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ADAPTATION AND BARRIERS OF HOME BASED KANGAROO MOTHER CARE IN LOW BIRTH WEIGHT INFANTS

Sevil Hakimi[1], Marzieh Mohammadi*[2], Foruzan Akrami[3], Abbas Habibelahi[4], Minoo Ranjbar[5], Keyvan Mirnia[6], Mohammad Heidarzadeh[7]

1.2 School of Nursing and Midwifery, Tabriz University of Medical Science, Tabriz, Iran.
3.4 Ministry of Health and Medical Education, Iran.
5. School of Nursing and Midwifery, Islamic Azad University. Bonab Branch, Iran.
6.7 School of Medicine, Tabriz University of Medical Science, Tabriz, Iran.

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ABSTRACT

Kangaroo Mother Care (KMC) is an alternative to incubator care for preterm babies. The main purpose of this study was to explore adaptation and barriers in the implementation of home based KMC in Low Birth Weight and Very Low Birth Weight neonates.
Material and methods
Participants were the mothers of premature neonates, discharged from NICU. For assessment implementation of home based KMC, 3 follow ups were designed.
Results
In this study, 400 mothers were assessed. The mean duration of KMC was 34.4(23.7) minutes in each sitting. There was a statistically effect of time on duration of KMC. The most common barrier in the implementation of KMC was lack of time. The only variable which was effective in implementation of KMC was watching the informational movie on KMC.
Conclusion
Home based KMC is well accepted. However duration of KMC sitting is low. Nurses should offer educational program to provide KMC effectively.

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Introduction

KMC is an early continuous and prolonged skin-to-skin contact between mother and infant which is an alternative to incubator care for preterm babies [1]. It was proposed by Rey & Martinez in 1978 in Colombia in response to lack of human resources, facilities and energy in developing countries [2]. Several advantages were reported from KMC implementation [3]. KMC babies have stable oxygen rates, breathing and better regulation of heart beat. Breast milk production is stimulated by KMC [4]. Meanwhile it decreases infant crying [5] and baby's temperature stabilizes much faster on the mother's chest than in an incubator [6]. A review in the Cochrane reported that although KMC could not reduce infant mortality, it reduced severe illness, infection, breast feeding problems and improved maternal bonding [2]. Hospital based KMC was endorsed for premature infants. However home based KMC promoted for all infants' regardless of gestational age and birth weight. It is implemented in communities and doesn't require to identity eligible infants [7]. Although there are several studies about hospital based KMC, the researches on home based and continuing unsupervised KMC after neonatal discharge are limited. Only few studies in Bangladesh and India have been performed. The results of these studies show that home based KMC was quickly and popularly adopted (8, 9]. In Iran, KMC was adopted as a national policy by the Ministry of Health since 2006 [10], with a structured implementation program and detailed clinical guidelines. Since then, nurses have encouraged, mothers to conduct this procedure in NICUs and to do so at home also. There are several studies about KMC in Iranian hospitals [11,

Corresponding Author: Marzieh Mohammadi, School of Nursing and Midwifery, Tabriz University of Medical Science, Tabriz, Iran, email: mmohammadi933@yahoo.com

12]. However, there is no information about continued unsupervised KMC at home. The aim of this study was to explore adaptation, duration and barriers to the implementation of home based KMC.

Material and methods

The study was approved by Ministry of health (MOH) ethics committee. The informed consent was obtained from all the subjects.

The sampling method was purposeful sampling. Participants were the mothers of low birth weight (LBW) and very low birth weight (VLBW) singleton infants who were discharged from NICU of Alzahra hospital. This hospital is a university affiliated hospital in Tabriz, state of Eastern Azerbaijan, it was one of the first hospitals to adopt KMC as a routine care in Iran [12]. LBW and VLBW were defined as weight at birth of less than 2500 g and 1500 gr irrespective of gestational age [13].

The neonates, who had fatal congenital anomalies and the mothers with severe disease causing disability, were excluded. In the NICUs all mothers were encouraged to do KMC. One nurse was selected in each shift for training of mothers and supervising the correct implementation of KMC. Mothers either received an educational pamphlet or watched a 15 minute movie about technique of KMC and its advantages. There was no particular selection method in choosing mothers in regards to watching the movie or receiving the pamphlet.

For assessment of home based KMC, 3 follow ups were planned. The first follow up was 48 hours after the newborn`s discharge. At the end of first week the second follow up was conducted. The third follow up was occurred at the end of second week. On the basis of α =0.05, β = 80%, d=0.05 and estimated home based KMC 50%, a sample of 392 premature dyads was required. This number was increased to 400, to accommodate probable drop out.

Instrument

For each mother a questionnaire was completed. Validity of the questionnaire was assessed by qualitative content validity. It means that 10 specialists including, 4 neonatologists, 3 pediatricians and 3 reproductive health specialists evaluated the questionnaire precisely in terms of relevancy, simplicity and clarity of the items and leave their comments. The questionnaire was divided into 3 sections as follows: demographic characteristics, practice and barriers.

Practice section: This section consisted of information on current KMC implementation at home, which was obtained and recorded in a diary and evaluated frequency and duration of KMC at home over a period of 3 consecutive days immediately before the follow-up visit. Regular KMC was defined as conducting KMC in every 3 recent consecutive days before each follow up.

Barrier section: The Barrier section contained 1 core open- ended question about main barrier in home based KMC implementation.

All the questionnaires were completed by a trained health care provider in the outpatient premature neonatal clinic. The diaries which evaluated the home based KMC in three consecutive days prior to the visits were completed by the mothers.

Statistical Analysis

Data were analyzed with the help of SPSS version 18 for windows. Statistical analysis was carried out using the chi square test to compare means from categorical/nominal data. For measurement predictors on doing KMC binary logistic regression and for evaluation difference between and within group repeated measure analysis were used.

Results

In this study 400 mothers of LBW and VLBW neonates were assessed consecutively from August until May 2016. The mean (SD) gestational age was 30.69(2.45) and mean (SD) weight of neonates was 1529.74 (450.99).

(Table 1) shows demographic characteristics of the sample according to the infant`s birth weight. There is statistical difference between 2 groups in mother employment, education, family income and receiving information about KMC.

Table 1. Demographic characteristics of participants (n=400)

Demographic characteristics	LBW n=176	VLBW n=224	p
Mother age (years)[1]	28.4 (6.0)	29.1 (5.8)	0.350*
Gestational age (weeks) [1]	32.2 (1.8)	29.4 (2.2)	<0.001*
Birth weight (gram) [1]	1943 (328.3)	1196 (215.9)	<0.001*
Sex[2]			
Male	76 (43.1)	127(56.6)	0.626**
Female	100 (56.8)	97(43.3)	
Mode of delivery[2]			
Vaginal	94 (53.4)	105 (46.8)	121**
Cesarean section	82 (46.5)	119 (53.1)	
Cause of prematurity[2]			
Rupture of membrane	77 (44.7)	103(45.9)	0.104**
Pre-eclampsia	64 (36.3)	83 (37.0)	
Others	35 (19.0)	38(16.9)	
Mother employment[2]			
House wife	74 (42.0)	130(58.0)	0.038**
Employee	102 (57.9)	94(41.0)	
Mother education			
Illiterate	0 (0)	2(0.89)	0.029¶
Primary and secondary school	39(22.1)	87(38.8)	
High school and diploma	94 (53.4)	87(38.8)	
University	43 (24.4)	48(21.4)	
Income			
Completely sufficient	23(13.0)	13(5.8)	0.003
Partially sufficient	136(77.2)	163(72.7)	
Insufficient	17(9.6)	48(21.4)	
receiving information about KMC in the NICUs	72 (49.9)	132(58.9)	<0.001**

[1]Data are presented as Mean (SD)

[2] number (%)

*Independent t- test

Chi sauqre**

¶U Mann whetney

The result of conducting regular KMC in each follow up were summarized in (figure 1). The mean duration of KMC was 34.4(23.7) minutes in each sitting and KMC sitting per day was 2 (1.3) times.

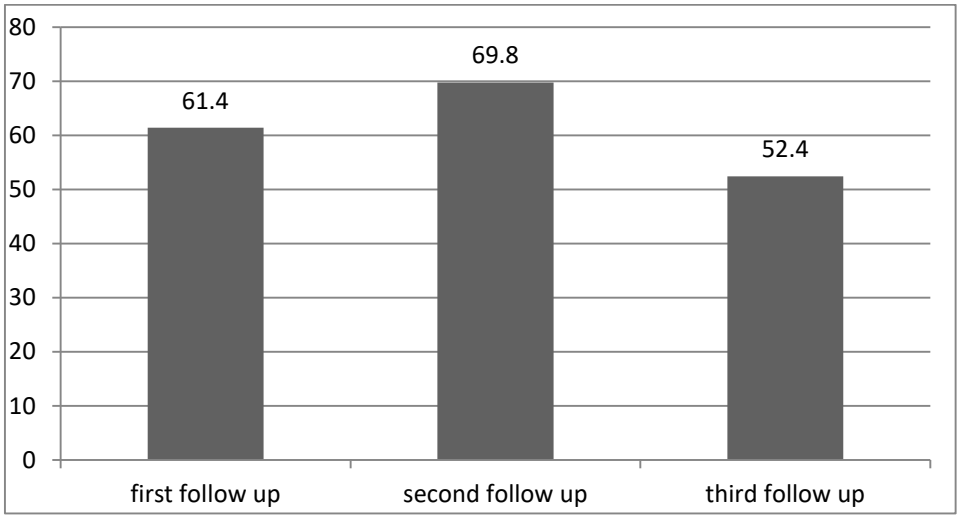

Figure 1. The percentage of mothers who conducting regular KMC in each visit

Duration of KMC within and between groups was assessed by general linear model with using repeated measure analysis. Mauchly`s test of Sphericity indicated that the assumption of sphericity had been violated, Chi ^{2} = 25.48, p<0.001, and therefore a Greenhouse –Geisser correction was used. There was a statistically effect of time on duration of KMC (Table 2).

Table 2. Results of the General Linear Model with Repeated Measures for the Interaction Between Time and Group

Groups	First follow up		Second follow up		Third follow up	
	Mean (SD)	P	Mean (SD)	P	Mean (SD)	P
LBW[a]	28.35(3.5)		31.4(3.2)		25.2(2.9)	
VLBW	32.6(3.1)		34.6(2.8)		34.6(2.8)	
comparison of time two by two[b]						
first and second follow up	-2.53	0.221				
second and third follow up	7.88	0.026				
first and third follow up	5.33	0.003				
Time effect[c]		0.002				
Group effect[c]		0.476				
Group× time effect[c]		0. 353				

[a] Mean(SD)

[b]Mean difference (95% CI)

[c]Repeated measure analysis

Barrier of KMC

(Table 3) contains the commonly cited barriers to the use of KMC by mothers. The most common barrier in the implementation of KMC in both groups was lack of time. More than 70% of mothers stated that they did not have enough time to conduct KMC.

Results of binary logistic regression, showed the only variable which was effective in implementation of KMC was watching the informational movie on KMC [Odd Ratio (OR) 5.3, 95% confidence Interval (CI) 2.4 to 11.6].

Table 3. Reported barriers to practice of KMC by mothers and fathers

Mothers` Barriers	% reported it
Lack of time	78%
Lack of motivation	75%
Fear of baby catching cold	44%
KMC has no remarkable effect	30%

Discussion

In our study, the women with VLBW neonate showed a considerably lower socio economic status (SES) compared to the women with LBW neonates. The former, were more likely to encounter lack of education, financial problems and issues of unemployment. It is well- documented that low SES is correlated with prematurity and LBW.

The results of this study show that home based KMC is well accepted in East Azerbaijan. More than 60% participants stated, that they conducted regular KMC in the each follow up. Adaptation rate of home based KMC in different studies is considerable. According to Darmstadt, acceptance rate of community based KMC is approximately 75% after 6 months and universal after one year after educational program in a rural North Indian [14]. Quasem and Solomons showed that 75% of mothers in Bangladesh and 96% of mothers in South Africa initiated KMC at home respectively [8, 15].

Despite the fact that, the large percent of mothers accepted KMC in our study, duration of this action was not remarkable. The mean duration of KMC was approximately 30 minutes which in comparing the other studies is inconsiderable. The mean duration of KMC at home was 2.4±1 hour and near 7 hours in India and Bangladesh respectively [8, 9]. The average duration of KMC in the study of Christenone reported 4 hours [16]. Lack of time and of awareness, lack of motivation/ interest and fear of adverse effect of KMC were the most important causes of discontinuation of KMC by the mothers. All of this barriers were consistently identified in the both 2 groups. The results are almost in line with other studies [9, 17] .

Majority of mothers believed, it was impossible doing housework, cooking, watching TV, etc. with an attached baby. It seems with showing practical methods of KMC and educational movies the mentioned belief could be corrected.

Although the mothers of VLBW infants were received more information about KMC, however there is no differences between two groups according to duration of KMC, however the time effect was statistically meaningful. It means that in the duration of KMC was lower in the third follow up. The rate of compliance of home based KMC in the study of Darmstadt fell over time to 47% at 1.5 months, to 7% at 3 months [14]. Reasons decreasing duration of KMC in during the time have been linked to maturation of the newborn and 'kicking out' from being held in KMC position.

Surprisingly none of demographic factors including mother and gestational age, and SES status such as mother employment, education and family income had impact on the implementation and duration of KMC. Although VLBW mothers had lower SES compare of LBW mother, they conducted KMC as well as the LBW mothers. Parikh showed that education and age of mothers had no significant impact on duration of community based KMC [9].

In the present study the only factor that affected the implementation of KMC was watching educational movie about KMC. This group implemented KMC significantly more that the group which received pamphlet or book.

Conclusion

Home based KMC is well accepted among mothers of East Azerbaijan. However, duration of KMC sitting is low. With regards to indicated barriers to the implementation of KMC nurses should offer educational program focusing on the importance and skills needed to provide KMC effectively. The findings of this study must be interpreted with caution as it may be biased because the mothers self-reported the duration and frequency of KMC.

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References:

1. Tessier R, Cristo M, Velez S, Girón M, de Calume ZF, Ruiz-Paláez JG, et al. Kangaroo mother care and the bonding hypothesis. Pediatrics. 1998;102(2):e17-e.

2. Conde-Agudelo A, Diaz-Rossello JL, Belizan JM. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. Cochrane Database Syst Rev. 2003(2):CD002771.

3. Charpak N, Ruiz-Pelaez JG, Figueroa de CZ, Charpak Y. A randomized, controlled trial of kangaroo mother care: results of follow-up at 1 year of corrected age. Pediatrics. 2001;108(5):1072-9.

4. Charpak N, Ruiz-Pelaez JG, Figueroa de Calume Z. Current knowledge of Kangaroo Mother Intervention. Curr Opin Pediatr. 1996;8(2):108-12.

5. Erlandsson K, Dsilna A, Fagerberg I, Christensson K. Skin-to-skin care with the father after cesarean birth and its effect on newborn crying and prefeeding behavior. Birth. 2007;34(2):105-14.

6. Gathwala G, Singh B, Balhara B. KMC facilitates mother baby attachment in low birth weight infants. Indian J Pediatr. 2008;75(1):43-7.

7. Sloan N L, Ahmed S, Mitra S N, Choudhury N, Chowdhury M, Rob U, et al. Mortality: A Randomized, Controlled Cluster Trial Community-Based Kangaroo Mother Care to Prevent Neonatal and Infant. Pediatrics. 2008;121:e1047-e59.

8. Quasem I, Sloan N, Schowdhury A, Ahmed S, Winikoff B, Schowdhury A M R. Adaptation of Kangaroo Mother Care for Community-Based Application. J Perinatol 2003;23:646-51.

9. Parikh S, Banker D, Shah U, Bala D. Barriers in implementing community based Kangoroo mother care in low income community. NHL J Med Scien. 2013;2:36-8.

10. Rezaeizadeh G, Nayeri F, Shariat M. A history of neonatal medicine in Iran. Arch Iran Med. 2014;17(12):855-61

11. Nurian M, Mashdberd Y, Yaghmaei F, Baghbani AA, Heydarzadeh H. Effects of kangaroo and routine care on physiologic parameters of low-birth-weight infants. JSBSNM. 2009;19(65): 127-36.

12. Heidarzadeh M, Hosseini MB, Ershadmanesh M, Tabari MG, Khazaee S. The Effect of Kangaroo Mother Care (KMC) on Breast Feeding at the Time of NICU Discharge. Iran Red Crescent Med J. 2013;15(4):302-25.

13. Kramer MS. Determinants of low birth weight: methodological assessment and meta-analysis. Bull World Health Organ. 1987;65(5):663-737.

14. Darmstadt GL, Kumar V, Yadav R, Singh V, Singh P, Mohanty S, et al. Introduction of community-based skin-to-skin care in rural Uttar Pradesh, India. J Perinatol. 2006;26(10):597-604.

15. Solomons N. Knowledge and attitude of nursing staff and mothers towards kangaroo mother care in in the eastern sub- district of caoe town. SAJCN. 2012;25(1):33-9.

16. Christensson K, Bhat GJ, Amadi BC, Eriksson B, Hojer B. Randomised study of skin-to-skin versus incubator care for rewarming low-risk hypothermic neonates. Lancet. 1998;352(9134):1115-8.

17. Englaer A, Ludington-Hoe S, Cusson R, Adams R, Bahnsen M, Brumbaugh E, et al. Kangaroo Care: National Survey of Practice,Knowledge, Barriers, and Perceptions. MCN. 2002;27(3):146-53.