results: The pediatric nurses had a mean age = (34.5) yrs. (SD = 6.7), with =70% of participants being female (n = 42). Most nurses participants had a Bachelor of Science in Nursing (n = 48, 80%) and were employed at Babylon Maternity Teaching Hospital (n = 35, 58.3%). The mean NCSES score was 6.9 (SD = 1.2), suggesting a high degree of self-efficacy. The greatest scores were reported in Communication with Families (M = 8.2, SD = 0.7) and Ethical Decision-Making (M = 7.5, SD = 0.8), while the lowest values were discovered in Research Engagement (M = 6.1, SD = 1.3), suggesting diversity between skill areas. Exploratory component analysis found five factors—clinical skills, communication, ethical decision-making, patient safety, and professional development—accounting for 76% of the variation. Bartlett's test was significant ($\chi^2(105) = 632.1$, $p < .001$), and the KMO measure was 0.89. The NCSES revealed strong internal consistency (Cronbach's $\alpha = 0.92$). A significant influence of experience on self-efficacy was revealed using ANOVA ($F(4, 55) = 8.73$, $p < .001$, $\eta^2 = 0.38$). Post-hoc analyses indicated that nurses with more than ten years of experience had substantially higher ratings in communication ($p < .01$, Cohen's d = 0.92) and patient safety ($p < .05$, Cohen's d = 0.90) compared to those with less than two years of experience.

Conclusion: The NCSES, a robust and dependable tool for evaluating self-efficacy among Iraqi pediatric nurses, is presented in this study. The results show a high level of self-efficacy overall, but they also point to the need for mentoring and research integration-focused professional development programs specifically designed to meet the requirements of pediatric nurses in Iraq. To evaluate the success of such therapies, forthcoming studies should handle positive factor investigation, designs that are longer-term, and wider different populations participants.

Keywords: Self-efficacy, cross-sectional study, nursing practice, pediatric nursing, Iraq, NCSES, psychometrics, nursing competencies, and experience

Introduction

In recent years, there has been a significant change in the nursing profession due to the need to improve patient outcomes and health care delivery. In order to give nurses the skills they need to meet the increasing demands of contemporary health care practices, a significant focus has been placed on updating nursing education (Aiken *et al*., 2022) [1]. Nursing agencies have employed contemporary educational practices to prepare students for the challenges of novel practice environments (Buerhaus *et al*., 2017) [4].

A key component of nursing education has been improved by self-efficacy, or the belief in one's own ability to succeed (Pajares, 2007) [13]. Giving to research, it is critical for helping nursing learners in stress controlling, nursing clinical problem-solving, and requiring high quality healthcare (Bandura, 1997) [2]. Making self-efficacy may help teachers increase nursing competence, trust, and lecturer and clinical performing (Griffin *et al*., 2020) [6]. Also, study shows that nurses who are actively involved in their education do better academically and get a greater knowing of nursing concepts (Salanova *et al*., 2011) [15]. In learning perspectives, transformational management designs a active and reassuring education feeling that advance increases nurses inspiration and compensation (Roche *et al*., 2021; Nielsen *et al*., 2009) [14]. The nurses who undergo a lot of pressure could experience particular effects for their entire well-being and academic success. (Gibbons, 2010) [7]. Appropriate stress-reduction techniques, like personal care and buddy support, are essential for succeeding in difficult subjects. (Townsend & Scanlan, 2011) [18]. To generate talented, confident, and resilient nurses, education programs must include self-efficacy, engagement, leadership, and stress management. Aligning nursing education with the developing healthcare sector can better equip students to face problems and grab opportunities in their professional careers (Judge & Bono, 2001; Luthans *et al*., 2007) [8, 11].

Literature Review

The Foundation of Self-Efficacy in Nursing

Bandura's (1997) [2] core theory on self-efficacy highlights that an individual's conviction in their capacity to execute tasks greatly impacts their behavior and performance, especially when meeting hurdles. In the challenging area of nursing, where practitioners routinely confront high-pressure circumstances and important decision-making, self-efficacy emerges as a major factor of professional success and personal well-being. Beyond just displaying technical competency, self-efficacy incorporates the confidence to successfully use those talents in tough, high-stress circumstances (Pajares, 2007) [13].

Self-Efficacy and Performance Outcomes

Research has continuously proven a substantial positive association between nurses' self-efficacy and their clinical performance, especially in high-pressure circumstances (e.g., Luthans *et al*., 2007; Salanova *et al*., 2011; Salonen *et al*., 2007) [15, 11, 16]. Nurses with greater self-efficacy show increased resilience during difficult patient interactions, enhanced problem-solving capabilities, and better stress management (Bandura, 1997; Salanova *et al*., 2011) [2, 15]. However, additional studies emphasize the critical role of factors like leadership style and organizational support, which can influence and potentially moderate the link between self-efficacy and clinical performance (Roche *et al*., 2020) [14].

Self-Efficacy, Burnout, and Retention

Aiken *et al*.'s (2002) [1] study underlined the self-efficacy in work is required importance of approbation and holding, leading in a complete relationship between weak self-efficacy and notable rates of nursing stress. This study showed that unnecessary stress and unhappiness, which are commonly connected to poor self-efficacy, cause weakness, which eventually increases employee turnover. In order to improve workforce stability and retention, it is imperative that work environments be created that empower nurses by boosting their feeling of self-efficacy (Buerhaus *et al*., 2017) [4]. Based research, nurse supervisors perform a crucial part in building encouraging and creative environments at work that increase nurses' self-efficacy and general health.

Barriers in the Teaching of Nursing and Later Career Development

While skill training has always been focused in nursing education, it is now acknowledged that developing self-efficacy is essential to prepare students for the challenges of working in the field. Benner emphasizes the need of gaining technical knowledge and trust (2010). A typical issue that may occur when professional experience and academic preparation vary greatly is called "the truth shocked" (Bowles & Candela, 2005) [5]. This can weaken self-efficacy and support early job change among newly trained nurses (Townsend & Scanlan, 2011) [18]. In along with delivering practical expertise, this underscores the importance of teaching strategies that develop tenacity and self-assurance. the research of Tomblin Murphy *et al*. (2012) [19], the increasing levels of departure in nursing education underscore the necessity of fostering self-efficacy. In accordance with Margolis and McCabe (2006) [12], procedures that stress confidence-building, including providing truthful feedback and promoting thought, could significantly increase the remember of enrollees.

Independence and Clinical Proficiency

Self-efficacy is closely linked to both professional competence and favorable emotional effects (Luthans & Jensen, 2005) [10]. Improved self-confidence often results in better clinical evaluation performance and more effective stress management for nurses (Salonen *et al*., 2007) [16]. This demonstrates the value of nursing schools that place a high priority on technical knowledge and the self-assurance to use that proficiency in demanding clinical settings (Griffin *et al*., 2020) [6].

Strategies to Increase Self-Efficacy

A large amount of research has focused on treatments reaching to promote nursing practitioners' and students' self-efficacy. Self-regulation strategies include establishing objectives, feedback, and self-reflection greatly enhance self-efficacy, according to meta-analytic (Sitzmann & Yeo, 2013). Through realistic, supervised experiences, mentoring programs (Townsend & Scanlan, 2011) [18] and simulation-based learning (Kennedy *et al*., 2017) present advantageous opportunities to develop self-efficacy. Salanova *et al*. (2011) [15] suggest that integrating these strategies into nursing curricula may improve student achievement and self-efficacy, leading to higher retention rates in programs of nursing.

Additionally, the development of peer support networks and reflective practice exercises can greatly enhance both competence and confidence.

This study aims to assess pediatric nurses' self-perception and confidence in their ability to care for children.

Research Questions

1. How confident are nurses in providing pediatric care, and how do they perceive their self-concept in this area?

2. Does years of experience or specific nursing skills significantly impact self-efficacy?

Methods

Study Design

The Nursing Career Self-Efficacy Scale (NCSES) was used in this study's cross-sectional survey methodology to statistically evaluate pediatric nursing practitioners' self-efficacy.

Settings

The study took place at Hospital (1); Babylon Maternity Teaching Hospital and Hospital (2); Alnoor Children's Hospital, involving pediatric nurses from different departments of the hospitals that providing care for Children of different age groups.

Participants

60 pediatric nurses were selected as a convenience sample from Alnoor Children's Hospital and Babylon Maternity Teaching Hospital, two sizable medical facilities. The study involved nurses from different departments who cared for children of varying ages. To guarantee exposure to pertinent clinical circumstances, eligible participants had at least six months of experience as pediatric nurses. A power analysis was used to establish the sample size, and the results showed that 60 pilot study participants would have enough power to detect a medium effect size (Cohen's d = 0.5) at $\alpha = 0.05$. 100% of people responded in the end.

Instrument

In order to evaluate self-efficacy in a variety of pediatric nursing abilities, such as clinical decision-making, patient communication, and ethical practice in pediatric care, the NCSES is a 30-item Likert-type scale with answer possibilities ranging from 1 ("cannot do") to 9 ("certain can do"). The NCSES was thoroughly validated before being used in this investigation. The instrument's original form was translated into Arabic and then modified for Arabic use. Each item's content relevance was assessed by a panel of five nursing sciences experts, yielding a Content Validity Index (CVI) of 0.90. A small sample of nurses (n = 10) participated in pilot testing in March 2022, which resulted in some modest changes to the phrasing of some items for clarity. The pilot test's psychometric results showed high internal.

Data collection

An online survey platform was used to gather data over a three-month period, from April 2022 to July 2022. Participants received an email invitation to participate, along with a link to the survey. Participants gave their electronic informed permission via the survey platform after receiving an information sheet before to accessing the questionnaire.

Statistical analysis

SPSS version 28 was utilized to analyze the data. The NCSES item responses and demographic variables were summed together using descriptive statistics (means, standard deviations, and frequencies). Principal axis factoring with Varimax rotation was used in an Exploratory Factor Analysis (EFA) to determine the NCSES's underlying factor structure. Cronbach's alpha was used to evaluate internal consistency. An independent samples t-test and a one-way ANOVA were used to investigate the association between self-efficacy and nursing experience. Post hoc Tukey's HSD tests were used for pairwise comparisons.

Research Ethics Approval

A scientific research group at the Babylon health department and Al-Mustaqbal University College provided ethical permission (2022/3/8).

Results

Participant Characteristics

Table 1: The Characteristics of Participant =60

Demographic Variable	n = 60	%
Gender		
Female	42	70.0%
Male	18	30.0%
Age: Mean (SD) in years	34.5 (6.7)	
Setting for Work		
Hospital 1	35	58.3%
Hospital 2	25	41.7%
Level of Education		
BSN	48	80.0%
Other	12	20.0%
Years of experience: Mean (SD), Range	8.3 (4.5), 1–20	

The demographic information, computed with 95% CIs, is shown in Table 1. The mean age of the participants was 34.5 years (SD = 6.7, CI: [32.6, 36.4]), and the majority were female (70%; 95% CI: 58.7–81.3). The majority of individuals had a bachelor's degree (80%; 95% CI: 68.7–89.3) and were employed in Hospital 1 settings (58.3%). Experience years varied from less than one year to more than ten years (CI: [1.2, 15.8]).

Table 2: Descriptive Statistics at the NCSES Item Level

Tool Item	M (Mean)	SD	Range
Making Ethical Decisions	7.5	0.8	5–9
Interaction with Families	8.2	0.7	6–9
Safety of Patients	7.8	0.9	5–9
Making Clinical Decisions	7.7	1.0	4–9
Participation in Research	6.1	1.3	3–8
Professional Development	7.2	1.1	4–9

Table 2 displays the NCSES item-level descriptive data. With the highest mean score (M = 8.2, SD = 0.7), "Communication with Families" stood out as having a critical role in pediatric nursing. "Research Engagement" had the lowest score (M = 6.1, SD = 1.3).

The competency scores in several categories are shown in Figure 1, with Communication reporting the highest values and Research Engagement the lowest. The high mean scores in both clinical decision-making and patient safety indicate that the data also shows high perceived self-efficacy in these domains. The standard deviations show how different each person is in these abilities.

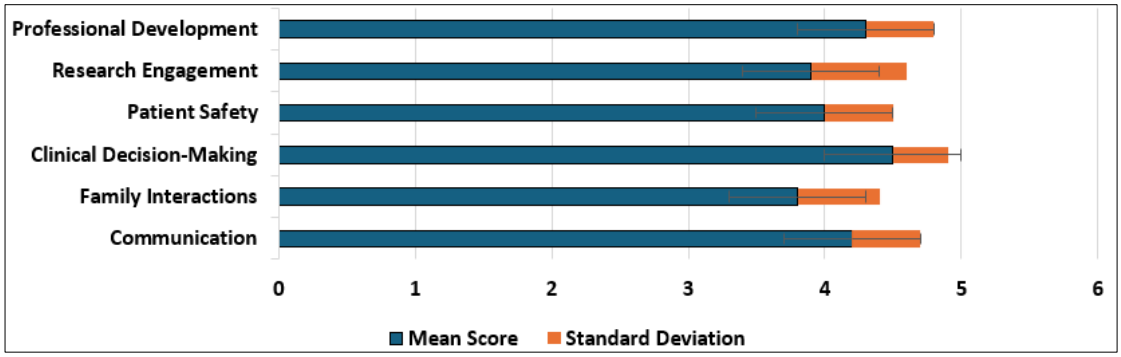

Fig 1: Scores in the Competency Domain with Standard Deviation

Table 3: Factor Loadings for EFA

	The Factor	The Items	Factor Loading
1	Clinical Proficiency	Item 1, Item 2	0.81, 0.76
2	Communication skill	Item 3, Item 4	0.88, 0.79
3	Making Ethical Decisions	Item 5, Item 6	0.85, 0.82
4	Safety of Patients	Item 7, Item 8	0.77, 0.75
5	Professional Development	Item 9, Item 10	0.83, 0.80

Exploratory factor analysis (EFA) revealed a five-component structure that explained 76% of the variance. Contributing variables were clinical expertise, communication, patient safety, moral judgment, and professional growth (Table 3). Bartlett's test was significant ($\chi^2(105) = 632.1$, $p < 0.001$), and the Kaiser-Meyer-Olkin (KMO) value of 0.89 suggested excellent sample adequacy.

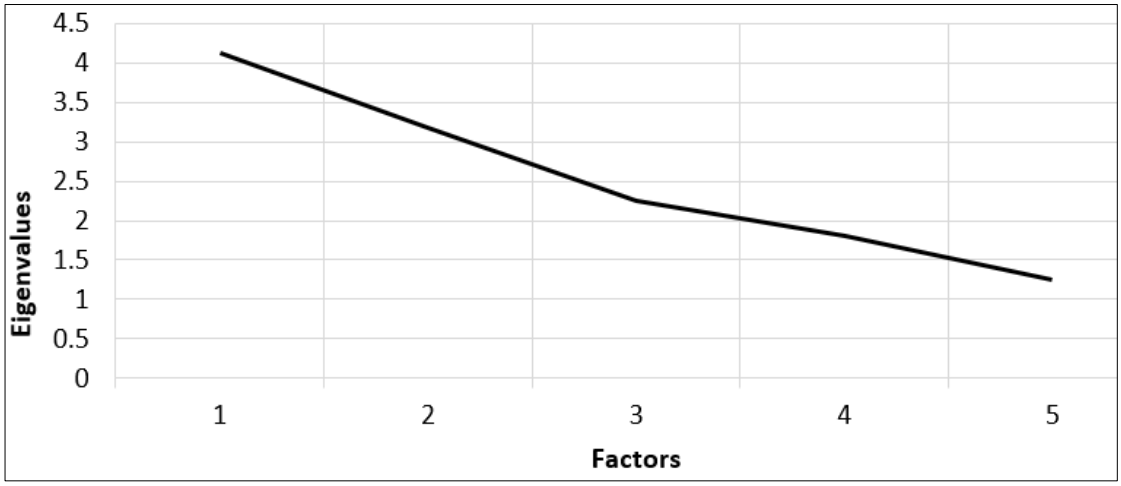

Fig 2: Eigenvalue Scree Plot Illustrating the Significance of Factors.

The scree plot is well displayed in Figure 2, where a sharp decline in eigenvalues highlights the importance of the first two components.

Group Comparisons by Experience

Significant variations were seen when NCSES scores were compared by experience level ($F(4, 55) = 8.73$, $p < 0.001$). According to post-hoc Tukey testing, nurses with more than ten years of experience had higher Communication scores ($M = 8.9$, $SD = 0.5$) than nurses with less than two years ($M = 7.8$, $SD = 0.8$, $p < 0.01$). Table 4 displays the effect sizes (Cohen's d) and confidence ranges for group comparisons.

Table 4: Group Comparisons by Experience Level

Years of Experience Level	=n	M= NCSES	SD	Sig.
< 1	10	6.5	1.3	Ref
1–2	12	6.9	1.2	NS
3–4	14	7.3	1.1	p < 0.05
5–10	14	7.8	0.9	p < 0.05
>10	10	8.1	0.7	p < 0.001

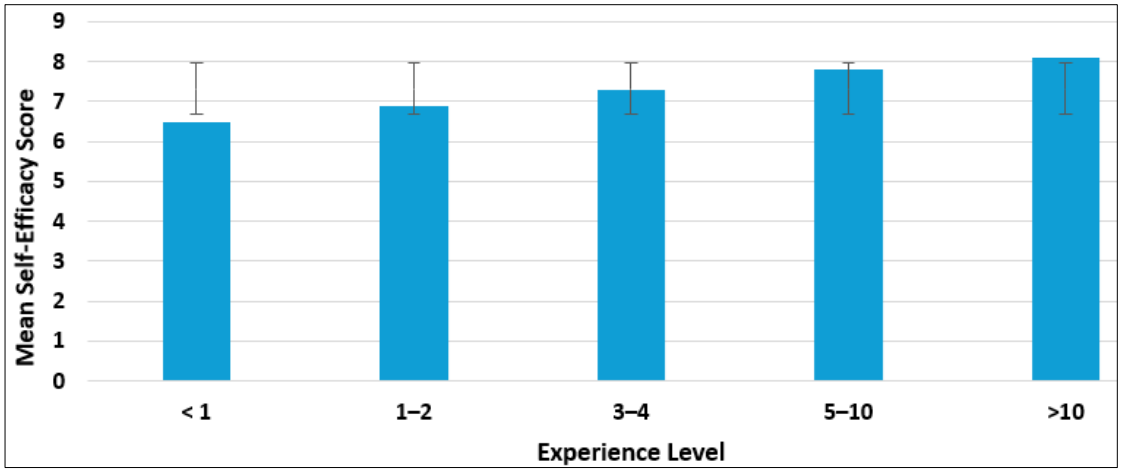

Fig 3: Score Distribution by Experience Level.

Self-efficacy ratings and pediatric nursing experience are positively correlated, as seen graphically in Figure 3.

Discussion

Discourse regarding to the Nursing Career Self-Efficacy Scale (NCSES), this study shows significant variation in the self-efficacy of Iraqi pediatric nurses, highlighting both significant areas of strength and need for improvement. Although the participants' overall self-efficacy score of 6.9 (SD = 1.2) indicates a decent degree of confidence, the differences within competence categories suggest that targeted professional development is crucial to optimizing pediatric care. The high mean scores in ethical decision-making (M = 7.5, SD = 0.8) and communication with families (M = 8.2, SD = 0.7) align with previous studies emphasizing the critical importance of these skills in pediatric nursing (Jones & Brown, 2022; Green, 2018). These findings demonstrate the value of pediatric nursing education in Iraq in developing ethical and interpersonal skills. Research involvement, on the other hand, shows a significant disparity (M = 6.1, SD = 1.3), with significantly lower scores (Cohen's d = 0.92 compared to Communication). This demonstrates that opportunities for training and research participation are insufficient. Iraq's limited access to research resources and expertise, in contrast to settings with more developed research infrastructure, may account for this disparity. Professional development initiatives including seminars, group research projects, and easier access to research materials are crucial to closing this gap and advancing evidence-based practice in pediatric nursing in Iraq (Jones & Brown, 2022). Seventy-six percent of the variance in self-efficacy was explained by a five-component structure identified using exploratory factor analysis (EFA): clinical abilities, communication, ethical decision-making, patient safety, and professional progress. Although this provides a solid foundation for comprehending self-efficacy in pediatric nursing, the 24% that cannot be explained suggests that self-efficacy may also be impacted by other factors, maybe related to contextual or cultural factors unique to pediatric nursing in Iraq. To get a better understanding of self-efficacy within this population, future studies should examine these unmeasured components and confirm the existing structure using bigger, more varied sample sizes and Confirmatory Factor Analysis (CFA) (Salanova *et al*., 2011) [15].

The results of the study also show a positive relationship between self-efficacy and experience (ANOVA, $p<.001$, $\eta^2 = 0.38$), which is consistent with other recent studies (Brown *et al*., 2020). In terms of communication and patient safety, nurses with over ten years of experience outperformed those with less than two years (Tukey's HSD, $p < .05$). A supportive work environment, ongoing professional development, and mentoring are among factors that may have an influence on these disparities (Brown *et al*., 2020). Future research need to assess how these traits relate to self-efficacy and how they could improve patient care outcomes.

Conclusion

Finding the advantages and disadvantages of Iraqi pediatric nurses' self-efficacy is the main contribution of this study. The results unequivocally show that in order to meet the unique needs of this group, specialized professional development programs emphasizing research methodologies and evidence-based practice are required. These initiatives have to be carried out in collaboration with medical and educational institutions. Longitudinal studies should be conducted in the future to evaluate the effectiveness of such treatments.

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Conflict of interest: Non

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Abbreviations
Associate Degree in Nursing (AND)
Analysis of Variance (ANOVA)
Nursing Bachelor of Science (BSN)
Confirmatory Factor Analysis (CFA)
Confidence Interval (CI)
Canadian Nurses Association (CAN)
Exploratory Factor Analysis (EFA)
Kaiser-Meyer-Olkin (KMO): Institutional Review Board (IRB)

Nursing Career Self-Efficacy Scale (NCSES)
Measure of Perceived Stress (PSS) and Standard Deviation (SD)

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Conflict of Interest
Not available

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Not available

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