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ORIGINAL ARTICLE

Effect of newborn bathing training with the swaddled and tub bathing methods given to primiparous pregnant women on the mother's experience, satisfaction and newborn's stress during the first bathing of the newborn at home: A mixed method study

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Abstract

Aim: The aim of this study is to compare the effect of two different bathing methods training given during pregnancy on the mother's experience, satisfaction and newborn's physiological and behavioral parameters during the first bathing of the newborn at home.

Methods: A mixed methods research was used in this study. The groups were determined as swaddled bathing (SB) (n = 31) and tub bathing (TB) (n = 31). After training given to the groups, the first bath of the newborn in both groups was built by the mothers. The body temperature, heart rate, oxygen saturation, respiration rate, crying times, stress parameters of the newborns and mother satisfaction in both groups were evaluated. The open-ended questions were used to determine mothers' experiences.

Results: There was a statistically significant difference between the groups in terms of oxygen saturation, respiration rate, crying time, face/forehead grimacing, unrest and maternal satisfaction. Four categories and 14 subcategories made up the qualitative part of the study which includes the experiences of the mother about two different bathing methods. "The feelings and worries of the mothers about first bathing" refers to the participants in both groups how they feel during the first bathing; "Positive aspects of this method compared to other bath method" and "Negative aspects of this method compared to other bath method" refers to positive and negative aspects of different bathing methods applied to groups; "Difference between the applied bathing method and other methods" refers to differences they observed when compared to other bathing methods. The mothers in the SB group had less fear of drowning hazard and injuring the newborn, and the fear of uneasiness and the newborn slipping down from hands were more frequent in the TB group.

Conclusion: It was determined that both bath methods reduced body temperature, the SB method decreased the stress of newborns and had a positive effect on mother satisfaction and experience.

KEYWORDS
mother, newborn, satisfaction, swaddled bathing

1 | INTRODUCTION

Mothers who are discharged home in a short time of 24 hr with their babies after a healthy birth process have to deal with newborn care along with the challenges of the postpartum process. Mothers may have inadequacies in meeting the needs of their babies as a result of physical and emotional effects caused by birth and need education and support in order to maintain the care of their newborn (Castalino, Nayak, & D'Souza, 2014; Herrero-Morín, Fernández, Bello, González, & González, 2015; Kristensen, Simonsen, Trillingsgaard, Pontoppidan, & Kronborg, 2018; Öztürk & Erci, 2016; Shafaie, Mirghafourvand, & Bagherinia, 2017; Thukral et al., 2015; Yılmaz, Bayar, & Esenay, 2018). In this context, in our study, it was considered that mothers' worries about newborn care would be reduced in the postpartum period and a faster transition to motherhood role would be ensured with bath education which has an important place in newborn care and is provided to pregnant women who will experience motherhood for the first time in accordance with the new literature.

In the studies carried out, it was determined that the bath that is not given in appropriate time and conditions may negatively affect the thermoregulation of the newborn and increase the stress of the newborn and parent (Liaw, Yang, Chou, Yang, & Chao, 2010; Loring et al., 2012). However, by providing supportive developmental care to decrease the stress of the newborn and mother in the first bath, the attachment process is supported while increasing the education of the family and the newborn's transition to a successful extrauterine life is supported.

When the literature is examined, there are studies on the effect of different bathing methods (Çaka & Gözen, 2018; Quraishy, Bowles, & Moore, 2013), time (Blume-Peytavi et al., 2009; Medves & O'brien, 2004; Ruschel, Pedrini, & Cunha, 2018) and frequency (Bryanton, Walsh, Barrett, & Gaudet, 2004; Loring et al., 2012; So et al., 2014) on the physiological measurements and duration of crying times (Çaka & Gözen, 2018; Edraki, Paran, Montaseri, Nejad, & Montaseri, 2014; Fern, Graves, & L'Huillier, 2002) in preterm/ term newborns in the hospital environment. However, there was no study on the first bath of full-term newborns at home. The first bath, which takes priority in newborn care practices, is usually given by the mother with the help of family elders. Therefore, this may be a source of anxiety especially in women who have become mothers for the first time. It is one of the responsibilities of nurses to make this process less stressful for both the mother and the newborn.

The aim of this study is to compare the effect of two different bathing methods training given during pregnancy on the mother's experience and satisfaction during the first bathing of the newborn at home. Another specific aim is to determine the effect of the first bath performed at home with two different methods on the newborn's physical and behavioral parameters.

Based on the above literature review, we established two hypotheses:

H_1: The mothers' satisfaction and experiences of the mothers who apply swaddled bathing (SB) are positively affected compared to those who apply tub bathing (TB).

H2: The newborns' physiological (body temperature, respiration rate [RR], oxygen saturation [SpO2], heart rate [HR]) and behavioral parameters (face/forehead grimacing, unrest and duration of crying) who applied SB are positively affected compared to those who applied TB.

2 | METHODS

2.1 | Study design

A mixed methods research design was used in the study.

2.2 | Setting and participants

The study consisted of two stages. In the first stage of the study, the data were collected between October 2018 and February 2019 in the Antenatal Education Class of Sakarya University Training and Research Hospital in Turkey. In the second stage of the study, the data were collected between December 2018 and March 2019, and newborns' bath experiences, stress levels and satisfaction of the mothers was evaluated during home visits.

Sample Inclusion Criteria in the 1st Stage of the Study: primiparous pregnant women aged 18 years and older

who volunteered to participate in the study, had no diagnosed health problem related to pregnancy or fetus, were in the 20th gestational week and above.

Sample Inclusion Criteria in the 2nd Stage of the Study: newborns born vaginally (it is difficult for mothers to be alone to make a bath for her babies after the birth with cesarean delivery; in addition, the presence of vernix caseosa may differ depending on the method of delivery), in the first 5 days after birth, healthy, at term and at least 2,500 g or more of birth weight and having a score of three in Neonatal Skin Condition Score. The World Health Organization recommends delaying newborn's first bath until 24 hr after birth (World Health Organization, 2015). In our country, newborns are usually wiped within the first week after birth until the umbilical cord falls (Ayyildiz, Kulakci, Ayoglu, Kalinci, & Veren, 2015; Bölükbaş, Erbil, Altunbaş, & Arslan, 2009). Therefore, pregnant women were informed verbally and in writing by means of the informed consent form that they should bathe their babies within the first 5 days at their own homes to prevent the researchers from missing the newborn's first bath.

2.3 | Study sample

All pregnant women who received training between October 2018 and February 2019 in the Antenatal Education Class of Sakarya University Training and Research Hospital constituted the population of the study. The sample of the study was calculated in accordance with the SB selection criteria and by performing power analysis. Power analysis was performed using G*Power (v3.1.7) program in order to determine sample size. The effect size (d) was calculated as 0.957 using the mean (36.25 and 36.12) and standard deviations (0.15 and 0.13) obtained from the Çaka and Gözen (2018) study. It was calculated that the required minimum sample size could be 48 newborns, including 24 newborns per group. The study was carried out with 62 newborns and their mothers by considering possible case losses (Figure 1).

The study sample was randomly allocated into two groups: swaddled bathing was applied on one group (SB group), and tub bathing was only applied without not swaddling cloth in the other group (TB group). Of the pregnant women who were educated in the Antenatal Education Class during the study, 42 of 122 were excluded from the study for various reasons (Figure 1). The 80 pregnant women volunteering to participate in the study were categorized by considering their age, education level and gestation week, and the groups were formed by paying attention to the similar distribution of these three categories. While determining the education groups of pregnant women with similar characteristics in terms of these three factors, each education consisted of

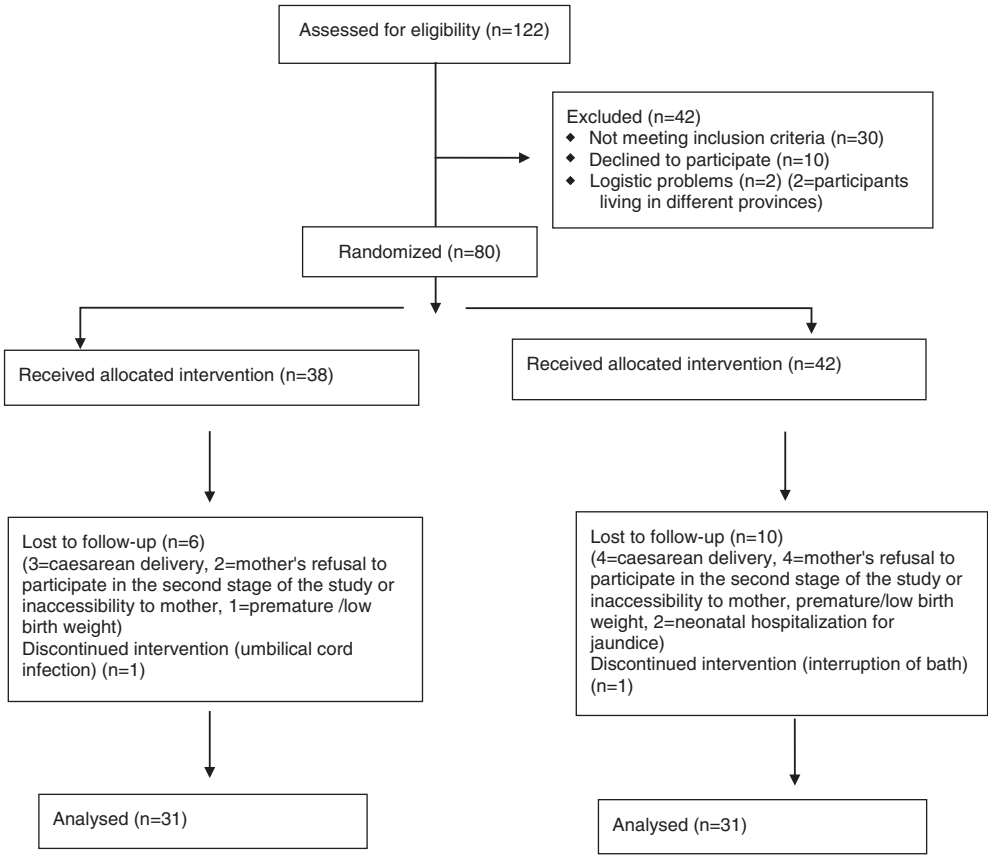

FIGURE 1 Flow chart of research

five people and a total of 16 groups. Eight groups are SB groups, the other eight groups are TB groups. After the groups were formed, closed opaque envelopes were used in the process of hiding of the assignment to decide which training was given in which group. Envelopes were selected by the pregnancy education class nurse and were not involved in the determination of researcher groups. In this process, pregnant women who volunteer to participate in the study do not know to which group they were assigned. However, blinding of those involved was not provided during the conduct of the study or during the reporting process due to the presence of home visits in the study and qualitative data analysis achieved.

2.4 | Measurements

The questionnaire form included the sociodemographic characteristics of pregnant women, the physiological and behavioral measurements related to newborns before and after the bath and a Maternal Satisfaction Form were used in the collection of quantitative data. The determination of maternal experience on bathing constituted the qualitative dimension of the study, and the data were obtained by in-depth interview method.

2.4.1 | Questionnaire form

It is a form consisting of a total of 11 items including the descriptive characteristics of the family (age, gestational week, year of marriage, educational status, etc.).

2.4.2 | Environment variables control form

The variable checklist (room temperature 26–27°C; room humidity 40–60%; bath water temperature 37–38°C; bath water depth 12–13 cm; duration of bath maximum 5 min, etc.) was formed so that the bath would be given under equal environmental conditions in both groups.

2.4.3 | Newborn follow-up form

This is a form consisting of a table in which the descriptive characteristics of the newborn (gender, gestational age, Apgar score, physical measurements, feeding time, skin condition etc.), physiological measurements (body temperature, RR, SpO2 and HR) and behavioral parameters (face/forehead grimacing, unrest and duration of crying) of the newborn 5 min before and after the bath are recorded. Neonatal Skin Condition Score (NSCS) which was developed by Lund and Osborne (2004) for the purpose of evaluating the skin condition and translated into Turkish by Çalışır, Karabudak, Güler, Aydın, and Türkmen (2016) by performing its validity and reliability study was used in evaluating the condition of newborn's skin. In the original study of the scale, the reliability among observers of The NSCS was reported between 0.66 and 0.89 (Lund & Osborne, 2004). The reliability of the Turkish form of the scale was determined by intragroup correlation coefficients and Cronbach alpha coefficient; coherence coefficient between observers was found to be 0.94 for total score and ranged between 0.92 and 0.94 for each item and reliability coefficients were between 0.10 and 0.18 (Çalışır et al., 2016). NSCS was used to assess the skin condition of newborns 5 min before the bath. Newborns with a score of three in both groups were included in the study.

2.4.4 | Body temperature measurement

Body temperature was monitored 5 min before and after the bath using the SABA Brand Ds-310 model calibrated Non-Contact Infrared Fever Meter thermometer. The application area (forehead-brow top) was dried before the measurement was made and the effective distance range (5–8 cm) was taken into account for the correct measurement. The sensor and probe cavity contained in the instruction manual were cleaned prior to each application and started to be used 10 min after moving to a new environment, as this may also affect the accuracy of the measurement result.

2.4.5 | Oxygen saturation and HR monitoring

In both groups, Covidien Nellcor Pulse Oximeter Monitor Console Type pulse oximeter was attached to the wrist and HR and SpO2 were monitored 5 min before and after the bath. During the evaluation, a disposable pediatric SpO2 sensor (coiled and adhesive) was used to reduce the erroneous result of the movement of the newborn. Application area (right hand) sensor is heated and dry before measurement.

2.4.6 | Maternal satisfaction form

Mothers were asked to grade the bathing method from 1 = very dissatisfied to 5 = very satisfied in order to determine the effect of two different bathing methods on maternal satisfaction.

2.4.7 | Semi-structured interview form

This is a form which was prepared by the researchers based on expert opinions (three specialist in pediatric nursing, one specialist in obstetrics and gynecology, one specialist in biostatistics) and consisted of five open-ended questions aimed at determining mothers' feelings and experiences in the first bath of their newborns. First, in order to test the interviews, a pilot interview was made with a mother after the bathing process in her home with the study team. The pilot and all the other interviews were made by the researcher (PhD, SYÇ) and a research scholar (PhD, EE) specializing in the field of pediatric nursing. The answering time was measured by checking whether there were any situations which prevented the mother from understanding the questions in the form and from giving clear answers, and her opinion on the clarity and practicability of the form in general was taken. The pilot interview was made with three mothers and not included in the data analysis. The interviews were recorded by two researchers and a written document was formed after the interview. The content of the prepared written document was shown to the participants to improve the credibility and verifiability of data. In each interview, five basic questions were discussed: "Could you tell us about your experience and feelings about the first bath of your baby?", "Could you tell us about your concerns you had during the first bath of your baby?", "What do you think are the positive aspects of this bathing method?", "What do you think are the negative aspects of this bathing method?", "What do you think are the differences of this bathing method from others?" The interview took at least 60 min.

2.5 | Intervention

2.5.1 | First stage

The first stage of the study included the newborn bath training to be provided to both groups.

One of the educations given in the Antenatal Education Class in the hospital routine was newborn care. For this education 4–5 slides in a presentation were included which contained information about the first TB after birth. Bath application in the tub refers to the whole body of the newborn being placed naked in the tub. This bathing method was described and then a video was shown including TB. During these trainings, slide-assisted training was presented to the pregnant women in the SB group in a similar way to the pregnant women in the other group and a demonstration video containing the SB was presented by the researchers. In addition, two different methods of bathing were shown in practice by pregnancy school nurses using the neonatal model and all necessary toiletries. Before leaving the pregnancy class, the relevant training brochure and video CDs were also distributed.

2.5.2 | Second stage

The mothers who completed the first stage and gave birth and were discharged home were called by the researchers, and home visits were conducted on an appropriate day and time. The first bath of the newborns was given at home by mothers in both groups accompanied by the researchers. All the materials used in the newborns' bath (bath tub, bucket, mug, thermometer measuring the room humidity and temperature, thermometer measuring water temperature, soft swaddling cloth [cotton], two towels large enough to swaddle the newborn) were purchased by researchers within the scope of the project to ensure that they would be the same, and they were given as a gift to the mothers on the day of home visit. Only the swaddling cloth was not given to the TB group since it would not be used. Thus, the materials used in both groups were ensured to be the same.

2.5.3 | Bathing practice

- Before bathing. Before bathing, the environment variables (room temperature 26–28°C, room humidity 40–60%, bath water temperature 37–38°C, no air flow and the newborn was fed at least 30 min ago) were kept under control using the Environment Variables Control Form. Furthermore, the newborns were evaluated for compliance using the Newborn Follow-up Form before bathing, and those with an evaluation score of below three were not included in the study. Five minutes before the bath, pre-bath body temperature, SpO2, RR and HR of the newborns in both groups were measured and recorded, and then, the pulse oximetry probe was removed from the newborn and recorded. Furthermore, the behavioral parameters (facial movements, unrest, duration of crying) of newborns were also evaluated.
- Practice of bathing. In the first stage of the study, it was conducted under the supervision of researchers by the mothers who received education during pregnancy. The newborns in both groups were undressed, their diapers were changed, and they were swaddled with a towel. At first, the newborns' eyes were cleaned from the inside out, and then, their nose circumference, ears

and face were cleaned respectively by using a separate cotton buffer for each of them, and TB was applied to last for a maximum of 5 min.

2.5.4 | SB group

The newborns in the SB group were swaddled loosely in a cotton cloth and placed by their mothers in a 12–13 cm deep bathtub with water only (in a way to close the newborn's shoulder). They were supported by mothers only to keep the head above the shoulders. Starting from the body and extremities, the cotton cloth in which the newborn in the SB group had been placed, was opened, and the newborns' bodies and then heads were washed in both groups. No soap or shampoo was used during bathing in both groups.

2.5.5 | TB group

Preparations required before bathing, and the bathing procedure were conducted in the same way as the study group. The only difference was that the newborn in the TB group was nakedly placed in the bathtub without swaddling.

In both groups, the first chronometer was started by the first observer researcher nurse to determine the duration of bathing as soon as the newborn came into contact with water, and it was stopped by the same observer as soon as the newborn was taken out of water. Similarly, the second chronometer was started by the second observer to determine the duration of crying as soon as the newborn began to cry, and it was stopped at the end of crying.

- After bathing

During the post-bath period, the following practices were performed in both groups respectively. Within 5–10 s after the bathing was ended and the newborn was taken out of the water, behavioral parameters (facial movements, unrest, sleep/awakeness state, duration of crying etc.) were evaluated and recorded in the data collection form by the observer. Furthermore, the physiological parameters of the newborn were evaluated and recorded within 0–5 min. After the bathing was ended and the newborn was soothed by feeding, mothers were placed in a quiet and comfortable environment. Their satisfaction was measured using the Maternal Satisfaction Form.

The mother's bathing experiences were recorded in the Semi-Structured Interview Form. The interview was conducted mutually by sitting at the same level and directed by means of the questionnaire forms by active listening. As a result of the interviews, everything mothers said was noted by the researchers. Furthermore, eager mothers in the TB group were informed about the SB method after home visits and bathing evaluation, and they were given training videos and brochures, considering the ethical dimension of the study.

2.6 | Ethical considerations

The research was approved by the Clinical Studies Ethics Committee of Sakarya University in Turkey (Number: 16214662/050.01.04/42). Furthermore, necessary permissions were also obtained from the relevant institution. Participants were informed about the aim of the study, the privacy of answers, where and how the data would be used, and the study was carried out with pregnant women whose verbal and written consent was obtained, and voluntary mothers who wanted to continue working thereafter.

2.7 | Data analysis

In the study, the data of 62 participants were evaluated and transferred to IBM SPSS Statistics 23 program on a computer. The descriptive characteristics of the participants were analyzed using frequency n (%) for categorical variables and mean and SD for continuous variables. While evaluating the study data, the Shapiro–Wilk test was used to determine the status of the normal distribution in the groups (Ghasemi & Zahediasl, 2012). Pearson Chi-square test was used in the comparison of qualitative data. In determining whether there was a difference in dependent variables according to independent variables, Mann–Whitney U test was used since they did not show a normal distribution for two-option independent variables. Wilcoxon signed rank test was used for intragroup comparisons of the parameters without normal distribution. Statistical significance was accepted at $p < .05$ (Verma, 2013).

In the qualitative part of the study, content analysis was used to determine the mothers' experiences related to two different bathing methods. Content analysis was used to describe codes, categories, subcategories and themes (Zhang & Wildemuth, 2009). Thus, it is required to conceptualize the collected data at first, and then to organize them logically according to the emerging concepts and to determine the themes that explain the data accordingly (Yıldırım & Şimşek, 2013). First, by coding the data, the relationships between the underlying concepts of the data were revealed, the themes were

determined, the data were arranged according to the codes and themes and the findings were interpreted. The advantage of the content analysis approach was to gather data directly from participants without imposing predetermined categories or theoretical viewpoints. Another strength of this approach was to emphasize topics, content, differences and similarities in codes and categories (Hsieh & Shannon, 2005; Thomas & Harden, 2008). After the data were gathered from the mothers by in-depth interviewing technique, they were read several times and evaluated by two researchers. The codes which could be extracted from each word and sentence by consensus were created by MAXQDA 12 program. The first codes were extracted by MAXQDA and the codes classified as subcategories and the themes were extracted by merging relevant categories. MAXQDA 12, a computer-assisted qualitative analysis program, allows researchers to collect codes under special themes, to compare a large number of sample data, to quickly repeat or correct the operations when needed, to achieve the results at any time, to establish a relationship between the codes and the notes of the researcher, and to summarize the data obtained in model,

TABLE 1 Demographic and clinical characteristics of the participants in the swaddled bathing (SB) and tub bathing (TB) groups

Variable		SB group ($N = 31$)		TB group ($N = 31$)		Test	p
Mother age (years)	Mean ± *SD*	27.26 ± 3.18		27.10 ± 3.88		−.255	[a].799
	Min-max	22–33		19–38			
	(Median)	(27)		(27)			
Gestational age (weeks)	Mean ± *SD*	28.39 ± 4.45		29.71 ± 4.35		1.166	[a].244
	Min-max	21–36		22–36			
	(Median)	(28)		(31)			
First bathing day of newborn (days)	Mean ± *SD*	3.58 ± 1.06		3.32 ± 1.11		−0.991	[a].322
	Min-max	2–5		2–5			
	(Median)	(3)		(3)			
Birth weight (g)	Mean ± *SD*	3,315.16 ± 394.32		3,366.61 ± 445.07		0.317	[a].751
	Min-max	2.5–4.3		2.5–4.3			
	(Median)	(3.3)		(3.3)			
Room temperature (°C)	Mean ± *SD*	26.42 ± 0.43		26.49 ± 0.46		0.684	[a].494
	Min-max	26.0–27.1		26.0–27.8			
	(Median)	(26.3)		(26.4)			
Water temperature (°C)	Mean ± *SD*	37.56 ± 0.41		37.62 ± 0.42		0.686	[a].493
	Min-max	37–38		37–38			
	(Median)	(37.6)		(37.6)			
Last breastfeeding time (min)	Mean ± *SD*	52.42 ± 13.47		47.90 ± 13.65		−1.496	[a].135
	Min-max	20–60		30–60			
	(Median)	(60)		(60)			
		n	%	n	%	Test	p
Type of residence	Village/town	7	22.6	10	32.3	0.729	[b].393
	City	24	77.4	21	67.7		
Newborn gender	Female	14	45.2	15	48.4	0.065	[b].799
	Male	17	54.8	16	51.6		
Mother education status	High school and below	7	226	11	35.9	1.253	[b].263
	University	24	77.4	20	64.5		
Employment status	Working	10	32.3	8	25.8	0.313	[b].576
	Not working	21	67.7	23	74.2		

[a]Mann–Whitney *U* test.
[b]Pearson Chi-square test.

matrix, graph or report. Coding and themes were performed via MAXQDA 12 program, and both the analysis of the data and the modeling of the resulting situation were obtained. The credibility of these findings was ensured using direct observation of bathing practices, and revision and confirmation of findings by participants, researchers, and experts.

TABLE 2 Comparison of newborns' body temperature, oxygen saturation, heart rate and respiratory rate in the swaddled bathing (SB) and TB groups

Variable Body temperature (°C)		SB group ($N = 31$)	TB group ($N = 31$)	*Test*	*p*
Before bathing	**Mean ± *SD***	36.88 ± 0.33	36.95 ± 0.33	0.913	[b].361
	Min-max	36.4–37.9	36.4–37.8		
	(Median)	(36.8)	(36.9)		
After bathing	**Mean ± *SD***	36.64 ± 0.19	36.60 ± 0.21	−1.371	[b].170
	Min-max	36.2–37.1	36.2–37.3		
	(Median)	(36.6)	(36.6)		
Test value		Z: −3.519	Z: −4.632		
p		[a]***p: .000 ****	[a]***p: .000 ****		
Oxygen saturation (%)					
Before bathing	**Mean ± *SD***	96.74 ± 1.69	97.23 ± 1.56	1.353	[b].176
	Min-max	94–100	94–100		
	(Median)	(96)	(98)		
After bathing	**Mean ± *SD***	98.55 ± 1.48	97.48 ± 1.86	−2.260	[b]***.024****
	Min-max	95–100	94–100		
	(Median)	(99)	(97)		
Test value		Z: −4.003	Z: −1.075		
p		[a]***p: .000 ****	[a]*p: .282*		
Heart rate (per min)					
Before bathing	**Mean ± *SD***	125.32 ± 14.35	120.06 ± 26.03	−0.254	[b].800
	Min-max	100–150	90–148		
	(Median)	(122)	(124)		
After bathing	**Mean ± *SD***	122.00 ± 13.61	122.00 ± 14.34	0.078	[b].938
	Min-max	96–143	93–164		
	(Median)	(119)	(122)		
Test value		Z: −1.576	Z: −0.304		
p		[a]*p: .115*	[a]*p: .761*		
Respiratory rate (per min)					
Before bathing	**Mean ± *SD***	40.77 ± 7.04	40.26 ± 7.21	−0.648	[b].517
	Min-max	24–56	28–60		
	(Median)	(40)	(38)		
After bathing	**Mean ± *SD***	37.84 ± 4.41	41.35 ± 6.96	2.028	[b]***.043****
	Min-max	30–48	32–60		
	(Median)	(37)	(40)		
Test value		Z: −2.933	Z: −1.468		
p		[a]***p: .003 ****	[a]*p: .142*		

[a]Wilcoxon signed ranks test.
[b]Mann-Whitney *U* test.
*p< .05.

The interviews were coded by the author (SYÇ) and independently controlled by the other author (HUY) in the analysis process. In case of disagreement, the author (NÇ) with detailed knowledge of the research subject and a statistician who is an expert on qualitative research methods and who also did the statistics of the study were asked to examine the research in various dimensions, thus providing clarity on coding. The codes were classified by the program, and the appropriate themes were identified, interpreted and reported by the researchers. When evaluating the data, they were coded according to the questionnaire numbers (SB group: S, TB group: T; S21, T18 etc.).

3 | RESULTS

3.1 | Analysis of the quantitative data of the study

3.1.1 | Sample characteristics

In the comparison by groups, it was observed that there was no statistically significant difference between the groups in terms of maternal age, gestational week, newborn age, birth weight, room temperature, bath water temperature and last breastfeeding time. Furthermore, it was also observed that there was no statistically significant relationship between the groups and settlement, newborn gender, educational status and employment status (Table 1).

3.1.2 | Assessment of physiological parameters

No statistically significant difference was found when newborns' body temperatures before and after bathing were compared by groups ($p > .05$). When the body temperatures were compared, it was determined that the body temperatures of the newborns in both groups before bathing were significantly higher than their body temperatures after bathing ($p < .05$) (Table 2).

When SpO2 values of the newborns in the period before the bath were compared according to groups, no statistically significant difference was found between them; however, it was observed that the SpO2 value was higher in the SB group after the bath ($p = .024$). When HR values of the newborns before and after the bath were compared within and between the groups, no statistically significant difference was found ($p > .05$). When RR values of the newborns in the period before the bath were compared according to groups, there was no statistically significant difference between them ($p = .517$); however, it was observed that the RR value was higher in the newborns in the TB group in the period after the bath ($p = .043$). When the RR values of newborns were compared according to duration in the TB group, no statistically significant difference was found between them ($p = .142$); however, it was observed that the RR value in the SB group decreased after bathing compared to before bathing ($p = .003$) (Table 2).

TABLE 3 Comparison of bathing and crying duration, stress parameters and mother satisfaction in the swaddled bathing (SB) and tub bathing (TB) groups

Variable		SB group ($N = 31$)	TB group ($N = 31$)	Test	p
Bathing time (min)	**Mean ± *SD***	4.45 ± 0.67	3.72 ± 0.83	**−3.424**	[a]***.001*** **
	Min-max	3.00–5.50	2.20–5.00		
	(Median)	(4.67)	(3.52)		
Crying duration (s)	**Mean ± *SD***	28.71 ± 35.31	91.16 ± 63.30	**4.297**	[a]***.000*** ***
	Min-max	0–130	0–238		
	(Median)	(11)	(80)		
Mother satisfaction	**Mean ± *SD***	4.94 ± 0.25	3.68 ± 0.87	**−5.818**	[a]***.000*** ***
	Min-max	4–5	2–5		
	(Median)	(5)	(4)		
Face/forehead grimacing	**Yes**	7 22.6	26 83.9	23.388	[b]***.000*** ***
	No	24 77.4	5 16.1		
Unrest	**Yes**	6 19.4	26 83.9	25.833	[b]***.000*** ***
	No	25 80.6	5 16.1		

[a]Man–Whitney *U* test.
[b]Pearson Chi-square test.
*$p < .01$.
***$p < .001$.

TABLE 4 Mothers' bathing experience in the swaddled bathing (SB) and tub bathing (TB) groups

Categories	Subcategories	Expressions of mothers in subcategories
The feelings and worries of the mothers about first bathing	Fear (fear of crying, drowning hazard, slip down from hands, injuring the baby, cold)	S4: "I was afraid of her/his drowning and crying and of failing."
		S6: "I was afraid of whether water would be trapped in her/his ear or mouth and his/her umbilical cord would fall off later than expected. I was afraid of hurting him/her."
		T14: "I was afraid of dropping or hurting him/her and causing him/her to be cold."
		T29: "I was afraid that he/she would slip away. I could not know where to start."
	Worry	T14: "I was nervous and worried."
		S23: "I was a little worried about the first bath but it was good because he/she was relaxed."
		T56: "I was worried since it was the first bath. I was worried what if I could not hold him/her?"
		S30: "I got over the fear of first bath and it was really a great experience."
	Excitement	S21: "It was exciting but great as well. The bathing went so much easier than I expected, and I am less worried now."
		S24: "I was nervous, but I was very much satisfied."
		T36: "I got stressed at first. I was nervous. However, he/she relieved when got cleaned."
		T44: "I was so emotional that my son would love the water. I had no fear, but I was excited. I would be afraid to do it alone."
	Happiness	S6: "It was pleasing."
		S10: "I was very happy. I knew that we were in safe hands. Learning the correct way made me glad. I would recommend to anyone."
		T28: "There were excitement, worry and happiness at the same time. Bathing my baby with the supervision of a competent person was a very reassuring experience for us."
		T42: "I felt that my child felt very relieved, so I was happy."
Positive aspects of this method compared to other bath method	Not feeling cold	T5: "He/she would be afraid if we poured water on him/her. He/she was not cold since we immerse him/her in water."
		S19: "I am sure that he/she will not be cold when we swaddled him/her. He/she got used to bathing since we swaddled him/her."
		S25: "No risk of slipping away from my hands. No risk of being cold. He/she not afraid of water."
		S40: "He/she was calm. It is a convenience to get used to water. Not being cold is an advantage."
	Easier and detailed washing	S2: "I can see everywhere. I thought that I bathed him/her thoroughly."
		S21: "It is possible to position and bath the baby easily."
		T54: "This was the first time I saw an immersion like this. I think that it will provide convenience in bathing."
	Not crying and fearing	S9: "He/she was calm. He/she did not startle. The baby was comfortable. So was I. I was not scared. He/she did not slip away. He/she felt safe."
		S20: "It was really a good experience that the baby did not cry. I was glad that he/she did not slip away, startle and no water was trapped in his/her ear or mouth."
		S37: "It does not scare the baby. Handling is good, it prevents slipping."
	Feeling comfortable and safe	S27: "He/she was very relaxed, and she did not cry. He/she did not feel a change in the environment. I am not worried that he/she will be cold anymore. It is a reassuring practice so that I will be able to bath the baby by myself."
		T44: "Contacting with water directly is safer. I grabbed his/her body better with this method."
		S10: "I saw that he/she felt safe. So was I. the baby got used to water easily. Bathing by starting from the feet enabled the body to get used to water. There were no worries."

TABLE 4 (Continued)

Categories	Subcategories	Expressions of mothers in subcategories
Negative aspects of this method compared to other bath method	Being cold	T36: "He/she startled and was a little cold."
		T38: "The baby may be cold."
	Drowning hazard	T5: "There was no negative aspect. There is a risk of drowning if the baby slips away from my hands. It would be better if there were couple of clothes at the bottom."
		T28: "The baby may slip away from my hands and drown since it is the first child and first bath."
		T59: "I would be afraid that he/she would drown if I was alone."
	Crying and fearing	T29: "He/she is slipping. He/she cried a little. It is hard to hold."
		T41: "It may be scary for a child who does not like water."
Difference between the applied bathing method and other methods	Soothed, less fear and more confidence	S4: "He/she would be scared over the net. He/she is more comfortable inside the water."
		S12: "The baby is not immediately immersed in water. The baby did not get stressed. It is less dangerous since the baby does not slip; it is safer."
		S39: "It made the baby feel safe."
		T61: "I think that my child and I would feel safer. It is more natural to do it in the tub."
		S62: "I can do this bath by myself without scaring. It is easier."
	Direct contact with water	S7: "He/she would contact water directly if we bathed him/her without swaddling. I think it is better this way."
		S27: "He/she felt safer since he/she did not contact with water directly."
		T43: "I think that it is better to contact with water directly."
	Being cold	S10: "The baby is cold when bathing without contacting with water in other methods. Swaddling when bathing gives a feeling of being in the womb."
		S19: "He/she would cry more if we bathed him/her without swaddling. He/she would not get used to it and would be cold."
		T50: "We bathed him/her by immersing in water instead of pouring water. The presence of water at the bottom made the baby feel less uncomfortable and prevented him/her to be cold."

3.1.3 | Comparison of newborns' stress parameters in the SB and TB groups

When the newborns in the groups were evaluated in terms of durations of bath and crying time, face/forehead grimacing and unrest, it was determined that the duration of bathing in the SB group was 4.45 ± 0.67 min while the duration of bathing in the TB group was 3.72 ± 0.83 min, the mean duration of crying during bathing in the SB group was 28.71 ± 35.306 s while the mean duration of crying in the TB group was 91.16 ± 63.297 s. Statistically significant differences were found between the groups in terms of duration of bathing ($Z = -3.424$; $p = .001$), duration of crying ($Z = -4.297$; $p = .000$). Face/forehead grimacing ($Z = 23.388$; $p = .000$) and unrest ($Z = 25.833$; $p = .000$) were found to be higher in the TB group compared to the SB group (Table 3).

3.1.4 | Comparison of maternal satisfaction in the SB and TB groups

When the maternal satisfaction in the groups was evaluated, those in the SB group was 4.94 ± 0.250 while the maternal satisfaction scale of those in the TB group was 3.68 ± 0.871. Statistically significant differences were found between the groups in terms of maternal satisfaction scale ($Z = -5.818$; $p = .000$) (Table 3).

3.2 | Analysis of the qualitative data of the study

The comparison of mothers' experiences on two different bathing methods constituted the qualitative dimension of the study. Four themes emerged in the qualitative part of the study which includes the experiences of the mothers

about two different bathing methods. When the feelings about first bathing were evaluated, mothers in the SB group stated that the method applied had more positive aspects such as the fact that the newborn does not feel cold, fear or cry. On the other hand, mothers in the TB group emphasized that the method applied had more positive aspects, such as easier and detailed washing of the newborn, compared to mothers in the SB group. Nevertheless, it was observed that mothers in the TB group were more worried about the negative effects of bathing such as drowning, fear and crying of the newborn compared to mothers in the SB group. When the concerns of mothers in the SB group during their first bathing experiences were examined, they stated that they generally worried about the slipping of the newborn from their hands, and the newborn's chilling and drowning and were afraid of the crying and hurting the newborn; however, the newborn was not afraid, did not cry and felt more comfortable with the SB method (Table 4).

When the positive aspects of the method during the first bathing experience of the mothers in the SB group were examined, they generally stated that the newborn was not afraid and did not cry because of this method, it had positive effects such as the fact that the newborn was at ease and felt safe, and did not feel cold; this method provided easy and more detailed washing of the newborn. When the negative aspects of the method during the first bathing in the SB group were examined, they generally stated that this method had no negative effects on the newborn, while those who thought that it had negative aspects stated that the newborn was in danger of drowning, may feel cold, may cry and have fear, and that this method was slow and time-consuming. When the difference of the bathing method from other methods was examined, mothers in the SB group generally thought that this method had different effects such as being comfortable, feeling less fear and being safe (Figure 2).

When the feelings of mothers in the TB group during their first bathing experience were examined, while it was observed that they were generally happy as a result of the bathing experience, they indicated that they felt excited, anxious and scared before the first experience. When the positive aspects of the method during the first bathing experiences of the mothers in the TB group were examined, while there were generally positive effects of this method such as the fact that the newborn did not cry or feel scared because of this method, and the newborn felt comfortable and safe, they also stated that this method ensured that the newborn did not feel cold, and this method provided easy and more detailed washing of the newborn. When the negative aspects of the method during the first bathing experiences of the mothers in the TB group were examined, they stated that the newborn was in danger of drowning, may feel cold, may cry and have fear, and this method was slow and time-consuming (Figure 3).

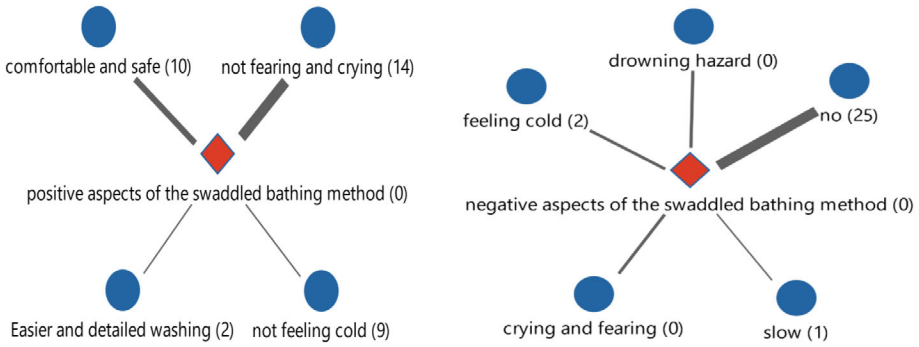

FIGURE 2 Positive and negative aspect of the swaddled bathing (SB) method

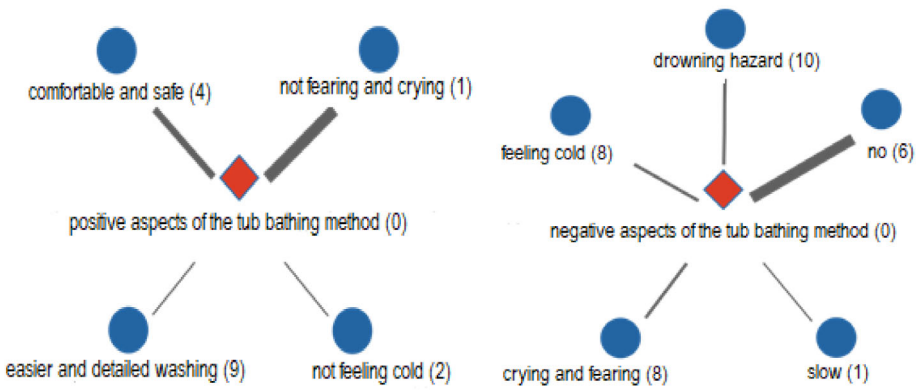

FIGURE 3 Positive and negative aspect of the tub bathing (TB) method

4 | DISCUSSION

4.1 | Discussion of quantitative data of the study

In our study, it was found that the body temperature of the SB group decreased less compared to the TB group in the post-bath period compared to pre-bath period; however, the difference between them was not statistically significant. In the study by Ar and Gözen (2018) on the effects of running water bathing and SB on vital signs of term newborns in the intensive care unit, it was reported that although the difference was not significant, the body temperature of the newborns in the SB group increased at the 20th minute and they got out of cold stress earlier compared with the other group. In the study by Edraki et al. (2014) to compare the running water bathing and the SB methods in preterm newborns, it was reported that there was no significant difference between the post-bath and pre-bath body temperatures of the newborns in the SB group while a significant difference was observed between the post-bath and pre-bath body temperatures of the newborns in the running water bathing group. In the study by Çaka and Gözen (2018) to compare the SB and TB methods in term newborns in hospital, it was found that while there was no significant difference between the groups before bathing, the body temperatures of the newborns in the SB group were significantly maintained just after bathing and 10 min after bathing compared with the other group. In the study by DeVall and Rubarth (2014) to compare SB and the sponge bath (known as a different bath method, is no longer recommended because it increases the temperature loss of newborns) of term newborns in the intensive care unit, it was found that newborns who were sponge bathed had a temperature loss of 1.6^0C just after bathing, whereas those in the SB group had a temperature loss of 0.35^0C. The fact that the difference between two groups was not significant, although the body temperature of the SB group maintained better in our study, was associated with the fact that other studies were carried out mainly in preterms and in a hospital environment while our study was carried out in term newborns and in a home environment and the environment variables (room temperature, water temperature and air flow etc.) could be controlled better. When temperature losses in newborns are considered, swaddled with a soft cloth before the bath can be said to be more effective in maintaining body temperature. Moreover, the fact that body temperature decreases in all bathing methods is seen both in the literature and in our research results. However, this decrease was less in the SB group.

When the results obtained as a result of the study were evaluated, the decrease in HR after bathing in newborns, the normal RR, and the increase in SpO2 are results confirming each other. In the study carried out by Ar and Gözen (2018), it was determined that swaddled TB positively affected HR and SpO2 values. In another study in which Çaka and Gözen (2018) examined the effects of two different bath methods on the physiological results of the newborns, a decrease in HR and an increase in SpO2 were observed in parallel with each other in the SB group. These results suggested that SB was effective in the retaining of HR within the desired range with the further soothing of the newborn and accordingly on the increase in SpO2. When the literature was reviewed, it was observed that TB method performed by the nurses with term and preterm babies in the hospital environment was generally more effective in soothing the newborn compared to other bathing methods (Ar & Gözen, 2018; Bryanton et al., 2004; So et al., 2014). Furthermore, swaddling helped newborns to be more comfortable and stress-free. In this first study where the SB was used in the first bath of newborns at home, it was found that the SB method was more efficient than TB in relaxing babies.

In our study, stress parameters such as newborns' duration of crying, unrest and face/forehead grimacing were evaluated to assess the stress/discomfort (Als, 1982; Harmon & McManus, 2008) of the newborns compared to different bathing methods. When the relationship between durations of bathing and durations of crying between the two groups is examined, the fact that the duration of crying in the SB group was shorter although the duration of bath was longer compared to the TB group confirms that swaddling during the bath decreases stress by soothing the newborn. When the expressions in other stress parameters between the groups were examined, it was observed that face/forehead grimacing and unrest of the newborn were more in the TB group. In the study in which Edraki et al. (2014) compared bathing under running water in preterms with th eSB method, it was emphasized that the duration of crying was significantly shorter (5.81 s) in the group undergoing SB method compared to the group bathed under running water (43.41 s). The study by Çaka and Gözen (2018) examined changes in the neonatal infant pain scale (NIPS) to determine the crying time and stress level of the newborn; 0.25 points decrease in the SB group and 1.30 points increase in the TB group were observed. These results suggested that SB was effective in decreasing the duration of crying and NIPS score by ensuring more soothing of the newborn compared to tub immersion bathing. In the study carried out by Ceylan and Bolışık (2018) levels of stress and pain according to bathing type were significantly higher in the sponge bath

condition than SB. In the study by Paran, Edraki, Montaseri, and Razavi Nejad (2016) on the effects of two different bathing methods on behavioral responses of preterm newborns, the occurrence of behavioral parameters including facial grimace, mouthing/yawing movements, tongue extension, eyes open, and fussing/crying was significantly lower in the SB group than those in the TB group. The swaddling of the newborn during bathing will provide a decrease in physiological and motor stress, will help the newborn to feel it is in the intrauterine environment and will ensure the continuity of the sense of trust. It could also help reducing stress levels of parents as care providers and facilitate safe bathing processes.

In our study, mothers were asked to rate the bathing method from 1 to 5 to determine the effects of two different bathing methods on the satisfaction of mothers. In our study, when the post-bath satisfaction levels between the groups were compared, it was found that the mean score of the mothers in the SB group was higher than the mean score of those in the TB group. In the project realized by DeVall and Rubarth (2014) to compare the SB and the TB methods in newborn intense care unit and to improve parent satisfaction, no significant difference was found between two bathing technique in terms of parent satisfaction and parental involvement in the first bath of the newborn. In the study by Bryanton et al. (2004) on term newborns in the hospital environment, it was concluded that TB was found by parents to be more pleasurable than SB. When the literature was reviewed, there was no study examining the effect of this bathing method on the satisfaction of mothers by giving it at home. In this context, this is the first study that contributes to the literature.

4.2 | Discussion of qualitative data of the study

Newborn care is one of the important issues that can cause postpartum anxiety and stress in mothers. The cause of parents' fear and concerns about newborn care is associated with the lack of information and skills on this matter (Kristensen et al., 2018). Bathing is one of the important steps in newborn care practices. When the literature was reviewed, although the effect of the SB method on the stress of premature infants was examined in the studies carried out in hospitals about it, no source was found to answer the question of how both the mother and the newborn were affected when mothers bathed their babies by the same method. With this method used in this study we planned based on the studies demonstrated that nurses working in hospital received positive results from this method (Edraki et al., 2014; Liaw et al., 2010; Paran et al., 2016), and it was intended to reduce stress and concerns experienced during newborn bathing by mothers considered as primarily responsible for the newborn's care and the self-care agent of the newborn and to improve their satisfaction with the bath. Also, this study aimed to reveal that newborn bathing at home could be improved by evidence-based practices.

The comparison of mother's experiences with two different bathing methods was the qualitative aspect of the study. When the feelings and concerns of the mothers in the groups during the first bathing experience were examined, it was observed that they were usually happy after the bathing experience while they stated that they were nervous before the first experience and they worried and feared their babies would slip away from their hands and fall, drown, cry, get cold or hurt (Karl, 1999).

In the study by Fern et al. (2002), the following benefits were observed among newborns during the SB practice: decreased physiological and motor stress symptoms and therefore conserved energy; decreased crying and agitation; facilitated social interaction by keeping the newborn in a calm, quiet alert state; increased self-regulation, and enhanced ability to participate in feeding immediately after the bath. They also identified an increased parental comfort level and confidence, facilitated parent attachment, enhanced interaction with the newborn, and decreased parental stress. In the study by Medves and O'Brien (2004) on the effect of first bathing on maintaining thermal stability in newborns in a hospital environment, they stated that the first-time parents got pleasure with this practice and gained confidence after the bath. In our study, the expressions of mothers such as “I got over the fear of first bath and it was really a great experience.”, “It was little different than I expected. I thought that I would be scared but it turned out to be very easy. I am so relieved that he/she did not cry.”, “I was afraid of whether water would be trapped in her/his ear and his/her umbilical cord would fall off later than expected. I was afraid of hurting him/her” were examined; it was found that they experience intense fear about the first bathing experience but gained self-confidence due to accompaniment of a nurse.

When the literature was reviewed, no study on the implementation of the SB method by mothers was found. However, the parents' experiences were examined, it was seen that our study findings were similar to other studies. When the positive and negative opinions of the mothers about both bathing methods were evaluated, the mothers in the SB group stated that the implemented method had more positive aspects like not causing their babies to get cold,have fear, cry and ensuring safe handling. However, it was found that the mothers in the TB group were more worried about bad bathing experiences such as the newborn drowning, feeling afraid and crying. In the

literature, there were many studies where different bathing methods were compared in preterm and term newborns in a hospital environment (Ar & Gözen, 2018; Çaka & Gözen, 2018; DeVall & Rubarth, 2014; Edraki et al., 2014; Fern et al., 2002; Quraishy et al., 2013).

There were several studies emphasizing that TB provided the newborn with more comfort and sense of satisfaction (Bryanton et al., 2004). Also, there were few studies emphasizing that swaddling could help reduce pain in newborns (Erkut & Yildiz, 2017; Morrow, Hidinger, & Wilkinson-Faulk, 2010; Sinpru, Tilokskulchai, Vichitsukon, & Boonyarittipong, 2009) and reduce behavioral stress (Neu & Browne, 1997; Ohgi, Akiyama, Arisawa, & Shigemori, 2004). Swaddling a newborn and keeping it swaddled during the bath reduced involuntary movements and stress and increased comfort and satisfaction in newborns, creating a medium similar to a safe and protected intrauterine feeling (Hall, 2008).

In our study, it was suggested that SB can reduce the stress of mother and newborn and increase satisfaction and comfort based on the fact that the vast majority of mothers stated that the SB method has no negative aspects as well as their expressions such as "He/she was calm. He/she did not startle. The water was warmer. The baby was comfortable. I was not scared. He/she has not slipped from my hand. I felt safe. I saw that he/she felt safe. The baby got used to water easily. There were no worries. It is possible to position and bath the baby easily".

5 | CONCLUSIONS

The results of the study indicated that temperature and HR were better preserved in the SB group, but the difference between them was not statistically significant. Also, SpO2 level and RR were within normal limits and could reduce the stress during bathing. It can be recommended to give baths by swaddling since it decreases behavioral stress symptoms such as crying and restlessness, soothes the newborn, and the mother is also more satisfied with this bathing.

6 | LIMITATIONS

This study had some limitations and difficulties. First, mother's satisfaction may be affected by other factors such as newborn's feeding (breast feeding/ formula), mother's fatigue level, social support provided by mother's husband and family, her economic status and so on. In the study, these variables were not differentiated during home visits. The fact that only mothers who had normal births were included in the study was another restriction of the study. Another restriction of this study was the fact that the study was performed in a small sample group. Access to more cases was not possible due to numerous inclusion criteria, time restrictions and case losses because of the nature of visits. Therefore, it can be recommended that a similar study should be carried out with a larger sample group. Furthermore, the results of this study could be affected by behavioral variables among babies.

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AUTHOR CONTRIBUTIONS

N.Ç. and S.Y.Ç. contributed to the conception and design of this study; S.Y.Ç. performed the statistical analysis and drafted the manuscript; and H.U.Y. critically reviewed the manuscript and supervised the whole study process. All authors read and approved the final manuscript.

CONFLICT OF INTERESTS

There are no conflects of interest to disclose.

ETHICS APPROVAL

The procedures of the study received ethics approval from the "Sakarya University Faculty of Medicine Ethics Committee" (Approval number: 16214662/050.01.04/42).

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REFERENCES

Als, H. (1982). Toward a synactive theory of development: Promise for the assessment and support of infant individuality. *Infant Mental Health Journal*, *3*(4), 229–243. https://doi.org/10.1002/1097-0355(198224)3:4%3C229::AID-IMHJ2280030405%3E3.0.CO;2-H

Ar, I., & Gözen, D. (2018). Effects of underrunning water bathing and ımmersion tub bathing on vital signs of newborn ınfants: A comparative analysis. *Advances in Neonatal Care*, *18*(6), E3–E12. https://doi.org/10.1097/ANC.0000000000000484

Ayyildiz, T., Kulakci, H., Ayoglu, F. N., Kalinci, N., & Veren, F. (2015). The effects of two bathing methods on the time of separation of umbilical cord in term babies in Turkey. *Iranian Red Crescent Medical Journal*, *17*(1), e19053. https://dx.doi.org/10.5812%2Fircmj.19053

Blume-Peytavi, U., Cork, M. J., Faergemann, J., Szczapa, J., Vanaclocha, F., & Gelmetti, C. (2009). Bathing and cleansing in

newborns from day 1 to first year of life: Recommendations from a European round table meeting. *Journal of the European Academy of Dermatology and Venereology*, *23*(7), 751–759. https://doi.org/10.1111/j.1468-3083.2009.03140.x

Bölükbaş, N., Erbil, N., Altunbaş, H., & Arslan, Z. (2009). Traditional practices about child care of the mothers who owner 0-12 month baby. *Uluslararası İnsan Bilimleri Dergisi*, *6*(1), 164–176 (in Turkish).

Bryanton, J., Walsh, D., Barrett, M., & Gaudet, D. (2004). Tub bathing versus traditional sponge bathing for the newborn. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *33*(6), 704–712. https://doi.org/10.1177/0884217504270651

Castalino, F., Nayak, B. S., & D'Souza, A. (2014). Knowledge and practices of postnatal mothers on newborn care in tertiary care hospital of Udupi district. *Nitte University Journal of Health Science*, *4*(2), 98–101.

Ceylan, S. S., & Bolışık, B. (2018). Effects of swaddled and sponge bathing methods on signs of stress and pain in premature newborns: Implications for evidence-based practice. *Worldviews on Evidence-Based Nursing*, *15*(4), 296–303. https://doi.org/10.1111/wvn.12299

Çaka, S. Y., & Gözen, D. (2018). Effects of swaddled and traditional tub bathing methods on crying and physiological responses of newborns. *Journal for Specialists in Pediatric Nursing*, *23*(1), e12202. https://doi.org/10.1111/jspn.12202

Çalışır, H., Karabudak, S. S., Güler, F., Aydın, N., & Türkmen, M. K. (2016). Validity and reliability of the Turkish version of neonatal skin condition score. *Cumhuriyet Hemşirelik Dergisi*, *5*(1), 9–15 (in Turkish).

DeVall, E., & Rubarth, L. B. (2014). *Quality improvement project: Swaddle bathing* (Doctoral dissertation). Creighton University. Retrieved from http://hdl.handle.net/10504/62591

Edraki, M., Paran, M., Montaseri, S., Nejad, M. R., & Montaseri, Z. (2014). Comparing the effects of swaddled and conventional bathing methods on body temperature and crying duration in premature infants: A randomized clinical trial. *Journal of Caring Sciences*, *3*(2), 83–91. https://doi.org/10.5681/jcs.2014.009

Erkut, Z., & Yildiz, S. (2017). The effect of swaddling on pain, vital signs, and crying duration during heel lance in newborns. *Pain Management Nursing*, *18*(5), 328–336. https://doi.org/10.1016/j.pmn.2017.05.007

Fern, D., Graves, C., & L'Huillier, M. (2002). Swaddled bathing in the newborn intensive care unit. *Newborn and Infant Nursing Reviews*, *2*(1), 3–4. https://doi.org/10.1542/neo.18-8-e504

Ghasemi, A., & Zahediasl, S. (2012). Normality tests for statistical an alysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism*, *10*(2), 486–489. https://doi.org/10.5812/ijem.3505

Hall, K. (2008). Practising developmentally supportive care during infant bathing: Reducing stress through swaddle bathing. *Infantry*, *4*(6), 198–201.

Harmon, S. L., & McManus, B. M. (2008). Developmentally supportive care. In J. P. Cloherty, E. C. Eichenwald, & A. R. Stark (Eds.), *Manual of neonatal care* (6th ed., pp. 154–158). Philadelphia, PA: Wolters Kluwer Health/ Lippincott Williams & Wilkins.

Herrero-Morín, J. D., Fernández, B. H., Bello, M. C. A., González, R. Q., & González, N. F. (2015). Maternal assessment of recommendations on the newborn infant care upon hospital discharge. *Archivos Argentinos de Pediatría*, *113*(1), 28–35. https://doi.org/10.5546/aap.2015.28

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277–1288. https://doi.org/10.1177/%2F1049732305276687

Karl, D. J. (1999). The interactive newborn bath: Using infant neurobehavior to connect parents and newborns. *MCN: The American Journal of Maternal/Child Nursing*, *24*(6), 280–286. https://doi.org/10.1097/00005721-199911000-00004

Kristensen, I. H., Simonsen, M., Trillingsgaard, T., Pontoppidan, M., & Kronborg, H. (2018). First-time mothers' confidence mood and stress in the first months postpartum. A cohort study. *Sexual & Reproductive Healthcare*, *17*, 43–49. https://doi.org/10.1016/j.srhc.2018.06.003

Liaw, J. J., Yang, L., Chou, H. L., Yang, M. H., & Chao, S. C. (2010). Relationships between nurse care-giving behaviours and preterm infant responses during bathing: A preliminary study. *Journal of Clinical Nursing*, *19*(1–2), 89–99. https://doi.org/10.1111/j.1365-2702.2009.03038.x

Loring, C., Gregory, K., Gargan, B., LeBlanc, V., Lundgren, D., Reilly, J., ... Zaya, C. (2012). Tub bathing improves thermoregulation of the late preterm infant. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *41*(2), 171–179. https://doi.org/10.1111/j.1552-6909.2011.01332.x

Lund, C. H., & Osborne, J. W. (2004). Validity and reliability of the neonatal skin condition score. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *33*(3), 320–327. https://doi.org/10.1177/0884217504265174

Medves, J. M., & O'Brien, B. (2004). The effect of bather and location of first bath on maintaining thermal stability in newborns. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *33*(2), 175–182. https://doi.org/10.1177/0884217504263081

Morrow, C., Hidinger, A., & Wilkinson-Faulk, D. (2010). Reducing neonatal pain during routine heel lance procedures. *MCN: The American Journal of Maternal/Child Nursing*, *35*(6), 346–354. https://dx.doi.org/10.1097/NMC.0b013e3181f4fc53

Neu, M., & Browne, J. V. (1997). Infant physiologic and behavioral organization during swaddled versus unswaddled weighing. *Journal of Perinatology*, *17*(3), 193–198.

Ohgi, S., Akiyama, T., Arisawa, K., & Shigemori, K. (2004). Randomised controlled trial of swaddling versus massage in the management of excessive crying in infants with cerebral injuries. *Archives of Disease in Childhood*, *89*(3), 212–216. https://doi.org/10.1136/adc.2002.025064

Öztürk, S., & Erci, B. (2016). Primipar mothers in postpartum period given maternity and newborn education increased attachment: Post test with control group semi experimental research. *Balıkesir Sağlık Bilimleri Dergisi*, *5*(3), 129–134. (in Turkish). https://doi.org/10.5505/bsbd.2016.63325

Paran, M., Edraki, M., Montaseri, S., & Razavi Nejad, M. (2016). A comparison between the effects of swaddled and conventional bathing methods on some behavioral responses in premature infants. *Iranian Journal of Neonatology*, *7*(4), 35–40. https://dx.doi.org/10.22038/ijn.2016.7778

Quraishy, K., Bowles, S. M., & Moore, J. (2013). A protocol for swaddled bathing in the neonatal intensive care unit. *Newborn and Infant Nursing Reviews*, *13*(1), 48–50. https://doi.org/10.1053/j.nainr.2012.12.006

Ruschel, L. M., Pedrini, D. B., & Cunha, M. L. C. D. (2018). Hypothermia and the newborn's bath in the first hours of life. *Revista Gaucha de Enfermagem*, *39*, e20170263. https://doi.org/10.1590/1983-1447.2018.20170263

Shafaie, F. S., Mirghafourvand, M., & Bagherinia, M. (2017). The association between maternal self-confidence and functional status in primiparous women during postpartum period, 2015-2016. *International Journal of Womens Health and Reproduction Sciences*, *5*(3), 200–204. https://doi.org/10.15296/ijwhr.2017.36

Sinpru, N., Tilokskulchai, F., Vichitsukon, K., & Boonyarittipong, P. (2009). The effects of clinical nursing practice guideline for swaddling on pain relief from heelstick in neonates. *Journal of Nursing Science*, *27*(1), 32–45. Retrieved from https://ns.mahidol.ac.th/english/journal_NS/pdf/vol27/Issue1/nittaya.pdf

So, H. S., You, M., Mun, J. Y., Hwang, M. J., Kim, H. K., Pyeon, S. J., … Chang, B. H. (2014). Effect of trunk-to-head bathing on physiological responses in newborns. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *43*(6), 742–751. https://doi.org/10.1111/1552-6909.12496

Thomas, J., & Harden, A. (2008). Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology*, *8*(1), 45 (1–45 (10. Retrieved from http://www.biomedcentral.com/1471-2288/8/45

Thukral, A., Lockyer, J., Bucher, S. L., Berkelhamer, S., Bose, C., Deorari, A., … Niermeyer, S. (2015). Evaluation of an educational program for essential newborn care in resource-limited settings: Essential care for every baby. *BMC Pediatrics*, *15*(1), 71.

Verma, J. P. (2013). *Data analysis in management with SPSS software*. New Delhi, India: Springer.

World Health Organization. (2015). *Postnatal care for mothers and newborns: Highlights from the World Health Organization 2013 Guidelines*. Retrieved from https://www.who.int/maternal_child_adolescent/publications/WHO-MCA-PNC-2014-Briefer_A4.pdf

Yıldırım, A., & Şimşek, H. (2013). Qualitative data analysis. In A. Yıldırım & H. Şimşek (Eds.), *Qualitative research methods in the social sciences* (9th ed., pp. 253–284). Ankara, Turkey: Seçkin Yayıncılık (in Turkish).

Yılmaz, A., Bayar, A., & Esenay, F. I. (2018). Determining baby care requirements after labour of mothers: A qualitative study. *Mersin Üniversitesi Sağlık Bilimleri Dergisi*, *11*(2), 147–156. (in Turkish). https://dx.doi.org/10.26559/mersinsbd.351511

Zhang, Y., & Wildemuth, B. M. (2009). Qualitative analysis of content. In B.M., Wildemuth (Ed.), *Applications of social research methods to questions in information and library science* (pp. 308–319). Santa Barbara, CA: ABC-CLIO.

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