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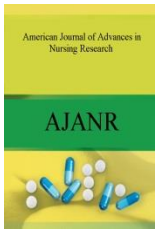

A STUDY ON EFFECTIVENESS OF MUMMIFYING AND KANGAROO CARE ON NEW BORN BABY

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ABSTRACT

One of nature's finest gifts is the birth of a healthy newborn baby, which is an inspiring and emotional event that every family should experience. A fetus emerges at term into the extra uterine environment, which is very different from its natural protected intrauterine environment, which is thermo constant and comfortable for him. It takes physical and psychological support for neonates to adapt to life outside the womb. Providing appropriate care should be the responsibility of the mother. There is no substitute for skin-to-skin contact when it comes to kangaroo care. Statistical analysis of research data includes: research design, variables, setting, population, sample, sample size, sampling technique, development & description of the tool, data collection procedure, content validity, and data collection procedures. Nursing administrators should encourage nurses to participate in continuing education programs for nurses working in hospitals and in the community.

INTRODUCTION

One of the finest gifts of nature is the birth of a healthy baby. This event is both inspiring and emotional, and it cannot happen to everyone. A child of today will be a citizen of tomorrow. [1] A child is one of the most important resources for the future of humankind. At term, the fetus leaves the protected intrauterine environment, which is thermodynamic and comfortable, and enters the extra uterine environment, which is very different from the intrauterine environment. In order for them to adjust to the extra uterine life, they need both physical and psychological support. Neonates undergo the most profound physiological changes during the transition from fetal to independent circulation. There are four weeks of extrauterine life during the new born period. Neonatals require warm, comfortable surroundings, breast feeding, cleansing, protection, and most of all, being loved, cared for, cherished & enjoyed in their first few days.

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It is important to note that a new born is a homeotherm, but his ability to remain warm may be easily compromised if the ambient temperature is extreme. Nearly two thirds of infant mortality rates are attributed to neonatal mortality in developing countries. Perinatal mortality rates in developing countries are high due to hypothermia.

Providing appropriate care should be the responsibility of the mother. An individual who gives kangaroo care is in contact with his or her own skin. Skin-to-skin contact is continuously maintained by the mother while the new-born is in kangaroo care. Kangaroo care involves placing the new-born on the chest, head up, in order to maintain a warm environment. Breastfeeding is promoted, extra uterine adaptation is achieved, mother's confidence is increased, and parent-child relations are enhanced. While in Kangaroo position, infants are observed to be in a restful state of sleep. [2] All five senses of the baby are satisfied by kangaroo care. During skin-to-skin contact (touch), the baby feels the warmth of his or her mother. The infant listens to the mother's voice

& heartbeat (hearing), sucking on the breast (taste), seeing her mother's face (vision) and smelling the smell of her mother (olfaction). The attachment between a mother and her infant is enhanced by kangaroo care. The process of maternal attachment begins before conception, strengthens during pregnancy, and matures during the neonatal period when the mother and child are in contact. Once the baby has returned home, he or she enjoys being carried by her mother, skin-to-skin.

IMPORTANCE OF THE STUDY

It is estimated that the infant mortality rate in Tamilnadu is 43 death per 1000 live births. Most of the neonatal deaths occur during the first year of life, with 75 percent occurring during the first week. Since new-borns have a large surface area per unit body weight, and their thin layer of subcutaneous fat provides poor insulation, they are more prone to hypothermia. [3] The ability of a healthy new term infant to produce heat in a cold environment is limited, especially during the first 12 hours of life. It is therefore imperative in the early stages of an infant's life that the body temperature be maintained. As a mother, you feel an overwhelming sense of power and instinct when you hold and care for your baby. According to research conducted in recent years, mothers and their babies should remain together after giving birth. It is important that mothers and their babies spend frequent time together beginning at birth so that babies stay warm, cry less, and breastfeeding can start off on the right foot. A connection that lasts a lifetime begins when mothers recognize and respond to their babies' needs with tenderness and love.

Methodology

Research and Design

This study used a quasi-experimental research design. It took place in this design where both experimental and control groups were selected and manipulation was conducted before and after the independent variable (or) intervention was introduced to a group [4].

Variables

- Kangaroo care and mummification are independent variables.
- New-born comfort is a dependent variable.

Setting of the study

In order to conduct this study, Karanthai and Manambuchavadi maternity centers were selected in Thanjavur for the study. It was selected because of the availability of subjects, the feasibility of the study, and the investigator's familiarity with the setting's personnel

Population and Sample

Healthy new borns born within 12 hours of birth made up the study population. To conduct the study, we selected newborns that met the inclusive criteria.

Selecting samples based on the following criteria

- Eligibility criteria for inclusion
  Newborn within 12 hours of birth.
  Normal Newborn
- Eligibility criteria for exclusion
  Newborn with complication
  Mother is not willing to participate.

Sample Size

A convenient sampling technique was used to select 60 healthy full term newborns.

Sampling Technique

Non-probability convenient sampling technique was adopted as the study sample was selected based on the availability of new borns fulfilling the inclusion criteria.

TOOL DEVELOPMENT & DESCRIPTION

Part – I

It contains demographic variables such as the mother's age and educational status, as well as the newborn's sex and birth order.

Part – II

Checklists were developed after a thorough review of literature, consultation with experts in medical and nursing care, as well as personal experience. The investigator prepared an observational check list. The observation check list contains a total of 10 items. A combination of positives and negatives is included. Various aspects are involved in it.[5]

VARIABLES

Thermoregulation, Cry, Feeding, Bonding- 3 items

SCORING TECHNIQUE

Part – I

In order to determine the background of the subjects, two variables were coded to assess their demographic characteristics.

Part - II

The observation scores for each item are listed below.

0 - Poor response
1 - Moderate response
2 - Good response

The total score for part II is 20.

To interpret the level of comfort, the score was interpreted as follows.

Score obtained less than <10: Low level of comfort.
11 - 15: Moderate level of comfort

16 - 20: High level of comfort.

CONTENT VALIDITY

Paediatric experts verified the content validity of the check list.

1. Neonatologists - 2
2. Paediatricians - 1
3. Nursing experts - 3

A final version of the tool was created after all experts gave their suggestions.

PILOT STUDY

An initial feasibility study was conducted using the refined tools. We conducted a pilot study at Sir Ivan Stedford Hospital, Chennai, to make sure the concept was appropriate and practicable. Using convenient sampling techniques, the investigator selected [6] samples that fulfill the inclusive criteria with the permission of the Director.

The purpose of the study was explained briefly to the mothers to gain their cooperation. In order to collect demographic data, interviews were conducted. An observation check list was used for pre-assessment and kangaroo care was provided for 2 hours for the experimental group. Mummification was done for 2 hours for the control group. Both groups underwent post-testing. A pilot study also found that it was feasible & practical to carry out the study in the chosen setting & that the criterion measures were effective. One week was allotted for the pilot study.

RELIABILITY OF THE TOOL

An inter-rater reliability method was used to establish the tool's reliability. It was concluded that the tool was reliable by obtaining a reliability score of r = 0.9.

DATA COLLECTION

Medical officer, Thanjavur maternity center, and commissioner of the municipality approved the project.A study was conducted from 9/04/2006 to 9/05/2006.One month was the study period in both centers. Every time delivery occurs, the investigator extends the study time.Mothers were informed about the study and its purpose, and their confidentiality was assured.A structured observational check list was used for data collection.

Ethics were considered when explaining the procedure to mothers. After getting consent, the investigator measured the temperature, crying episodes, sucking duration, and the mother's eye contact with her baby for 4 hours. Newborns in experimental group wore only diapers, hats, and socks. Using a light blanket, the new born is placed head-up between the mother's breasts.The experimental group received kangaroo care for 4 hours.Mummifying the control group for 4 hours.An observational check list was used for post-assessment,

DATA ANALYSIS

Mean, percentage, standard deviation and chi-square were intended to be used as descriptive and inferential statistics.

The following are descriptive statistics:

1. Demographic variables are distributed by frequency and percentage.
2. The mean and standard deviation of the Comfortable for a Newborn level before & after the assessment.

Statistics based on inference include

1. An unpaired t test is used to compare the level of comfort following an assessment with the level of comfort following a new birth.
2. An analysis of post-assessment comfort level and its association with demographic variables of new babies was conducted using the Chi square test.

DATA ANALYSIS AND INTERPRETATION Presentation of Data

GROUP	PRETEST	INTERVENTION	POST TEST
Non-randomized Experimental group	Assessment of selected variables, such as, temperature, feeding, cry episodes, mother & new born- eye contact.	Kangaroo care	Assessment on selected variables such as, temperature, feeding, cry episodes, mother & new born- Eye contact.
Non-randomized control group	Assessment of selected variables, such as, temperature, feeding, cry episodes, mother & new born eye contact.	Mummifying	Assessment on selected variables such as, temperature, feeding, cry episodes, mother &newborn- Eye contact

Table 1- Frequency and percentage distribution of demographic profiles of newborns in experimental and control group with respect to Sex, Birth order, Mother's age, & education.

S. No	Demographic variables	Experimental		Control	
		No	%	No	%
1.	**New born' profile**				
	Sex				
	Male	11	36.67	14	46.67
	Female	19	63.33	16	53.33
2.	**Birth order**				
	1	12	40.00	16	53.33
	2	14	46.67	12	40.00
	3	3	10.00	2	6.67
	4 & above	1	3.33	-	-
3.	**Mother's profile**				
	Age				
	<20 yrs	20	66.67	19	63.33
	21-25yrs	1	3.33	-	-
	26-30yrs	6	20.00	10	33.33
	>31 yrs	3	10.00	1	3.33
4.	**Education**				
	Illiterate	1	3.33	-	-
	Primary	11	36.67	10	33.33
	Secondary	17	56.67	18	60.00
	Graduate & above	1	3.33	2	6.67

Section – B:

Pre-assessment level of comfort of kangaroo care and mummifying on selected factors.

Table – 2: Frequency and percentage distribution of the pre-assessment level of Comfort in experimental & control group.

Variables	Level of comfort											
	Experimental						Control					
	Low		Moderate		High		Low		Moderate		High	
	No	%	No	%	No	%	No	%	No	%	No	%
Temperature	-	-	7	23.33	23	76.67	-	-	8	26.67	22	73.33
Cry	1	3.33	22	73.33	7	23.33	6	20.00	19	63.33	5	16.67
Feeding	3	10	20	66.67	7	23.33	6	20.00	20	66.67	4	13.33
Bonding	3	10	20	66.67	7	23.33	-	-	27	90.00	3	10.00
Overall level of comfort	**1**	**3.33**	**24**	**80**	**5**	**16.67**	**3**	**10.00**	**23**	**76.67**	**4**	**13.33**

Section – C:

Post assessment level of comfort of kangaroo care and mummifying on selected factors

Table – 3: Frequency and percentage distribution of the post assessment level of comfort in experimental & control group.

Variables	Level of comfort											
	Experimental						Control					
	Low		Moderate		High		Low		Moderate		High	
	No	%	No	%	No	%	No	%	No	%	No	%

Temperature	-	-	2	6.67	28	93.33	-	-	5	16.67	25	83.33
Cry	-	-	2	6.67	28	93.33	-	-	16	53.33	14	46.67
Feeding	-	-	4	13.33	26	86.67	-	-	9	30.00	21	70.00
Bonding	-	-	1	3.33	29	96.67	-	-	29	96.67	1	3.33
Overall level of comfort	-	-	**2**	**6.67**	**28**	**93.33**	-	-	**15**	**50.00**	**15**	**50.00**

Table - 4: Mean and standard deviation of the pre-& post assessment effectiveness of newborn in experimental & control group.

	Pre- assessment		't' value	Post – assessment		't' value
Groups	**Mean**	**S. D**		**Mean**	**S. D**	
Experimental	13.73	2.19	1.66*	18.93	0.91	10.09***
Control	12.8	2.13		15.33	1.38	

Section – D:

Comparison of pre-intervention status of kangaroo care and mummifying group on selected factors

Table – 5: Frequency and percentage distribution of pre-intervention status of Experimental and control group.

Level of comfort	Experimental		Control	
	No	**%**	**No**	**%**
Low < 10	1	3.33	3	10
Moderate 11 – 15	24	80	23	76.67
High 16 – 20	5	16.67	4	13.33

Section – E:

Comparison of the effectiveness of kangaroo care and mummifying upon selected factors

Table – 6: Comparison of effectiveness of Kangaroo care and mummifying group.

Level of comfort	Improvement in mean	S.D	Unpaired 't' value	'P' value
Experimental	5.2	2.41	4.75***	P < 0. 001
Control	2.53	1.91		

Section - F:

Association of post intervention effectiveness of kangaroo care group with selected demographic variables.

Table – 7: Association of post-intervention level of comfort in experimental group with selected demographic variables such as sex, birth order, weight of the newborn, mother's age and education using chi-square test.

Demographic variables	Low level		Moderate level		High level		Chi-square
Newborn's profile	**No**	**%**	**No**	**%**	**No**	**%**	
Sex							$X^2 = 0.164$
Male	-	-	1	3.33	10	33.33	d.f = 1
Female	-	-	1	3.33	18	60.00	N.S
Birth order							
1	-	-	2	6.67	10	33.33	$X^2 = 3.21$
2	-	-	-	-	14	46.67	d f = 3
3	-	-	-	-	3	10.00	N.S
4 & above	-	-	-	-	1	3.33	

Mother's profile							
Age							
< 20 yrs	-	-	2	6.67	18	60.00	X^2 = 1 .05
21 – 25 yrs	-	-	-	-	1	3.33	d.f = 3
26 – 30 yrs	-	-	-	-	6	20 .00	N.S
> 31 yrs	-	-	-	-	3	10 .00	
Education							X^2 = 1 .64
Illiterate	-	-	-	-	1	3 .33	d.f = 3
Primary	-	-	-	-	11	36.67	
Secondary	-	-	2	6 .67	15	50 .00	N.S
Graduate & above	-	-	-	-	1	3 .33	

Section – G:

Association of post intervention effectiveness of mummifying group with selected demographic variables

Table - 8: Association of post-intervention level of comfort in the control group with selected demographic variables such as sex, birth order, weight of the newborn, mother's age, education using chi-square test.

Demographic variables	**Low level**		**Moderate level**		**High level**		**Chi-square**
Newborn's profile	**No**	**%**	**No**	**%**	**No**	**%**	
Sex							
Male	-	-	8	26.67	7	23.33	X^2= 0.267
Female	-	-	7	23.33	8	26.67	d.f = 1
							N.S
Birth order							
1	-	-	6	20.00	10	33.33	X^2 = 2.33
2	-	-	8	26.67	4	13.33	d.f = 2
3	-	-	1	3.33	1	3.33	N.S
4 & above	-	-	-	-	-	-	
Mother's profile							
Age							
< 20 yrs	-	-	8	26.67	11	36.67	X^2 = 1.37
21 – 25 yrs	-	-	0	-	-	-	d.f = 2
26 - 30 yrs	-	-	6	20.00	4	13.33	N.S
> 31 yrs	-	-	1	3.33	-	-	
Education							
Illiterate	-	-	0	-	-	-	X^2 = 2.80
Primary	-	-	5	16.67	5	16.67	d.f = 2
Secondary	-	-	9	30.00	9	30.00	N.S
Graduate & above	-	-	1	3.33	1	3.33	

DISCUSSION

First objective was to assess the pre-intervention status on selected factors among Kangaroo care group and mummifying group.

Above is a table showing the overall level of comfort of neonates. [7] There were 24 (80%) patients with moderate comfort level, while 5 (16.67%) had high comfort level in Kangaroo care group. Three (10%) mummifying participants had low levels of comfort, 23 (76.67%) moderate levels, and four (13.33%) high levels. According to Murray S.F (1997), about [8] new-born babies die every minute in developing countries. Four principles of basic care were recommended: atraumatic delivery, maintain body temperature, maintain spontaneous respiration, and breastfeed shortly after birth.

The second objective was to assess the post-intervention effectiveness of Kangaroo care on selected factors

The Kangaroo care group had a majority of 28

(93.33%) high-level comfort neonates, and only two (6.67%) moderate level comfort neonates. According to Gomez papi A, (1998), thermoregulation was effective in kangaroo care with normal full-term newborns. In skin-to-skin contact with their mothers, newborns were dried. Kangaroo care was provided during the delivery room, during transportation to the postpartum area, for as long as 2 hours. 96% of newborns had an axillary temperature above 36 degrees celsius. [9]

The third objective was to assess the post intervention effectiveness of mummifying upon selected factors

As shown in Table 3, 15 (50%) neonates in the mummifying group were comfortable to some degree, while 15 (50%) neonates were comfortable to a great degree.

The fourth objective was to compare the pre-intervention status of Kangaroo and mummifying group

Table 4 shows the mean and standard deviation of the pre-intervention status for the Kangaroo care group and the mummifying group. [10] It shows that in Kangaroo care group with the mean value of 12.8 & S.D 2.13. The 't' value of 1.66 shows significance at $p < 0.05$ level.

The fifth objective was to compare the effectiveness of Kangaroo care over mummifying upon selected factors

Comparing Kangaroo care and mummifying at post-intervention levels of comfort is shown in Table 6. As compared with the mummifying group with a mean value of 2.53 & S.D 1.91 and a t value of 4.75, the Kangaroo care group shows high significance at the $p < 0.01$ level. [11] The results indicate that the Kangaroo care group & mummifying group of neonates differ statistically significantly.

The findings of this study are supported by Marzurek's (1999) study on kangaroo care's effectiveness in preventing hypothermia. The first group of full-term newborns were given Kangaroo care. Swaddled second group babies, positioned beside their mothers, and swaddled third group babies, separated from mothers for 75 minutes. [12] Kangaroo care infants had a higher skin temperature, higher blood sugar & shorter crying times than cot groups.

SUMMARY

A foetus receives everything from its mother during the antenatal period. Mothers establish healthy environments for both mother and baby after birth by providing physical warmth, psychological support & breast feeding. [13] Newborns are cared for non-conventionally using kangaroo care. The advantages of Kangaroo care include maintaining normal body temperature, promoting breastfeeding, increasing maternal-infant bonding, and increasing mom's confidence & ability to care for her new baby. Hospital stays are shorter & nosocomial infections are decreased. Newborns will feel more comfortable when they are in contact with their mothers. [14] As a result of kangaroo care, both mother and infant will benefit psychologically and physiologically. In addition to being safe, effective, and affordable, it is also feasible and cost-effective.

CONCLUSION

In this study, kangaroo care and mummification were compared in terms of how comfortable neonates were during the process. In the Kangaroo care group, 93.33% reported high levels of comfort, while 6.67% reported moderate levels of comfort. 50% of the mummifiers were comfortable, and 50% were moderately comfortable. Consequently, kangaroo care maintains normal body temperature, promotes breastfeeding, and fosters maternal-infant bonding better than mummification.

IMPLICATIONS

The significantly improved level of comfort in full term new-born babies after Kangaroo care suggests the use of Kangaroo care as an effective method in preventing hypothermia, promoting breastfeeding and promoting level of comfort among new born. Nursing practice, nursing education, nursing administration, as well as nursing research, should take note of the implications from the study.

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