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The impact of nursing care based on transition theory on maternal role performance and parental self-efficacy in primiparous women: a randomized controlled study

Ebru Özcan[1*] and Serap Temiz[2]

Abstract

Aim and objectives This study aims to evaluate the impact of individualized nursing care, grounded in Meleis' Transition Theory, on maternal role performance and parental self-efficacy in primiparous women.

Background Research indicates that care practices informed by theoretical frameworks, particularly those focused on the transition to motherhood, can positively influence women's adaptation to their new maternal roles.

Design A randomized, single-blind controlled trial was conducted with women meeting the inclusion criteria. Results were reported following the CONSORT 2010 guidelines. The study was registered with ClinicalTrials.gov under registration number NCT05866588.

Methods A total of 99 primiparous women participated in the study, with 49 in the experimental group and 50 in the control group. The experimental group received nursing care based on Meleis' Transition Theory, which included 8 educational and counseling sessions—4 prior to birth and 4 after—spanning from the 28th–32nd week of pregnancy through the 4th month postpartum. Data were collected using the Personal Information Form, the Being a Parent for the First Time Scale, and the Parental Self-Efficacy Scale. Statistical analyses included t-tests, chi-square tests, Mann-Whitney U tests, and regression analysis.

Results The nursing care provided to the experimental group led to statistically significant improvements in maternal role satisfaction, perceptions of life changes, and parental self-efficacy compared to the control group ($p < 0.05$).

Conclusions Nursing care based on Meleis' Transition Theory enhanced maternal role satisfaction, increased parental self-efficacy, and improved maternal adaptation in primiparous women. It is recommended that nurses apply Transition Theory to support a healthy transition to motherhood in this population.

Relevance to clinical practice This study provides evidence for the effectiveness of individualized nursing care in facilitating a healthy transition to the maternal role and offers valuable insights for the nursing literature.

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Trial registration Clinical Trial Registry NCT05866588 [Registration date 2023/05/01 (Retrospectively registered)].

Keywords Maternal role performance, Meleis Transition Theory, Nursing care, Parental self-efficacy, Primiparous, Transition to motherhood

Background

Transition is defined as the process of moving from one state, condition, or place to another [1]. Afaf Meleis, one of the theorists of the Transition Theory, defined four types of transitions: developmental, situational, health/illness, and organizational. According to Meleis, becoming a mother is a major developmental transition from an existing and known reality to a new, unknown reality in which a woman acquires a new role [2, 3]. In addition transition to motherhood is a transformative process that encompasses developing a maternal identity, feeling confident in one's ability as a mother, trusting interactions with the baby, internalizing the role of motherhood, and integrating it with other life roles [4–7]. In this process, maternal identity and self-efficacy development are shaped by various factors, including age, physical and psychosocial well-being, social support networks, unrealistic prenatal expectations (both positive and negative), and preparedness for the maternal role. However, research emphasizes that certain groups, such as adolescent mothers, primarity, and those caring for children with special health needs, are particularly vulnerable during the transition to motherhood. Primiparous women are among those at heightened risk during this transition, as becoming a mother for the first time represents a major developmental milestone, with change being an inevitable and intrinsic part of the process [7–9].

Research indicates that in the early postpartum period, primiparous women tend to experience higher levels of fatigue and depression compared to multiparous women, and they experience greater difficulties in adopting the maternal role [8, 9]. Moreover, studies have found that primiparous women report lower satisfaction with their maternal role and perceive themselves as less competent than multiparous women [10–13]. Several factors contribute to diminished maternal self-efficacy in these women, including feelings of inadequacy in routine infant care, concerns about ensuring infant safety, breastfeeding challenges, and elevated levels of stress, anxiety, and depression, along with postpartum functional impairments [14–16].

During the transition to motherhood, primiparous women must adopt a variety of new behaviors to manage this significant life change. These include caring for baby, maintaining self-care, redefining parental roles and responsibilities, and establishing new daily routines [17]. However, the arrival of a new family member and the resulting overhaul of the family system and daily routines can be particularly overwhelming for first-time mothers. In the early postpartum period, they often get into difficulties managing the physical, social, and psychological challenges that may adversely affect both their own health and their baby's well-being [3, 8, 18, 19]. Considering these obstacles, it is crucial to provide support to primiparous women to ensure a healthy transition into parenthood [2, 20–22].

Nurses play a central role in transition processes, holding a unique position where they can evaluate the physical and psychosocial needs of individuals undergoing change and provide holistic, individualized care to facilitate a healthy transition [2, 23]. In supporting the transition to motherhood, nurses utilize nursing theories to enhance their scientific expertise and implement interventions that promote healthy transitions. The literature also highlights positive outcomes in studies where women in transition received theory-based care interventions [24–26]. A review of the literature reveals that the most comprehensive and theoretically rich framework for transition to motherhood is Meleis' Transition Theory. The core concepts of Meleis' Transition Theory encompass the nature of transition conditions (types, patterns, characteristics); facilitators and barriers (personal, social, societal); response patterns (process indicators, outcome indicators); and physical, psychological, and spiritual nursing interventions [2]. The nature of transitions includes the elements that define the experience, such as its types, patterns, and characteristics. Transition conditions refer to factors like socioeconomic status, cultural beliefs, and attitudes that can either support or obstruct a healthy transition. Response patterns consist of both process and outcome indicators, with a successful transition marked by positive outcomes in both. Process indicators include feeling connected, engaging in interactions, positioning oneself, building confidence, and coping. In contrast, mastering new skills necessary for managing transitions and cultivating a fluid, integrative identity are regarded as outcome indicators in Transition Theory [1, 2]. Meleis stresses the importance of identifying factors that either facilitate or impede transitions, along with the process and outcome indicators that capture how individuals respond to transition. The purpose of nursing therapeutics in Transition Theory is to promote the process and outcome indicators necessary for a healthy transition.

Schumacher and Meleis (1994) conceptualized nursing therapeutics as three key measures applicable to nursing care during an individual's transition [1]. The first is the assessment of readiness, which requires a multidisciplinary evaluation aimed at gaining a comprehensive

understanding of the individual. To fully capture the patterns of the transition experience, all conditions of the transition must be thoroughly assessed. The second measure is preparation for the transition, where education is the primary method for establishing optimal conditions. The third measure is role support, a concept introduced by Meleis in 1975 and widely adopted by researchers since. Within the experimental framework, essential elements of the concept of "nursing therapeutics" as used by Meleis for role support (readiness, education, role rehearsal, and support processes) have been integrated into the transition to motherhood education and counseling program.

The study's conceptual, theoretical, and intervention framework was thus structured in alignment with Meleis' Transition Theory (see Fig. 1).

Method

This study involved primiparous women who were registered at eight Family Health Centers (FHCs) in a provincial center in Turkey and met the study's inclusion criteria. Data were collected between August 2022 and June 2023. This study was conducted in accordance with the Consolidated Standards of Reporting Trials (CONSORT) checklist for randomised controlled trials.

This study was conducted as a single-blind, randomized controlled, longitudinal, and experimental study to determine the effects of individualized nursing care based on Meleis' Transition Theory on the maternal role performance and parental self-efficacy of primiparous women. To achieve this aim, the following objectives were established:

1: To determine whether primiparous women in the experimental group who received nursing care based on Meleis' Transition Theory have higher levels of satisfaction with their maternal role compared to those in the control group.
2: 2: To assess whether primiparous women in the experimental group who received nursing care based on Meleis' Transition Theory demonstrate greater adaptation to life changes compared to those in the control group.
3: To evaluate whether primiparous women in the experimental group who received nursing care based on Meleis' Transition Theory have higher levels of parental self-efficacy compared to those in the control group.

Research hypotheses

H1 There is a statistically significant difference in maternal role satisfaction between primiparous women who receive nursing care based on Meleis' Transition Theory and those who do not.

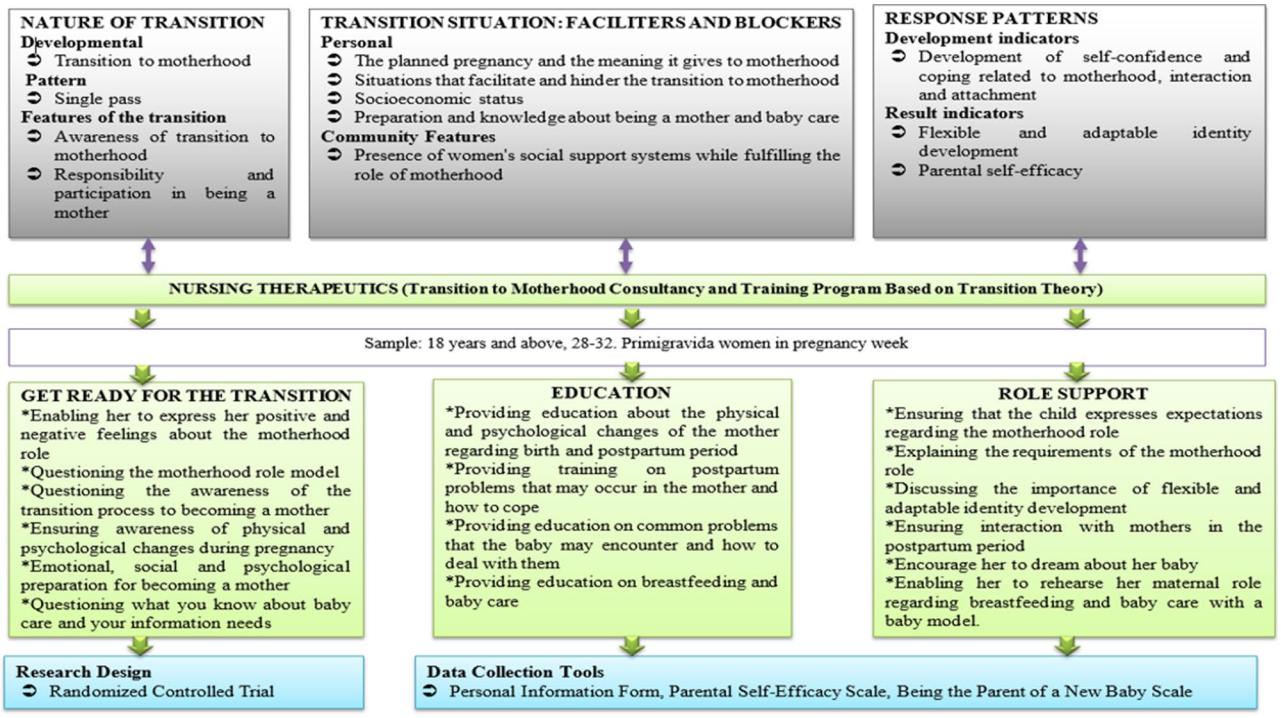

Fig. 1 The conceptual-theoretical-experimental framework of the study

H2 There is a statistically significant difference in perceptions of life changes between primiparous women who receive nursing care based on Meleis' Transition Theory and those who do not.

H3 There is a statistically significant difference in parental self-efficacy between primiparous women who receive nursing care based on Meleis' Transition Theory and those who do not.

Participants

The inclusion criteria were being between 28 and 32 weeks of gestation, living with a partner, having a healthy singleton pregnancy, and not having a diagnosed psychiatric disorder. Women who gave birth before completing the educational sessions or whose babies died during the study were excluded.

A power analysis indicated that a minimum sample size of 35 participants per group was necessary to achieve 95% power (1-β) with an effect size of 0.8761938. This effect size was calculated based on the means and standard deviations of parental self-efficacy scores from the study "The Effects of Parental Adjustment Support Program on Parental Self-Efficacy Perceptions in Pregnant Women" [27]. Due to the extended duration of the education and counseling program and the potential for higher attrition, an additional 50% of participants were recruited for each group. In the experimental group, participants were excluded if they could not be reached after the first module training ($n = 2$), withdrew from the study due to premature birth ($n = 1$), gave birth during the research process, or passed away ($n = 1$). In the control group, participants who could not be contacted ($n = 1$) or chose to withdraw from the study ($n = 2$) were excluded. As shown in Fig. 2, the study was completed with a total of 99 participants, with 49 in the experimental group and 50 in the control group (see Fig. 2).

Research procedure (consort)

In this study, simple randomization was employed. A scientific expert, independent of the researcher, used a computer-based randomization program (www.random.org) to assign numbers from 1 to 106 into two groups: Set 1 and Set 2. A person uninvolved in the study drew lots, designating Set 1 as the experimental group and Set 2 as the control group. Participants who volunteered for the study were contacted by the researcher via phone and invited to meet at their respective Family Health Centers (FHCs). After obtaining written and verbal informed consent, pre-tests were administered. Group assignment was conducted at the FHCs by the responsible midwife or nurse using the opaque envelope method. The data for each group were coded, and the expert conducting the statistical analysis performed the analysis in a blinded manner, unaware of which group was the experimental group and which was the control group. This approach ensured that the statistician remained blinded to the group assignments throughout the entire analysis process.

Development of the motherhood transition counseling and education program (MTCEP)

The MTCEP, grounded in Meleis' Transition Theory, was developed by the researcher. The development of MTCEP, designed for primiparous women, involved several key stages: the researcher's preparation, establishing conceptual links to the program content, and creating the educational booklet and supporting materials for use in the training sessions. Before initiating the research, the researcher conducted an extensive review of the literature on Meleis' Transition Theory and maintained email correspondence with Afaf Ibrahim Meleis throughout the development process.

The individual education plan comprised eight modules, each addressing essential aspects of the transition to motherhood. These modules included the introduction and assessment of readiness for motherhood, identifying facilitators and barriers in the transition process, the postpartum period, mother-infant bonding, physical and psychological recovery, breastfeeding and infant care, positive parenting practices, effective coping strategies for challenges faced during the transition, family roles and responsibilities within the family life cycle, integrating the maternal role with other life roles, and fostering a flexible and adaptable maternal identity.

Each MTCEP module outlined its objectives, expected outcomes, planning, activities, and teaching methods. Furthermore, the nursing therapeutics used were detailed, including which interventions supported specific objectives, and these were linked to Meleis' Transition Theory (see Additional file 1). A comprehensive educational booklet was also created, adhering to the principles of Transition Theory. To further enhance participants' awareness and psychological well-being, additional materials were developed, such as the "dream exercise" and the "see differently, think differently" activity cards, to be used during the education and counseling sessions.

Control group

After randomization, informed consent was obtained from the pregnant women in the control group, and the Personal Information Form was administered. The Being a Parent for the First Time Scale was applied on the 7th day and at the 1st month postpartum, while both the Being a Parent for the First Time Scale and the Parental Self-Efficacy Scale were administered at the 4th month postpartum. No interventions were provided to the

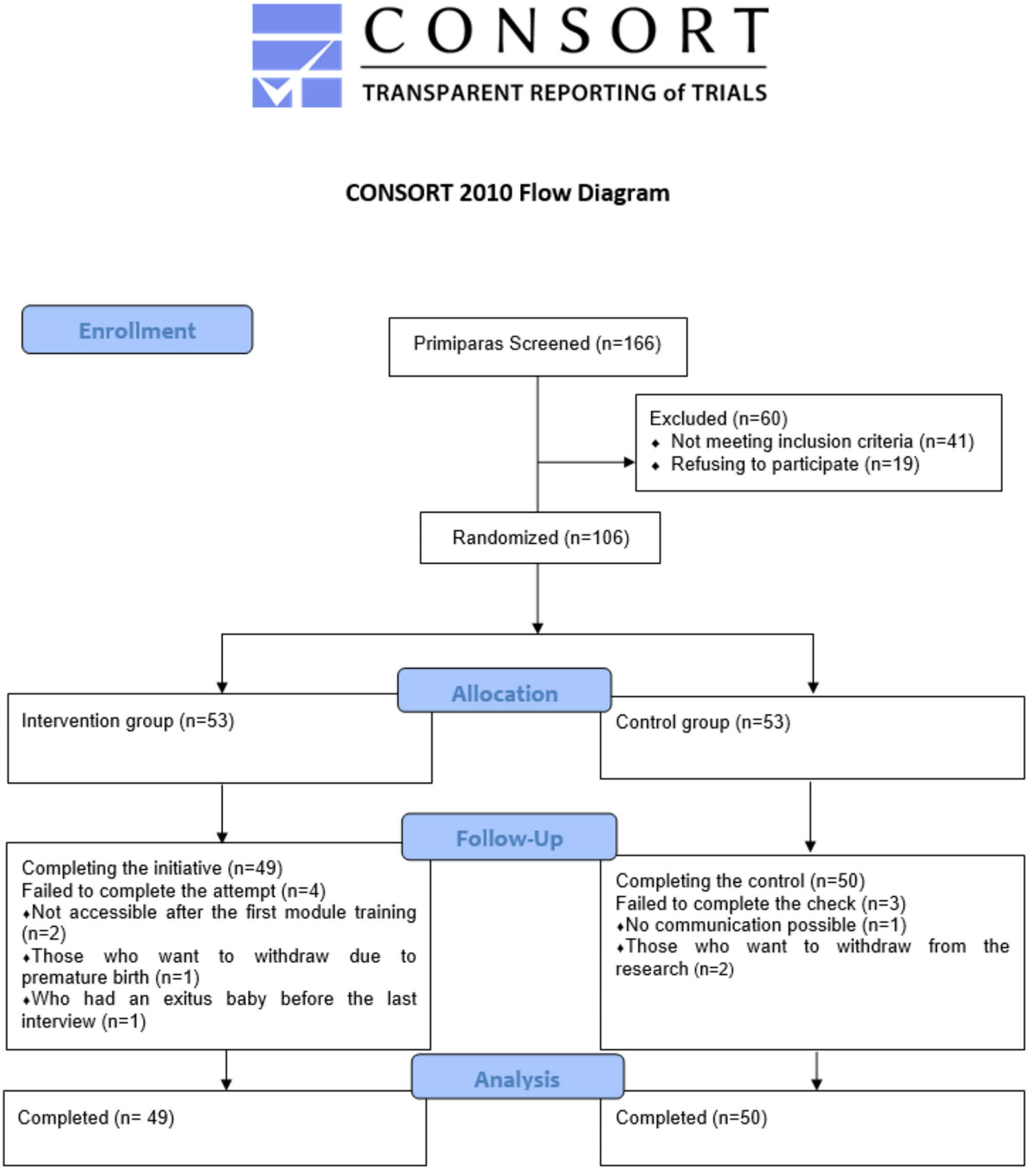

Fig. 2 Consort diagram of participant enrollment and follow-up [28]

women in the control group; they continued to receive routine prenatal, birth, and postnatal care at the hospital and Family Health Centers (FHCs).

Research instruments

Personal information form

The Personal Information Form, developed by the researchers, includes questions aimed at collecting data on sociodemographic factors (such as the woman's age, age at marriage, length of marriage, educational background, employment status in a regular income-generating job, income level, and family structure) as well as pregnancy-related details (such as whether the pregnancy was planned, any complications during pregnancy, the woman's and her partner's desire for the baby, and their expectations from nurses concerning baby care and motherhood) [25, 29–31].

Being a parent for the first time scale (BPFTS)

The Being a Parent for the First Time Scale (BPFTS) was developed by Pridham and Chang (1985) to assess the qualitative dimensions of becoming a new mother and was revised in 1989 [32]. The Turkish version of the scale was validated and tested for reliability by Yıldız and Akbayrak (2014) The scale consists of two subscales: Evaluation of Motherhood and Perception of Life Changes. The Evaluation of Motherhood subscale scores range from 11 to 99, with higher scores reflecting greater satisfaction with motherhood experiences. The Perception of Life Changes subscale scores range from 6 to 54, where higher scores indicate a stronger perception of life changes, and lower scores suggest fewer perceived changes, implying better adaptation to the maternal role. The scale does not generate a total score; the two subscales are evaluated independently. The Cronbach's alpha coefficient for the Evaluation of Motherhood subscale is 0.87, and for the Perception of Life Changes subscale, it is 0.80 [30]. In this study, the Cronbach's alpha for the Evaluation of Motherhood subscale was 0.91, and for the Perception of Life Changes subscale, it was 0.70.

Parental Self-Efficacy Scale (PSES)

The PSES was developed by Kılıçaslan (2007) to evaluate the personal perceptions of new parents regarding their competence in the parental role, specifically targeting those with their first and only infant aged 3 to 6 months. The scale consists of 18 items, scored on a 5-point Likert scale, and includes the following subscales: Meeting Needs, Parental Competence, Relieving Discomfort, Coping with Illness, and Social Interaction. The total possible score ranges from 18 to 90. Higher scores on the PSES reflect a lower perception of parental self-efficacy. The Cronbach's alpha coefficient for the scale was 0.85 in the original study [33]. In this study, the Cronbach's alpha was found to be 0.93.

Data analysis

The data were analyzed using SPSS 25.0 (IBM SPSS Statistics 25 software [Armonk, NY: IBM Corp.]). Continuous variables are presented as mean ± standard deviation or median (IQR: 25th and 75th percentiles), while categorical variables are shown as frequencies and percentages. The normality of data distribution was assessed to determine the appropriate statistical tests.

When parametric test assumptions were met, the independent samples t-test was used to compare differences between groups. If these assumptions were violated, the Mann-Whitney U test was applied. Spearman correlation analysis was employed to investigate relationships between numerical variables.

Univariate linear regression models were used to evaluate the impact of the training on changes in the scale scores. Additionally, both univariate and multivariate linear regression models were utilized to explore the effects of other factors on the scale scores as dependent variables. Differences between categorical variables were analyzed using the Chi-square test. In all analyses, a p-value of < 0.05 was considered statistically significant.

Results

Comparison of demographic and obstetric characteristics between groups

Table 1 shows the distribution of sociodemographic and pregnancy-related characteristics among primiparous women in the experimental and control groups. The analysis showed no statistically significant differences in the sociodemographic characteristics between the two groups, indicating that they were homogeneously distributed. Additionally, comparisons of gestational week, pregnancy planning status, occurrence of pregnancy-related problems, and the desire for pregnancy revealed no statistically significant differences, further confirming the homogeneity of the groups (Table 1).

Comparison of findings related to maternal role performance between groups

This section presents the findings on maternal role performance, specifically focusing on the Evaluation of Motherhood and Perception of Life Changes subscales of the BPFTS, as measured in the experimental and control groups. Table 2 provides a comparison of these findings between the groups, as well as changes over time.

An examination of the subscale mean scores in Table 2 revealed statistically significant changes over time within both the experimental and control groups across the three time points. In the control group, the mean scores for the Evaluation of Motherhood subscale on the 7th

Table 1 Comparison of sociodemographic characteristics, pregnancy-related findings between women in the experimental and control groups

Demographic variables	Group					Statistic test	*P*-value
	Categories	Control		Experimental			
Age	A.M ± S.D	26.82 ± 3.46		26.47 ± 3.32		z=-0.723	0.47
	Med (IQR)	27(25–29.25)		27(24–28.5)			
	min – max	18–32		19–33			
Age at marriage	A.M ± S.D	25.08 ± 3.47		24.61 ± 2.97		z=-0.797	0.425
	Med (IQR)	25 (23–27)		25 (23–26.5)			
	min – max	18–32		18–31			
Gestational week	A.M ± S.D	30.26 ± 1.87		30.06 ± 1.76		z=-0.467	0.64
	Med (IQR)	31 (28–32)		30 (28–32)			
	min – max	28–32		28–32			
		n	**%**	**n**	**%**		
Education level	Primary Education	4	8	1	2	kk = 2.461	0.482
	High School	12	24	15	30.6		
	University	31	62	29	59.2		
	Postgraduate	3	6	4	8.2		
Economic status	Income less than expenses	15	30	8	16.3	kk = 2.763	0.251
	Income greater than expenses	10	20	10	20.4		
	Income equal to expenses	25	50	31	63.3		
Family type	Nuclear	45	90	44	89.8	ψ	1.000
	Extended	5	10	5	10.2		
Duration of marriage	Less than 1 year	17	34	9	18.4	kk = 4.794	0.187
	1–5 years	31	62	39	79.6		
	6–10 years	1	2	1	%2		
	More than 10 years	1	2	0	%0		
Employment status	No	31	62	32	65.3	kk = 0.117	0.732
	Yes	19	38	17	34.7		
Pregnancy planning status	Planned	42	84	39	79.6	kk = 0.323	0.57
	Unplanned	8	16	10	20.4		
Pregnancy complications	No	36	72	40	81.6	kk = 1.288	0.257
	Yes	14	28	9	18.4		
Desire for pregnancy	Both partners wanted the baby	50	100	49	100	-	

*$p < 0.05$ indicates a statistically significant difference; **A.M**: Arithmetic Mean; **S.D**: Standard Deviation; **Med (IQR)**: Median (25th-75th Percentiles); **kk**: Chi-Square Test; ψ: Fisher's Exact Chi-Square Test; **z**: Mann Whitney U test

day postpartum were significantly lower than the mean scores at the 1st and 4th months postpartum. Similarly, for the Perception of Life Changes subscale, the mean scores on the 7th day postpartum were significantly lower compared to those at the 1st month postpartum (p1 = 0.0001; p2 = 0.019).

In the experimental group, the Evaluation of Motherhood subscale showed that the mean scores on the 7th day postpartum were significantly lower than those at the 1st and 4th months postpartum, with the 1st month scores also significantly lower than the 4th month scores ($p = 0.0001$). For the Perception of Life Changes subscale, the mean scores on the 7th day postpartum were significantly higher than the scores at both the 1st and 4th months postpartum ($p = 0.0001$).

When comparing the two groups, statistically significant differences were observed for the Evaluation of Motherhood subscale at all time points—7th day, 1st month, and 4th month postpartum. These differences were due to the experimental group showing statistically significantly higher mean scores compared to the control group (p1 = 0.025; p2 = 0.0001; p3 = 0.0001). In the Perception of Life Changes subscale, no statistically significant difference was found between the groups on the 7th day postpartum. However, significant differences were found at the 1st and 4th months postpartum, with the experimental group having significantly lower mean scores compared to the control group ($p_1 = 0.367$; $p_2 = 0.0001$; $p_3 = 0.0001$).

Comparison of findings related to parental self-efficacy between groups

Table 3 compares the Parental Self-Efficacy total and subscale scores between primiparous women in the experimental and control groups. The analysis revealed that the experimental group had significantly lower PSES

Table 2 Comparison of BPFTS subscale mean scores between experimental and control groups and distribution over time

BPFTS	Time of measurement	Control (*n* = 50)		Experimental (*n* = 49)		Intergroup p-value
		A.M ± S.D	Med (IQR)	A.M ± S.D	Med (IQR)	
Evaluation of motherhood	Postpartum 7th day (1)	80.12 ± 14.64	82.5 (72.75–90.25)	85.96 ± 11.14	90 (80.5–93.5)	0.025* (z=-2.249)
	Postpartum 1st month (2)	87 ± 11.26	90 (83.75–93.25)	93.73 ± 6.53	96 (91–99)	0.0001* (z=-4.266)
	Postpartum 4th month (3)	90.84 ± 7.35	93 (88–96.25)	97 ± 3.18	99 (96–99)	0.0001* (z=-5.88)
	Within group p		0.0001* (fr = 29.094) ab		0.0001* (fr = 57.103) abc	
	Difference 1–2	6.88 ± 9.35	7 (0–12)	7.78 ± 8.98	6 (0–13)	0.939 (z=-0.077)
	Difference 1–3	10.72 ± 13.44	8 (1.75–17)	11.04 ± 9.95	9 (4.5–17)	0.439 (z=-0.774)
	Difference 2–3	3.84 ± 10.14	3 (-1.25–7.25)	3.27 ± 5.52	2 (0–6)	0.966 (z=-0.042)
Perception of life changes	Postpartum 7th day (1)	38.82 ± 8.3	39.5 (34.75–45)	37.2 ± 9.43	39 (32–44.5)	0.367 (t = 0.906)
	Postpartum 1st month (2)	40.38 ± 8.24	41 (36–47)	31.43 ± 10.77	33 (24–38)	0.0001* (t = 4.651)
	Postpartum 4th month (3)	40.48 ± 6.58	41 (36–46)	29.08 ± 9.48	28 (22–38)	0.0001* (t = 6.936)
	Within group p		0.019* (fr = 7.923) a		0.0001*(F = 15.810) ab	
	Difference 1–2	1.56 ± 6.2	2 (-1–5)	-5.78 ± 10.2	-5 (-13–1)	0.0001* (z=-4.023)
	Difference 1–3	1.66 ± 7.67	1.5 (-3–4.5)	-8.12 ± 10.83	-8 (-16 - -2)	0.0001* (z=-4.686)
	Difference 2–3	0.1 ± 6.83	-1 (-4–3.25)	-2.35 ± 10.19	-1 (-11–6)	0.209 (z=-1.258)

*$p < 0.05$ indicates a statistically significant difference; A.M: Arithmetic mean; S.D: Standard deviation; Med (IQR): Median (25th – 75th percentiles); t: Independent samples t-test for between-group comparisons; z: Mann Whitney U test; F: Repeated measures ANOVA for within-group comparisons; fr: Friedman test

Table 3 Comparison of PSES total and subscale mean scores between experimental and control groups

PSES	Control (*n* = 50)		Experimental (*n* = 49)		Statistic test	Intergroup *p*-value
	A.M ± S.D	Med (IQR)	A.M ± S.D	Med (IQR)		
Total	30.58 ± 8.87	29 (25–36)	20.29 ± 2.35	19 (18.5–22)	z=-7.254	0.0001*
Meeting needs	7.4 ± 3.2	6.5 (5–8)	5.22 ± 0.59	5 (5–5)	z = 5.983	0.0001*
Parental competence	7.8 ± 2.26	8 (6–8)	4.84 ± 1.23	4 (4–5)	z=-6.81	0.0001*
Relieving discomfort	6.86 ± 2.19	7 (5–8)	4.65 ± 0.69	5 (4–5)	z = 5.836	0.0001*
Coping with illness	5.6 ± 1.62	6 (4–6)	3.51 ± 0.96	3 (3–4)	z=-6.685	0.0001*
Social interaction	2.92 ± 1.07	3 (2–4)	2.06 ± 0.24	2 (2–2)	z=-5.104	0.0001*

-*$p < 0.05$ indicates a statistically significant difference; A.M: Arithmetic Mean; S.D: Standard Deviation; Med (IQR): Median (25th – 75th Percentiles); z: Mann Whitney U test

Table 4 The effect of MTCEP, based on Meleis' transition theory, on the experimental group's scale scores

Experimental group time points	Std. Beta	t	*p*-value	%95 G.A. Alt	%95 C.I. Upper
Evaluation of motherhood 1	0.221	2.23	0.028*	0.642	11.037
Evaluation of motherhood 2	0.346	3.63	0.0001*	3.052	10.417
Evaluation of motherhood 3	0.48	5.394	0.0001*	3.893	8.427
Perception of life changes 1	-0.092	-0.906	0.367	-5.157	1.926
Perception of life changes 2	-0.427	-4.651	0.0001*	-12.772	-5.131
Perception of life changes 3	-0.577	-6.961	0.0001*	-14.648	-8.149
PSES total	-0.624	-7.856	0.0001*	-12.895	-7.693
Meeting needs	-0.429	-4.681	0.0001*	-3.098	-1.253
Parental competence	-0.634	-8.082	0.0001*	-3.691	-2.236
Relieving discomfort	-0.565	-6.743	0.0001*	-2.856	-1.557
Coping with illness	-0.621	-7.802	0.0001*	-2.621	-1.558
Social interaction	-0.488	-5.501	0.0001*	-1.169	-0.549

*$p < 0.05$ indicates a statistically significant effect;

Std. Beta: Standardized Beta coefficient; C.I.: Confidence Interval;

1: 7th day postpartum; 2: 1st month postpartum; 3: 4th month postpartum

total and subscale mean scores than the control group (p1,2,3,4,5,6 = 0.0001), indicating higher parental self-efficacy levels among women in the experimental group compared to the control group.

Table 4 shows the impact of the MTCEP, grounded in Meleis' Transition Theory, on the BPFTS subscales and PSES total and subscale scores in the experimental group. The findings demonstrate that the education and counseling program significantly increased the BPFTS

Evaluation of Motherhood subscale scores on the 7th day, 1st month, and 4th month postpartum. On the other hand, the program significantly decreased the BPFTS Perception of Life Changes subscale scores at the 1st and 4th months postpartum, as well as the PSES total and subscale scores.

These results suggest that the MTCEP intervention in the experimental group effectively increased satisfaction with the maternal role and improved parental self-efficacy, while reducing the perception of life changes among primiparous women.

Discussion

In this study, primiparous women were provided with MTCEP, a nursing care program based on Meleis' Transition Theory. The nursing care approach grounded in the Transition Theory aimed to ensure that primiparous women feel competent as parents, are satisfied with their maternal role, and transition to motherhood in a healthy manner by integrating this role more easily into their lives. In this context, were discussed within the framework of the literature under the themes of maternal role performance and parental self-efficacy, which are among the concepts and variables of Meleis' Transition Theory.

Evaluation of findings related to maternal role performance

Meleis emphasizes the concept of mastery as a key outcome indicator of a healthy transition. Mastery involves an individual's ability to integrate emotions, goals, and behaviors into their evolving identity, displaying self-confidence, knowledge, and skill as they adapt to the life changes brought by a new role, while feeling satisfied with their newly acquired identity [2, 21]. In this study, the maternal role performance of primiparous women was evaluated using the subscales Evaluation of Motherhood and Perception of Life Changes in the BPFTS at three intervals: the 7th day postpartum, the 1st month postpartum, and the 4th month postpartum. In this study, a statistically significant difference was observed in the Evaluation of Motherhood subscale scores between the experimental and control groups at the 7th day, 1st month, and 4th month postpartum. Mothers in the experimental group consistently scored higher than those in the control group. A higher score in this subscale indicates greater satisfaction with the maternal role. According to this result, our first objective was achieved, as primiparous women in the experimental group who received nursing care based on Meleis' Transition Theory had higher maternal role satisfaction compared to those in the control group.

The fact that maternal role satisfaction was higher in the experimental group even on the 7th day, the first measurement time of BPFTS, suggests that the effectiveness of nursing care based on Meleis' Transition Theory provided during the antenatal period may have contributed to this outcome. In their study, Yıldız and Akbayrak (2014) provided baby care education to primiparous women from the postpartum period until the third month, evaluating their maternal role performance on the 7th day, at 1 month, and at 3 months postpartum. However, they did not find a statistically significant difference in Evaluation of Motherhood scores between the experimental and control groups. Additionally, the maternal role performance scores in their study were lower at all time points compared to those in our study [30].

Similarly, the literature includes study findings that support our research results, reporting that interventions conducted during pregnancy and the postpartum period increase maternal role satisfaction [34–37].

In this study, no statistically significant difference was observed in the Perception of Life Changes subscale scores between the experimental and control groups on the 7th day postpartum. However, significant differences emerged at the 1st and 4th months postpartum. The Perception of Life Changes subscale reflects changes in a mother's personal life, appearance, family relationships, and her overall perception of life stress.

For mothers experiencing these changes for the first time, the physical and psychological challenges of the process explain the similarity in the perception of life changes on the 7th day postpartum between the experimental and control groups.

However, at the 1st and 4th months postpartum, mothers in the control group had higher perceptions of life changes compared to those in the experimental group. Accordingly, it can be inferred that mothers in the experimental group adapted more effectively to life changes during the transition to the maternal role up to the 4th month postpartum than those in the control group. Thus, our second objective—ensuring that primiparous women in the experimental group who received nursing care based on Meleis' Transition Theory adapted better to life changes in the transition to motherhood compared to those in the control group—was achieved.

The literature also includes experimental studies reporting that postpartum subjective well-being-based psycho-educational interventions and practical individual and group training provided in mother-baby schools improve maternal adaptation to postpartum life in the experimental group compared to the control group [38, 39]. In their study, Yıldız and Akbayrak (2014) evaluated the perception of life changes among primiparous women after receiving postpartum baby care education and counseling. They found that the perception of life change scores of the women in the experimental group

were higher than those of the women in the experimental group in our study [30].

This difference may be attributed to the fact that the intervention in the referenced study began postpartum. It can be suggested that providing theory-based nursing care starting in the antenatal period allows women to become aware of the transition to motherhood earlier, thereby enhancing their adaptation to life changes.

Parental self-efficacy

In this study, the subdimensions of the PSES are closely related to Meleis' Transition Theory, which underscores the significance of mothers perceiving themselves as competent for a successful and healthy transition to motherhood. The PSES evaluates several key areas, including meeting needs, parental competence, relieving the baby's discomfort, coping with illness, and social interaction, and it is administered as early as the fourth month postpartum. In the context of this study, the parental self-efficacy of mothers was measured at the 4th month postpartum using both total and subscale scores from the PSES. The findings showed that at the 4th month postpartum, the experimental group had statistically significantly higher total and subscale scores for parental self-efficacy compared to the control group.

Based on this result, our final objective was also achieved, as the parental self-efficacy of primiparous women in the experimental group who received nursing care based on Meleis' Transition Theory was higher than that of women in the control group.

In the literature, several studies have highlighted the positive effects of education and counseling provided to primiparous women on enhancing maternal self-efficacy [29, 40–43]. However, unlike our study, some research has evaluated the impact of prenatal education on maternal role acquisition and skills development, finding no significant difference between experimental and control groups [44, 45]. This lack of impact may be due to the focus in routine nursing care or childbirth preparation classes on birth and baby care skills, which may not sufficiently address the development of maternal self-efficacy [46]. However, interventions designed to enhance maternal competence should aim to equip women with the necessary skills to navigate the challenges of early motherhood [2, 46]. A meta-analysis found that parenting preparation programs with a follow-up period of up to six weeks significantly improved maternal role competence in first-time mothers, in contrast to routine care [46]. Furthermore, the literature suggests that longer parenting programs (lasting ten weeks or more) lead to greater improvements in parental self-efficacy compared to shorter programs [20, 46]. Mercer has also pointed out that most programs offered during the transition to motherhood lack a solid theoretical foundation [47]. Moreover, Meleis emphasizes that nurses should assess the responsibilities associated with the transition, the changes that will occur during this process, and the critical turning points. They should also understand the stages individuals go through and their responses to these stages, providing care accordingly [21]. There are relatively few studies in the literature that incorporate theoretical-based care interventions for women undergoing transitional phases [24, 25, 31].

In light of all this information, it is believed that this study provides evidence supporting the effectiveness of a nursing care program based on Transition Theory in facilitating a healthy transition to motherhood for primiparous women.

Conclusion

When the results of this research are evaluated, it has several strengths and will stand out in the literature with some of its features. Firstly, an in-depth literature review was conducted to select appropriate nursing therapeutics for primiparous women based on the concepts of Meleis' Transition Theory. The recommendation by Meleis and Mercer that interventions promoting the transition to motherhood should be implemented for at least the first four months postpartum to create significant changes in knowledge and skills was taken into consideration. Accordingly, in this study, individualized nursing therapeutics were applied and monitored for each participant from the 28th–32nd week of pregnancy until the fourth month postpartum. Subsequently, a qualitative study was conducted with a similar sample group to assess the experiences and care needs of women in the transition to motherhood. The emerging concepts were linked to Meleis' Transition Theory, and an educational program was developed. Based on the obtained data, the applicability of MTCEP, a nursing care program grounded in Meleis' Transition Theory, for primiparous women was determined. Primiparous women who received MTCEP demonstrated higher maternal role satisfaction and parental self-efficacy compared to the control group. Additionally, their adaptation to life changes during the transition to motherhood was at a better level than that of the control group.

Clinical implications

The findings of this study suggest that implementing the MTCEP program can effectively support the healthy transition to motherhood for primiparous women. Nurses should carefully assess the readiness of primiparous women and consider potential barriers to their transition when selecting appropriate nursing therapeutics. The MTCEP program has demonstrated its effectiveness in enhancing maternal role satisfaction and parental self-efficacy, making it a valuable tool for healthcare

institutions. Furthermore, it is recommended that institutions establish dedicated counseling units to sustain these programs, ensuring comprehensive and ongoing support for women during their transition to motherhood.

Abbreviations

FHCs Family health centers
MTCEP Motherhood transition counseling and education program
BPFTS Being a parent for the first time scale
PSES Parental self-efficacy scale

Supplementary Information

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Supplementary Material 1

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Author contributions
All authors contributed to the study conception and design. Conceptualization, data curation, methodology, visualization, writing-original draft: EÖ. Conceptualization, data curation, methodology, writing-review & editing: ST.

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Data availability
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
This study was performed in line with the principles of the Declaration of Helsinki. Permission for the study was granted by the Ondokuz Mayıs University Clinical Research Ethics Committee (Approval No: 2021/271), and institutional approval was obtained from the Kastamonu Provincial Health Directorate for the sample groups (experimental/control). Prior to the study, verbal and written informed consent was secured from all participants. The study was also registered with Clinical Trials under registration number NCT05866588. (Registration date: 2022-08-15).

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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