

THE EFFECTS OF CARRYING THE M-SHAPE METHOD ON BONDING ATTACHMENT AND INFANT'S SLEEP QUALITY

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ABSTRACT

Background: Carrying an infant using M-shape method is vital in creating a bond of affection (bonding attachment) between mother and infant. Carrying using the M-shape method makes the infant calmer and sleeps easier, because the face of infant facing the person carrying them

Objective: The aim of the study was to determine the effect of carrying the M-shape method on bonding attachment and infant's sleep quality.

Methods: This research was analytic correlational design with cross sectional approach. It was conducted in Pare Kediri, East Java, Indonesia on June, 9th to 25th 2022. The sampling technique used simple random sampling. The population were all infants 6 to 12 month amount 94 and the sample size were 72 infants. The research data used primary data through interviews. The independent variable was carrying the M-shape method, while the dependent variable were bonding attachment and infant's sleep quality. The research instrument were questionnaires. The data was analyze by Wilcoxon Sign Ranked Test.

Result: The result showed that 58,3% were 10-12 months old, 70,8% were the youngest child in their family, (52,8%) had carrying duration for more than an hour a day, and 68,1% were carried most dominantly by their parents. P-value were 0.000 and 0.002, meaning that there were effects of carrying the M-shape method on bonding attachment and the infant's sleep quality.

Conclusion: Carrying with M-shape was an alternative in avoiding the wrong position when carrying and can be done from the beginning of newborn.

Keywords: *M-Shape Method, Bonding Attachment, Sleep Quality, Cross Sectional*

INTRODUCTION

The period of the first 3 months of the infant's life is referred to as the "fourth trimester of pregnancy". This condition makes small infants need an environment similar to the mother's womb, namely a warm environment, hugging and rocking. According to Karen Sokal - Gutierrez, MD, Chair of the Early Childhood Adoption and Dependent Care Commission at the American Academy of Pediatrics, that's why little infants look so comfortable in laps, cuddles, and blankets. Carrying is important for the development of infant's trust, empathy, compassion and conscience. From there, infants develop their intelligence and capacity to receive and give affection, intimacy, love, and happiness¹.

The culture of carrying children was not a new thing for humans to do. This activity has even been done since centuries ago. In the past, parents had to always carry their infants with them, wherever they went in order to protect their infants from all kinds of dangers, such as natural and weather conditions, and wild animals. However, bringing along an infant while doing various activities using only hands or other body parts was certainly very tiring and causes work to be hampered. Moreover, at that time human life was still nomadic (moving from place to place). In the end, humans created a simple infant carrier².

The simple infant carrier was actually one of the most useful inventions in the development of the human species. Blaffer-Hyrdy in his *Mother Nature – Maternal Instincts and the Shaping of The Species* argues that since tens of thousands of years ago, this “technological revolution” has helped mothers pick up groceries while carrying their infants³. At first, early humans created infant carriers from materials found in nature, such as leather or wood fiber, leaves and animal skins. Initially, the shape of the sling at that time was only a very simple sling that was wrapped around one

shoulder of the carrier. At that time, the role of the sling was enough to help parents carry their children while working or when looking for food. After the invention of looms began to be used to make clothes, simple fabrics for carrying were also created. The sling cloth is tied to the body of the adult or older child (sister). Long ago, the older children in the family were also accustomed to carrying their younger siblings when their parents went to work. The designs of the various slings are also decorated with various ornaments. In Asia, slings are generally given a thick embroidery. There are also those made of silk kimono clothes or kimono slings like in Japan¹.

People in Africa use kanga or kitinge, which is a type of fabric that is similar to a sarong but is generally thicker, both for making clothes, headgear, blankets and slings. In Mexico, the rebozo is a rectangular cloth that can be made of cotton, silk, wool or even articela it is commonly used as a sling. In India, women wrap their children around their saris and in Borneo, people use rattan baskets and put the children in them to be carried. While the British used to use only blankets, that was until the 1950s when strollers became known and then mass-produced.

Since the 1980's, the development of types of long cloth slings and instant slings has grown rapidly in line with the rapid number of companies producing various types of slings ranging from small to large scale businesses. But on the other hand, the choice of types of carriers that are automatic is now increasingly diverse and even often makes people feel confused and even make mistakes in choosing the right carrier for the safety and comfort of the child and also the carrier⁴.

Carrying with the M-shape method is the correct carrying position and the infant's natural position. The M-shape carrier resembles the position of an infant in the womb, with legs extended and lightly lifted and a C-shaped back. An improper method of carrying can harm the

development of the hip and spinal cord, and can cause a variety of serious problems. Based on research from the School of Infant Wearing, carrying infant can be applied from newborn to 12 months and above².

The M-shape position is considered the safest because it keeps the infant's pelvic in its cavity. The position of carrying the infant so that the infant still feels safe and comfortable, there are five rules when carrying. First, tight, meaning the carrier must be attached tightly, so that the infant feels like being hugged. Second, in view at all times. Make sure the infant is always visible, not drowning in the carrier. Third, close enough to kiss. Make sure the infant is as far as kisses away when carried. Fourth, keep chin off the chest. Make sure the infant's chin is not pressed against his chest so that the respiratory tract is not disturbed. Fifth, supported back, which is using a carrier that can support the infant's back to the neck perfectly⁵.

The M-shape method is the most appropriate and recommended way to carry an infant. The carrying method other than the M-shape has the potential to make the infant's bone growth not optimal. The position of the infant facing the front and back of the carrier, the ability to carry will not support the infant's feet perfectly². Parents also find it more difficult to respond to cues because the infant's face is not visible directly. In addition to the position of the infant's back arched forward, the carrier automatically does not support the infant's head or neck. The infant's inner thighs also have the potential to blister due to the pressure of the carrier on the groin. Carrying position like this also causes bad effects for the back of the carrier. The research "Potential Therapeutic Benefits of Infant Wearing" by Robyn L. Reynolds Miller, in 2016 stated that carrying a infant in the right position can provide therapeutic benefits, namely creating an analgesic effect, supporting the infant's socio-emotional development so

that the infant is calmer and less likely to cry³.

The M-shape position also allows the infant to be calmer and easier to sleep, strengthening the emotional bond with parents because the infant's face is facing the person carrying them. In addition, it also trains the development of the infant's core muscles because carrying in the M-shape position has the same effect as placing the infant in a prone position⁴.

This study is different from previous research by Priyandini, A. R., & Widyanti, A. In 2020 with the title of evaluating infant carrier products using the Kansei Engineering Method with the results showing that there are 3 main factors that encourage consumers to choose infant carriers, namely comfort, design, and material. Based on these 3 factors, consumers gave the highest score for kangaroo carriers or infant wraps⁵. Then this research is also different from the research of Fahira, C. T., & Rosandini, M in 2021 with the title analysis of the type of carrier product that is suitable for use by mothers during the Covid-19 pandemic with the results showing that the type of carrier product is suitable for the needs of mothers who are engaged in activities. The dominant daily routines done at home are *jarik*, ring-carrier, and stretch-wraps. Materials made from natural fibers are good to use, because they are comfortable for children to use, the characters are easy to clean, dry quickly, and are compact in size⁶. The aim of this study was to determine the effect of carrying the M-shape method on bonding attachment and infant's sleep quality in Pare, Kediri, East Java Indonesia.

METHODS

This research was analytic correlational design with cross sectional approach. It was conducted in Pare Kediri, East Java, Indonesia on June, 9th to 25th 2022. The sampling technique used simple random sampling. The population were all infant's mother who had infants age 6 to 12 month

in Pare Kediri, were amount 94. By using Slovin’s formula, the sample size were 72 infant’s mother. The research data used primary data through interviews. The independent variable was carrying the M-shape method, while the dependent variable were bonding attachment and infant’s sleep quality. Carrying the M-shape method was done for 3 month. The research instrument were questionnaires. The results of the validity test using the Pearson Product Moment formula showed that the correlation coefficient value for each question item is $> r$ table (0.3494). This proved that the question items used were valid. While the results of the reliability test using Cronbach's Alpha, that the Cronbach's Alpha value is 0.826. From these result, it can be concluded that it is reliable because it is greater than 0.6. The data was analyze by SPSS 23 Version using Wilcoxon Sign Ranked Test.

RESULT

The following are the results of research containing general data and spesific data.

Table 1. Frequency Distribution of Respondents General Characteristics

Variable	n	%
Infant’s Age		
6 – 9 month	30	41,7
10 – 12 month	42	58,3
Child Status		
First child	19	26,4
Middle child	2	2,8
Youngest child	51	70,8
Carrying Duration		
Less than 1 hour a day	34	47,2
More than 1 hour a day	38	52,8
Dominant Person Carrying		
Parent	49	68,1
Baby Sitter	20	27,8
Other Family Member	3	4,1

Based on table 1, it showed that a number of 42 respondents (58,3%) were 10-12 months old. Most parents think that babies can only be picked up (carried with their legs straddled) at a certain age. In fact, M Shape is claimed to have been applied

since the infant was a month old, even immediately after birth. It showed that a number of 51 respondents (70,8%) were the youngest child in their family. As the youngest child, he was always carried by family members. Basically, infants really like to be carried because infants are always 'carried' since they are still in their mother's womb. Since in the womb, the infant always hears the mother's heartbeat, the mother's distinctive voice, the warmth of her mother's body and the rhythm of the mother's body movements. But when an infant was born into an outside world that was very foreign to him, the infant becomes easily crying and restless because they are not used to it. It showed that a number of 38 respondents (52,8%) had carrying duration for more than 1 hour a day. A study entitled Increased Carrying Reduces Infant Crying : A Randomized Controlled Trial by Hunziker UA and Barr.RG also found that infants who were held for 3 hours a day cried 43% less than infants who were not held, especially at three months after birth. It showed that a number of 49 respondents (68,1%) were carried most dominantly by their parents. By understanding the benefits of carrying, carrying activities will become much more meaningful so that it motivates parents to always take the time to carry their children. Carrying is no longer remembered as a tiring job but fun.

Table 2. The Effect of Carrying The M-Shape Method on Bonding Attachment

Before M-Shape	After M-Shape		Total	P-Value
	Suffi- cient	Defi- cient		
Suffi- cient	18 25%	0 0%	18 25%	0.000
Defi- cient	50 69,4%	4 5,6%	54 75%	
Total	68 94,4%	4 5,6%	72 100%	

Based on table 2, it showed that a number of 50 respondents (69,4%) had deficient bonding attachment before doing the M-shape method and became sufficient after doing the M-shape method. The effect of

carrying the M-shape method on bonding attachment with p value = 0.000. It means that there was an effect of carrying the M-shape method on bonding attachment.

Table 3. The Effect of Carrying The M-Shape Method on Infant’s Sleep Duration

Before M-Shape	After M-Shape		Total	P-Value
	Good	Poor		
Good	12	0	12	0.002
	16,7%		16,7%	
Poor	57	3	60	83,3%
	79,2%	4,1%	83,3%	
Total	69	3	72	
	95,9%	4,1%	100%	

Based on table 3, it showed that a number of 57 respondents (95,9%) had poor sleep duration before doing the M-shape method and became good after doing the M-shape method. The effect of carrying the M-shape method on infant’s sleep duration with p value = 0.002. It means that there was an effect of carrying the M-shape method on infant’s sleep duration.

DISCUSSION

Sleeping in mother’s arms makes infant feel more secure, which reduces the level of anxiety and stress that your infant experiences. Being held creates a warmer, more nurturing atmosphere, and a response to the infant's needs than when the infant sleeps in the crib. Being in a carrier makes the infant get warmth, affection, touch and makes the infant's heart rate and breathing better. Newborns usually need 16 to 17 hours of sleep. But, they would wake up every two to four hours. At 6-8 weeks, most infants begin to sleep more hours at night and sleep less during the day [14]. By the time they are 4 to 6 months old, most infants will have a habit of sleeping for 8 to 12 hours at night. And usually, at night the infant already has hours of sleep. Sleep activities in the first weeks of an infant's age are needed for brain development and growth. So, behind the activities of infants who sleep continuously, there are preparations that are being made by infants [15].

Bonding is a step to express feelings of attachment (love) by the mother to her infant immediately after birth, while attachment is the interaction between mother and infant specifically over time. The bond between parents and their children can continue forever even if separated by distance and time and the physical signs of existence are not visible. Holding the child, hugging him tightly, is actually our way of telling him that there is nothing to be afraid of, because whatever will happen the protection and support from his parents are always there for him. So, the myth about children should not be carried often so that children do not "stink" is not true⁷. Carrying an infant is not the same as pampering or overprotecting. At the age of 1-2 years, bonding is an infant's main need. Carrying is one way to increase this bonding. Holding the infant, holding him tightly, is actually the way of telling him that there is nothing to be afraid of, because whatever will happen, the protection and support from his parents, is always there for him⁵.

The M-Shape method is considered the safest, because it keeps the infant's pelvis in the pelvic cavity. When holding an infant with the right method, it can support the infant's social-emotional development, so that he feels calmer in his mother's arms. This method is most preferred by infants, because infants can hug and strengthen the emotional bond with the carrier. Especially if the infant is leaning on the chest and getting warmth from the body of the carrier. That kind of comfort cannot be replaced by anything⁸.

Besides being able to reduce the infant's opportunity to explore themselves, the habit of being carried will make the infant become very attached to the carrier. Infants are very quick to memorize the style of each person who holds them, plus they are able to react differently to each carrier.

There are several things to consider when carrying an infant. For example, the age of the infant, the weight of the infant, whether he was born at full term or not, who is

carrying, and what kind of events will be attended when carrying the infant in his arms. The method of carrying is according to the child's age, the method of the child's legs opening astride according to the infant's natural method when in the womb (fetal frog position). This is called the M-shape, as when we sit, the whole thigh and buttocks are well supported (knee-to-knee)⁹.

Carrying her with the M shape method, will make the spine optimal growth and maintenance. By getting used to holding a infant with the M-Shape method, it turns out to be useful for maintaining and helping the health of the spine. The M-Shape method uses the spinal disc as a damper, thus protecting the spine, brain, and bone structure of the infant's body well. In addition, the method of carrying the M-Shape also trains muscle development¹⁰.

A carrier helps infants adapt to a new and unfamiliar world from birth. When held, infants can feel very close to the atmosphere when they were still in the womb. This is the reason why after the infant is born, the mother's body becomes the most comfortable place and a carrier is the most appropriate tool to use so that the infant is easy to fall asleep when carried and easy to fly when released from the carrier¹¹.

In a new, wide, noisy and cold world, infants often get restless and cry, but the condition of being in a carrier reminds infants of their time in the womb. Hearing the mother's heartbeat, the mother's distinctive voice, the warmth of her mother's body and the rhythm of her steps and movements are things that infants are very familiar with which quickly gives them a sense of security and calm, that's why infants fall asleep easily in the carrier and wake up immediately when they are lowered¹².

Good sleep is very important for a child's development and growth. And healthy infant sleep habits should be started early. Infants who are often carried are also

easier to fall asleep, even if their mothers put them to sleep while doing other activities. The pain scale for infants who were carried frequently was significantly lower than those who were rarely held. The pain scale can be defined as the infant's sensitivity to pain. The more often carried, the lower the sensitivity. The tendency of infants to cry decreased by about 82% and their heart rate also decreased, compared to those who did not skin to skin care¹³.

CONCLUSION

The M-shape method is one of the most popular ways of carrying parents today, although the M-shape method is not commonly used by mothers in Indonesia. One of the reason is that many still think that this position will make the infant's feet hurt because they are straddling. In fact, this is the most appropriate and recommended way to carry an infant. Carrying infant using the M-shape method was proven to increase bonding attachment and improve sleep quality for infant from the beginning of newborn.

After knowing the benefits of carrying using the M Shape method, it is also necessary to know how to carry one that is not only safe but also comfortable for the child and the carrier (parents / caregiver / family).

The importance of information about carrying to be known by the wider community, ergonomics carriers around the world began to form various forms of carrying communities. Generally, this community is filled with parents from various backgrounds. In this community there are also carrier consultants who have participated in carrying training that is recognized on an international scale. Parents can join this community to get a lot of education about carrier.

ACKNOWLEDGEMENT

The author gives thanks alhamdulillah to Allah SWT. The author also expresses her gratitude to Research Institutions and Community Service (LPPM) School of

Health Sciences Karya Husada Kediri, Bachelor of Midwifery Study Program School of Health Sciences Karya Husada Kediri who have provided research funding support and moral support for this research.

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