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Twins Co- Bedding at Home, Parents' Perspective, Sleeping Pattern and Developmental Millstones.

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Abstract:

Co-bedding twins is the practice of placing siblings in the same crib or bed. The objective of this study was to find out how frequently co-bedding was practiced at home among Malaysian twins. Moreover, parents' knowledge and satisfaction was measured. Developmental mill-stones and sleeping pattern of twins were compared between those who practiced co-bedding versus those who did not.

Method: This is a cross-sectional comparative study. Parents of registered twins aged below 18 were interviewed to collect data on 204 Malaysian twins including socio-demographic characteristics, sleeping pattern and developmental millstones of twins as well as parent's knowledge and satisfaction with co-bedding.

Result: Eighty nine percent of twins were co-bedded during their infancy and childhood. More than 90% of parents considered co-bedding as safe and believed it had a positive effect on psychological wellbeing of their twins (89.2%). No significant difference was found be-tween co-bedded and separately bedded twins in terms of their developmental millstones. Duration of sleep was described as complete for 89% of co-bedded twins with similar fre-quency of wakening between the two understudy groups (P=0.258).

Conclusion: Co-bedding is considered a safe practice at home and carries a high satisfaction rate among parents of twins. Randomized controlled studies are warranted to investigate the long-term benefits of co-bedding at home.

Introduction:

Co-bedding is the term used to describe putting the twins down to sleep together in the same crib, bed or incubator. The practice of co-bedding is based on the

assumption that the intrauterine environment is replicated and extra-uterine adjustment of twins is enhanced by continued physical contact with the other twin rather than sudden deprivation of such stimuli. It has been postulated that maintaining the skin-to skin contact between twins may assist them to cope with the environment and enhances the adaptation mechanism for better self regulatory pathways.[1] Co-bedding is a newly appreciated developmental care practice that could help twins adjust to the extra-uterine environment by allowing them to co-regulate their body temperatures, sleep/wake cycles, and state-regulation, and self-soothe leading to better growth and development. The positive effect of twin co bedding is shown in case reports [2-4], small observational studies [5], literature reviews [6, 7] and Cochrane systematic review.[8] The potential physical and psychosocial benefits of co-bedding are studied extensively among pre-term twins.[9, 10] A randomized controlled trial evaluating the effect of co bedding on weight gain and physiological regulation in preterm twins suggested a greater increase in mean weight gain during two first weeks of life. However, the median number of episodes of apnea, bradycardia and desaturation was the same between the intervention and control group.[8]

Better regular breathing pattern is reported by Touch [11] when 22 pre-term infants were monitored by cardio-respiratory machine for 12 hours before and after co-bedding. A decline in the frequency of central apnea was shown during the period of co-bedding which was interpreted as a reflection of a change in sleep pattern due to less frequent arousal by the twins. Less fussiness, more sleep-wake synchronicity was reported by Nyqvist.[12] The absence of an increased incidence of infection [10, 13], parent satisfaction [10], and better growth (14) are among a few advantages of co-bedding practice. Majority of these studies however are limited to small sample size, are focusing on preterm babies and are only looking into short-term effect of physical or behavioral characteristics of twins. Current study aims at investigating the effect of co-bedding on growth and development of term twins. Parents' satisfaction and knowledge were also assessed.

Methodology:

This was a cross-sectional observational study. Ethical approval was taken from National Medical Research Registry. A convenience sampling of twins below 18 years of age from the National Malaysian Twin Registry Database was recruited for the study. Parents' of registered twins were contacted by telephone. Parent's provided informed consent prior to study enrollment and data collection. Table 1 summarizes the participants' demographic information. The average twin set was born at 37 weeks of gestation, with mean weight of 2328 grams and had a 24 to 55 year-old mother. There were no significant differences between those who practiced co-bedding for their twins and those who did not, with the exception of zygosity ($X2=15.04$, $P=0.006$).

Three research assistants were recruited for; each was familiar with one local language (Malay, Mandarin and Tamil) as well as English. One hundred and twenty one parents were contacted from whom

102 data sheet were filed. Seven families have changed their telephone number or address and were untraceable. Ten families did not want to cooperate. The remaining 2 were not able to assist the researcher to complete the information because of lack of knowledge.

Demographic information, parental knowledge and satisfaction regarding co-bedding practice, as well as twins sleeping pattern, growth and development (e.g. time of sitting, standing and walking) were obtained.

Statistical analysis was performed using SPSS version 11. P value of less than 0.05 was considered to be statistically significant. Qualitative variables were cross tabulated using Chi-square test and quantitative variables were compared using student t-test.

Result:

Descriptive analysis

One hundred and two pairs (n=204) of Malaysian twins were recruited for the purpose of this study. Fifty eight twin pairs (n=116) were identical and 44 pairs (n=88) were non-identical. Total number of males were 88 (43.1%) and 116 were female (56.9%). From identical twins 23 pairs were of male-male gender, 34 pairs were female-female and 1 pair were female-male. While from non-identical twins 14 pairs were male-male, 17 pairs were female-female and 13 pairs were male-female.

Majority of twins were Malay (68.6%) while 18.6% were Chinese and 11.8% were Indian. The remaining 0.1% belonged to other races. Their age ranged between 1 to 17 years of age with the mean of 8.15±4.6, and median 8.00. Twenty eight percent of twins (n=58) were in nursery and 71.6% (n=146) were in school during the study period.

Parents' education, ethnicity and salary are shown in Table 1. Mother's mean age was 38.94±7.34 ranging from 24 to 55, father's mean age was 41.39±8.31 with the minimum of 27 and maximum of 60 years. Twins gestational age ranged between 28 weeks to 41 weeks with the mean value of 37.13±3.15.

Co-bedding

A descriptive analysis of parent's awareness about co-bedding 84.3% (n=86) responded positive. Eighty nine percent preferred co-bedding to separate bedding and practiced co-bedding for their twins. Eighty eight percent were satisfied with the practice.

Sixty nine percent of parents mentioned more sleep-wake synchronicity during co-bedding. Moreover, adopting same position during sleep hours was reported by 55% of parents. More than 90% of parents believed that co bedding practice is safe and it has a positive effect on the psychological wellbeing of their twins (89.2%).

Comparison between co-bedded and not-co-bedded twins

Co bedding was practiced for 91 pairs of twins while the remaining 11 pairs did not sleep together during infancy. No significant difference was seen between the two groups in terms of demographic data (Table 2). There were more identical twins in the co-bedded group (54.9% vs. 34.3%, P=0.006).

Twin's mean age (8.85±5.05 vs. 8.00±4.47; P=0.565 using Mann-Whitney test) and twins' gestational age (37.08±3.2 vs. 37.55±2.81; P =0.644 using Student t-test) were similar between the two groups. A comparison

between birth weight of co-bedded twins (2338±526) versus separately bedded twins (2248±451) did not show any significant difference (P=0.443). Moreover, no significant difference was shown between parents' education, economical status, and ethnicity (data not shown).

Table 3 shows a comparison of development of twins between those who were co-bedded (n=122) and those who were not (n=22). No significant difference was found between the two groups.

Sleep duration was described as complete for those who were practicing co-bedding in 89% of cases. Frequency of wakening was similar among those who did and did not practice co-bedding (2.82±1.25 vs. 2.16±1.85; P=0.258).

Discussion:

Co-bedding practice has been studied extensively in hospital setting and for premature/preterm twins. A significant association is described between hospital-based and home sleeping practices.[15, 16] According to Stainton [17] continuation of co bedding at home happens from 3 weeks to 9 months following co-bedding in the hospital. Parents will model co-bedding practice observed in the hospital when their infants are in the home environment. Parent's input is a major concern in the decision to implement co-bedding. Our study investigated the parents' knowledge and satisfaction with co-bedding practice. Findings from our database suggest that 89% of twins' parents preferred co-bedding and 88% were satisfied with it. Bigger proportion believed it is safe (90%), has a positive effect on development of their children. Parents' satisfaction has been tested in previous studies. Lutes [18] findings suggest that parents approved of co-bedding to improve communication between twins. The small prospective randomized study of 16 co-bedded and 21 separately bedded multiples did not find any differences in parental anxiety, maternal attachment, or parental satisfaction between the two groups.[10] Stainton [17] stated that parental attitudes toward co-bedding changed from initial uncertainty to preference for co-bedding after hospital charge.

As discussed above, research on the benefits of co-bedding twins in hospitals are many but no research has supported the long term effect of co-bedding of twin infants in the home environment yet. Our finding suggests that there is no significant difference in terms of developmental millstones (Table 3) between twins who were co-bedded and separately bedded. This is despite the fact that socio-demographic characteristics of twins (birth weight, gestational age, age, gender, and ethnicity) were similar between the two groups.

Table 1. Parent's education, ethnicity and salary status (n=102).

Variables	Frequency	Percentage
Mother's Education		
SPM	50	49.0
STPM/Diploma	21	20.6
Bachelor	28	27.5
Master	3	2.9

Mother's Salary		
<RM1000	37	36.6
RM1001-2000	15	14.9
RM2000-3000	37	36.6
>RM3000	12	11.9
Mother's Ethnicity		
Malay	66	64.7
Chinese	17	16.7
Indian	14	13.7
Others	5	4.9
Father's Education		
SPM	53	52.5
STPM/Diploma	22	21.8
Bachelor	22	21.8
Master	3	3.0
PhD	1	1.0
Father's Salary		
<RM1000	11	10.8
RM1001-2000	24	23.5
RM2000-3000	55	53.9
>RM3000	12	11.8
Father's Ethnicity		
Malay	67	65.7
Chinese	20	19.6
Indian	14	13.7
Others	1	1

Table 2. A comparison between qualitative demographic data of co-bedded (n=122) versus not-co-bedded twins (n=22).

	Co-bedded	**Co-bedded**	**P value**
	Yes (n=122)	**No(n=22)**	
Gender			
Male	79(38.7%)	9(4.4%)	0.823
Female	103(50.5%)	13(6.4%)	
Race			
Malay	126(61.8%)	14(6.9%)	0.087
Chinese	36(17.6%)	2(1.0%)	
Indian	18(8.8%)	6(2.9%)	
Others	2(1.0%)	0(10.8%)	
Type			
Monozygotic	112(54.9%)	4(2.0%)	0.001
Dyzygotic	70(34.3%)	18(8.8%)	

Table 3. A comparison between growth and development of co-bedded twins (n=122) and not-co-bedded twins (n=22).

	Co-bedding	**Co-bedding**	**P value**
	Yes	**No**	
Smiling at 1st-2nd months	178(87.3%)	22(10.8%)	0.483
Babbling 3rd-4th months	171(83.8%)	22(10.8%)	0.236
Grasping 4-5th months	176(86.3%)	20(9.8%)	0.186
Rolling 5-7th months	87(85.3%)	11(10.8%)	0.478
Sitting 6-7th months	81(79.4%)	10(9.8%)	0.848
Crawling 7-8th months	86(84.3%)	9(8.8%)	0.116
Standing 9th months	54(52.9%)	6(5.9%)	0.760
Walking10th month	37(36.3%)	4(3.9%)	0.784

Conclusion:

It is concluded that parents of our twins preferred co-bedding. No significant long-term effect in terms of developmental growth was found between those who practiced co-bedding as opposed to those who did not.

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