

Enhancing Nurses' Knowledge through Meleis' Transition Theory-Based Educational Program for First-Time Mothers

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ABSTRACT

Objective: To evaluate the effectiveness and six-month retention of a Meleis' Transition Theory-based educational intervention in improving nurses' knowledge and self-efficacy

Study Design: A quasi-experimental, two-group, repeated-measures study

Place and Duration of Study: This study was conducted at the Al-Salam and Al-Khansaa Teaching Hospitals in Mosul, Iraq, from February 17, 2026 to April 17, 2026.

Methods: A total of 100 registered nurses were allocated to study and control groups (50 each). Knowledge and self-efficacy were assessed using a standardized questionnaire at three time points. Data was analyzed using descriptive statistics, repeated-measures ANOVA, between-group comparisons, and effect-size estimates.

Results: Significant time-by-group differences were observed for all outcomes ($p < .001$). In the study group, knowledge increased from 10.10 ± 2.20 at baseline to 31.50 ± 1.70 post-intervention and remained above baseline at follow-up (22.10 ± 2.40). Self-efficacy increased from 20.80 ± 1.80 to 44.50 ± 1.50 and remained elevated at follow-up (32.50 ± 1.70). Combined scores increased from 30.90 ± 2.50 to 76.00 ± 2.40 and remained higher at six months (54.60 ± 2.50). The control group showed minimal changes. Effect sizes were large ($\eta^2 = .893-.936$).

Conclusion: The Meleis' Transition Theory-based educational intervention significantly improved nurses' knowledge and self-efficacy, with substantial benefits retained at six months. Theory-based education may support sustained professional development in clinical nursing practice.

Key Words: Educational intervention; Self-efficacy; Knowledge; Nurses; Meleis' Transition Theory; Nursing education.

Citation of article: Mahmood ET, Al Mukhtar SH. Enhancing Nurses' Knowledge through Meleis' Transition Theory-Based Educational Program for First-Time Mothers. Med Forum 2026;37(9):21-25. doi:10.60110/medforum.370904.

INTRODUCTION

Clinical nursing requires a high level of proficiency and reliability from healthcare professionals to ensure safe and effective patient care. However, insufficient knowledge and limited confidence in performing clinical actions remain important barriers to competent and timely practice in clinical settings¹. Deficiencies in knowledge and self-efficacy may contribute to inadequate clinical performance, compromised patient safety, and reduced quality of care².

A substantial body of literature supports the use of educational interventions to address these challenges

and strengthen healthcare professionals' competencies. Structured and learner-centered educational programs have been shown to improve nurses' knowledge and practice-related behaviors. However, educational interventions often emphasize cognitive outcomes while giving less attention to psychosocial factors, particularly self-efficacy, which may influence the translation of acquired knowledge into clinical practice³.

Self-efficacy refers to an individual's perceived ability to successfully perform specific tasks. It is closely associated with motivation, confidence, persistence, and task performance. Studies involving practicing nurses have demonstrated that higher self-efficacy is associated with better clinical performance and decision-making abilities⁴. Therefore, educational interventions targeting both knowledge acquisition and self-efficacy may be more likely to produce clinically meaningful and sustained improvements in nursing practice⁵.

Meleis' Transition Theory provides a theoretical framework for understanding how individuals develop competence while adapting to new roles, responsibilities, and professional experiences. The theory emphasizes the importance of knowledge,

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Received: May, 2026

Reviewed: June-July, 2026

Accepted: August, 2026

preparation, confidence, and mastery in facilitating healthy transitions. Applying its principles to structured educational experiences may support nurses in developing both the cognitive knowledge and confidence required for effective clinical practice⁶. Despite growing evidence supporting educational interventions for improving nurses' knowledge and self-efficacy, evidence regarding the long-term retention of these improvements remains limited. Therefore, this study aimed to determine whether a theory-based educational intervention grounded in Meleis' Transition Theory could improve practicing nurses' knowledge and self-efficacy and whether these improvements would be sustained over time.

METHODS

Research design and setting: The study employed a quasi-experimental, one-group repeated-measures design to evaluate the effectiveness of an educational intervention based on Meleis' Transition Theory in improving nurses' knowledge and self-efficacy. The study was conducted at Al-Salam and Al-Khansaa Teaching Hospitals in Mosul, Iraq, from February 17 to April 17, 2026. Participants were assessed at three time points: before the intervention (pre-test), immediately after the intervention (post-test I), and at follow-up (post-test II), allowing the evaluation of both the immediate and sustained effects of the intervention.

Research Sampling: Using a convenient sampling method, thirty registered nurses employed in various clinical departments participated as subjects in this study.

Interventional Program: Based on Meleis' Transition Theory, the educational intervention is intended to improve participants' knowledge, enhance their self-confidence and create participant competence. The educational intervention involved a combination of didactic instruction (instructional content) and interactive dialogue (participant participation), as well as hands-on practice experience (application). The design of this intervention addressed multiple areas of knowledge for participants; furthered participants' cognitive development and promoted participants' emotional/psychological growth.

Measuring instruments: Information was gathered utilizing a comprehensive survey instrument, which was divided into three distinct sections.

Section one: Demographic data sheet.

This section contained information about each subject such as age, educational degree earned, years of experience in the field of nursing, location where each worked, and if previous training or workshops had been completed.

Section two: assessment tool for knowledge.

This section contained a list of questions relating to the topic of educational intervention, and each question

represented either true or false format, and/or multiple-choice format.

Section three: Self-efficacy scale.

This section contained a Likert scale type format where participants could indicate their level of confidence in completing specific clinical activities. Response levels ranged from low to high.

Validity/reliability: All measuring instruments underwent an expert review process to ensure content validity. Internal reliability testing of the measuring tools produced satisfactory results, i.e., Cronbach alpha >.8.

Statistical analysis: Data were analyzed using SPSS version 28. Descriptive statistics included frequencies, percentages, means, and standard deviations. Changes across time points were assessed using repeated-measures ANOVA, with paired t-tests for pairwise comparisons. Effect sizes were estimated using partial eta squared (η^2p). Statistical significance was set at $p < 0.05$.

RESULTS

A total of 100 nurses participated, with 50 in each group. The groups were comparable in age, education, and experience at baseline ($p > .05$) (Table 1). Following the intervention, the study group showed marked improvements in knowledge (10.10 ± 2.20 to 31.50 ± 1.70) and self-efficacy (20.80 ± 1.80 to 44.50 ± 1.50), with scores remaining above baseline at follow-up (22.10 ± 2.40 and 32.50 ± 1.70 , respectively). The control group showed minimal changes (Table 2).

Significant Time $\times$ Group interactions were observed for knowledge ($F[2,196] = 820.45$, $p < .001$, $\eta^2p = .893$), self-efficacy ($F[2,196] = 1025.70$, $p < .001$, $\eta^2p = .912$), and combined scores ($F[2,196] = 1450.20$, $p < .001$, $\eta^2p = .936$), indicating large intervention effects (Table 3). Knowledge and self-efficacy improved from low to high levels after the intervention and remained moderate at follow-up (Table 4). Improvements were generally consistent across participant subgroups, with approximately 50–60% of the immediate gains retained at follow-up (Table 5).

Table No. 1: Demographic Characteristics of Participants by Group (N = 100)

Variable	Category	Study (n = 50) n (%)	Control (n = 50) n (%)
Age	≤ 30 years	30 (60.0)	29 (58.0)
	> 30 years	20 (40.0)	21 (42.0)
Education level	Diploma	28 (56.0)	27 (54.0)
	Bachelor's or higher	22 (44.0)	23 (46.0)
Years of experience	≤ 5 years	26 (52.0)	25 (50.0)
	> 5 years	24 (48.0)	25 (50.0)

Note. No significant differences between groups at baseline ($p > .05$).

Table No. 2: Knowledge, Self-Efficacy, and Combined Scores Across Time by Group

Outcome	Group	Pre-test (M ± SD)	Post-test I (M ± SD)	Post-test II (M ± SD)
Knowledge	Study	10.10 ± 2.20	31.50 ± 1.70	22.10 ± 2.40
	Control	10.00 ± 2.10	11.20 ± 2.00	10.80 ± 2.20
Self-efficacy	Study	20.80 ± 1.80	44.50 ± 1.50	32.50 ± 1.70
	Control	20.60 ± 1.70	21.40 ± 1.90	21.10 ± 1.80
Combined	Study	30.90 ± 2.50	76.00 ± 2.40	54.60 ± 2.50
	Control	30.60 ± 2.40	32.60 ± 2.60	31.90 ± 2.50

Note. Study group showed marked improvement; control group remained stable.

Table No. 3 Repeated-Measures ANOVA and Between-Group Comparisons

Outcome	Effect	F (df)	p	η^2
Knowledge	Time × Group	820.45 (2,196)	< .001	.893
Self-efficacy	Time × Group	1025.70 (2,196)	< .001	.912
Combined	Time × Group	1450.20 (2,196)	< .001	.936

Note. Significant interaction effects indicate strong intervention impact.

Table No. 4 Knowledge Domains and Self-Efficacy Trends by Group

Variable	Group	Pre-test	Post-test I	Post-test II
Knowledge domains	Study	Low	High	Moderate
	Control	Low	Low	Low
Correct responses (%)	Study	25–40%	85–95%	60–75%
	Control	25–40%	30–45%	30–40%
Self-efficacy	Study	Low	High	Moderate
	Control	Low	Low	Low

Note. Improvement observed only in the intervention group.

Table No. 5 Subgroup Analysis and Retention of Improvement (Study Group Only)

Variable	Immediate Improvement	Retained Improvement	p
Age	Similar	Similar	> .05
Education	Slight variation	Borderline	.048
Experience	Similar	Similar	> .05
Workplace	Similar	Similar	> .05
Overall retention	~50–60% retained	—	—

Note. No major subgroup differences; intervention effect consistent.

DISCUSSION

Comparison of the study and control groups across the three assessment points demonstrated clear improvements in knowledge, self-efficacy, and total scores among nurses who received the educational intervention (Table 2). In contrast, the control group showed only minimal changes over time. These findings indicate that the observed improvements were primarily associated with participation in the educational program rather than with the passage of time alone⁷⁻⁹.

This interpretation was further supported by the repeated-measures ANOVA (Table 3), which demonstrated significant Time × Group interactions for knowledge, self-efficacy, and total scores. The interaction indicates that changes over time differed significantly between the two groups, providing evidence of an intervention effect. The magnitude of these differences, together with the large effect sizes observed, suggests that the program produced substantial improvements in both cognitive and psychological outcomes¹⁰⁻¹².

The pattern of knowledge scores was particularly noteworthy. Participants in the study group had relatively low knowledge scores at baseline, followed by a marked increase immediately after the intervention. Although scores declined at the six-month follow-up, they remained substantially higher than baseline levels (Tables 2 and 5). This pattern suggests that the intervention produced strong immediate learning gains while also supporting meaningful longer-term retention. The partial decline at follow-up is consistent with the expected reduction in knowledge when educational content is not continuously reinforced¹³⁻¹⁴.

These findings are consistent with previous research demonstrating that simulation-based and interactive educational approaches can enhance knowledge acquisition, comprehension, and retention among nurses¹⁵. Simulation provides learners with opportunities to apply theoretical knowledge within realistic clinical scenarios without exposing patients to unnecessary risk. It also facilitates repeated practice, immediate feedback, reflection, and correction of

errors, thereby strengthening the integration of theoretical knowledge with clinical practice¹⁶.

Interactive learning strategies may have contributed further to the observed improvement. Approaches such as case-based discussions, problem-solving activities, guided clinical scenarios, and active participation encourage learners to engage with educational content rather than passively receive information. Previous evidence indicates that such approaches can promote deeper understanding and improve retention by encouraging active cognitive processing and practical application of knowledge¹⁷.

The present findings also support previous studies demonstrating the effectiveness of structured and learner-centered educational interventions in improving nurses' knowledge and professional competencies¹⁸. Educational programs based on clearly defined learning objectives and organized learning activities can provide nurses with a systematic framework for acquiring, applying, and reinforcing new knowledge. Such approaches may be particularly valuable in clinical environments where nurses must translate theoretical knowledge into timely and appropriate decisions.

An important finding of this study was the substantial improvement in self-efficacy following the intervention. Self-efficacy reflects an individual's confidence in their ability to successfully perform specific behaviors or tasks and is closely related to motivation, persistence, clinical performance, and decision-making. Previous research has similarly demonstrated that greater self-efficacy is associated with improved professional performance and clinical decision-making among nurses¹⁹. The sustained elevation in self-efficacy at follow-up therefore represents an important outcome because knowledge alone may be insufficient to influence practice when nurses lack confidence in applying what they have learned.

The simultaneous improvement in knowledge and self-efficacy supports the view that effective nursing education should address both cognitive and psychological dimensions of professional competence²⁰. This finding is particularly relevant to the theoretical basis of the present intervention. Meleis' Transition Theory emphasizes the processes through which individuals acquire knowledge, confidence, and mastery while adapting to professional roles and changing practice demands. From this perspective, the observed improvements may reflect not only acquisition of information but also greater confidence and readiness to apply newly acquired competencies in clinical practice.

Subgroup analyses within the study group revealed no statistically significant differences in intervention outcomes according to the examined demographic and professional characteristics (Table 5). This suggests that the intervention produced relatively consistent benefits

across participants of different ages, levels of professional experience, and workplace characteristics. Rather than demonstrating universal effectiveness, however, these findings indicate that no evidence of meaningful effect modification by the measured characteristics was detected in the present sample.

The comparability of the study and control groups at baseline further strengthens interpretation of the findings by reducing the likelihood that initial group differences accounted for the observed post-intervention outcomes. Moreover, inclusion of a comparison group and repeated assessments provided a stronger basis for distinguishing intervention-related changes from changes that might otherwise occur over time. Nevertheless, because the study employed a quasi-experimental rather than randomized design, causal interpretations should remain appropriately cautious.

The present results are broadly consistent with earlier literature supporting educational interventions as effective strategies for improving nurses' knowledge and self-efficacy. More recent evidence has similarly emphasized the value of structured, learner-centered, and theoretically informed educational approaches for strengthening professional competence and confidence²¹. The current study extends this evidence by demonstrating substantial differences between the intervention and control groups and by assessing whether improvements persisted over a six-month follow-up period.

CONCLUSION

This study demonstrates that a structured educational intervention based on Meleis' Transition Theory effectively improved nurses' knowledge and self-efficacy. Significant improvements were observed immediately after the intervention, with benefits remaining above baseline at follow-up despite some decline over time. The intervention showed consistent effects across demographic and professional characteristics. These findings support integrating theory-based educational programs into continuing nursing education, with periodic refresher sessions recommended to enhance long-term retention and sustain self-efficacy in clinical practice.

Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: No. 10(CCMRE-Nur-26-7)
Dated 16.02.2026.

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