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INFANT FEEDING PRACTICES, HEALTH AND NUTRITIONAL STATUS: A PROSPECTIVE STUDY OF INFANTS SEEN AT THE UNIVERSITY OF MALAYA MEDICAL CENTRE, KUALA LUMPUR

CHONG MEI CHAN

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By

CHONG MEI CHAN

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

September 2003

UPM

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

INFANT FEEDING PRACTICES, HEALTH AND NUTRITIONAL STATUS: A PROSPECTIVE STUDY OF INFANTS SEEN AT THE UNIVERSITY OF MALAYA MEDICAL CENTRE, KUALA LUMPUR

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September 2003

Chairman: Associate Professor Mirnalini Kandiah, Ph.D.

Faculty : Medicine and Health Sciences

Feeding practices during infancy are important determinants of a baby's future physical and mental well being because of the rapid growth spurts and development of organ and tissues during the first year of life. Hence the purpose of this study was to determine the relationship between infant feeding practices and the health status of infants below six months of age.

A prospective study was carried out to examine the relationship between infant feeding and the health status of infants in the first six months of life at the University of Malaya Medical Centre Kuala Lumpur. A total of 150 newborns from the medical centre were selected and followed up for six months. Feeding practices were assessed monthly by questionnaire, frequency and duration of illnesses were recorded and anthropometric measurements were taken during monthly visits to the child health clinic.

The study found that, 64% of the newborns were exclusively breastfed at birth, followed by 22.7% who were partially breastfed and 13.3% who were not breastfed at all. By six months of age, only 5.3% remain exclusively breastfed, 61(39.8%) of the babies still received some breast milk and those who were not breastfed had increased to 59.3%. Malay infants had the highest rate (95.5%) of breastfeeding (exclusive and partial) where compared to the Indians (84.4%) and the Chinese (63.3%) (p=0.01). Infants whose fathers were professional had higher rates (88.2%) of breastfeeding than those whose fathers were in the semi (71.4%) and non (64.7%) professional groups (p=0.03). Breastfeeding rate was highest among housewives (90.3%), p=0.04.

Mean episodes of gastrointestinal and upper respiratory infections among exclusively breastfed babies and partially breastfed babies were lesser than the non breastfed infants, respectively with F (1,147) = 13.90, p=0.001 and F (2, 147) =19.89, p=0.00. Non breastfed babies had longer mean duration of gastrointestinal and upper respiratory rate infection than the other two groups respectively with F (2,147) = 15.12, p=0.001 and F (2,147) =21.01, p=0.001. The mean weight for age Z-score among partially breastfed boys was higher than those exclusively breastfed, F (2, 60) = 3.6, p=0.03. Exclusively breastfed boys had lower mean length for age Z-score than the other two groups, F= (2, 60) = 8.84, p= 0.001. There was no significant difference in growth among girls by infant feeding

In conclusion, breastfeeding for first six months of life reduces the episode and duration of respiratory and gastrointestinal infection and improved the nutritional status of infants. Breastfeeding should be promoted so that more mothers will breastfeed exclusively for at least six months. It is recommended that the initiation of "Baby Friendly Hospital" to be extended to private health care institutions.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

AMALAN PEMAKANAN BAYI, TARAF KESIHATAN DAN TAHAP NUTRISI: KAJIAN PROSPEKTIF DI KALAGAN BAYI DI PUSAT PERUBATAN UNIVERISITI MALAYA, KUALA LUMPUR

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Amalan pemakanan yang sempurna pada peringkat awal bayi adalah sangat penting kerana ia boleh menentukan kadar pertumbuhan dan perkembangan yang sihat terutamanya dari lahir sehingga umur satu tahun. Tujuan kajian ini adalah untuk mengenalpasti hubungan di antara amalan pemakanan bayi dan status kesihatan bayi di bawah umur enam bulan.

Satu kajian prospektif telah dilaksanakan untuk mengkaji perkaitan di antara amalan pemakanan bayi dan status kesihatan bayi untuk enam bulan pertama di Pusat Perubatan Universiti Malaya, Kuala Lumpur. Seramai 150 orang bayi yang baru lahir dari Pusat Perubatan Univeristi Malaya, Kuala Lumpur telah dipilih dan ditemubual serta diikuti perkembangan mereka selama enam bulan. Amalan pemakanan dinilai setiap bulan berpandukan borang soal selidik, kekerapan jenis penyakit dan masa sakit direkod dan ukuran antropometrik diambil setiap bulan semasa lawatan ke klinik.

Kajian ini mendapati 64% daripada bayi baru lahir diberi penyusuan ibu secara eksklusif selepas lahir, diikuti dengan separa penyusuan ibu (22.7%) dan tanpa penyusuan ibu(13.3%). Corak penyusuan berubah sepanjang enam bulan pertama. Selepas enam bulan, hanya 5.3% bayi masih menerima penyusuan secara eksklusif, manakala separa penyusuan ibu adalah 39.8% dan 59.3% adalah tanpa penyusuan ibu. Kadar penyusuan ibu bagi bayi Melayu adalah tertinggi (95%) diikuti dengan Indian (84.4%) dan Cina (63.3%), p= 0.01. Kadar penyusuan ibu bagi bayi dengan bapa daripada kumpulan profesional adalah 88.2% dibandingkan dengan separa profesional (71.4%) dan bukan profesional (64.7%), p= 0.03. Kadar penyusuan ibu adalah tinggi dikalangan bayi bagi ibu yang tidak bekerja(90.35%) diikuti dengan kumpulan separa profesional (89.6%), p=0.04.

Min kekerapan infeksi gastrousus dan salur pemafasan untuk bayi yang menerima penyusuan ibu eksklusif dan separa adalah lebih rendah dibandingkan dengan tanpa penyusuan ibu, dimana nilai signifikan masing-masing adalah $F(1,147)=13.90$, $p=0.001$ dan $F(2,147)=19.89$, $P=0.001$. Keadaan yang sama juga didapati untuk min tempoh masa infeksi gastousus dan salur pemafasan, masing-masing dengan $F(2,147)= 15.12$, $p=0.001$ dan $F(2,147)= 21.01$, $p=0.001$. Min berat untuk umur skor- Z bagi bayi lelaki yang menerima separa penyusuan ibu adalah lebih tinggi daripada penyusuan ibu eksklusif, $F(2, 60) = 3.6$, $p=0.03$. Bayi lelaki dari kumpulan penyusuan eksklusif juga mempunyai min panjang untuk umur

dimana skor Z yang lebih kecil daripada kumpulan bayi separa dan tanpa penyusuan ibu.

Pada keseluruhannya, penyusuan ibu untuk enam bulan pertama umur bayi memang dapat mengurangkan episod dan tempoh infeksi gastrousus dan respiratori dan memperolehi tahap nutrisi yang lebih baik. Promosi penyusuan perlu dipertingkatkan lagi terutamanya secara eksklusif bukan setakat menambahkan bilangannya tetapi juga untuk tempoh yang lebih panjang sekurang-kurangnya enam bulan. Pengenalan kepada "Baby Friendly Hospital" seharusnya diperkembangkan ke institut sewasta demi mancapai tujuan ini.

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I certify that an Examination Committee met on 29th September, 2003 to conduct the final examination of Chong Mei Chan on her Master of Science thesis entitled "Infant Feeding Practices, Health and Nutritional Status :A Prospective Study of Infants Seen at the University of Malaya Medical Centre, Kuala Lumpur" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

CHONG MEI CHAN

Date: 29 NOVEMBER 2004

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CHAPTER I

INTRODUCTION

Children grow up to form the future generation. Their survival and growth to adulthood depends on several factors. Early in the infant's life, adequate nutrient intake and ability to resist and recover from infections are important determinants of their health status. Feeding practices during infancy lay the foundation for future physical and mental well being because it is during this crucial life period that rapid growth and development of organs and tissues takes place (Waterlow, 1992).

In order to meet these demands for growth, adequate supply of nutrients is essential and must be met either by breast-feeding or artificial feeding or by both. Infant feeding is also a determinant of infant morbidity. Epidemiological research shows that human milk and breastfeeding of infants provide significant advantages to the infant in that it reduces the risk of a large number of acute and chronic young childhood diseases (Raisler et al., 1999). Research in the United States, Canada, Europe, and other developed countries, among predominantly middle class populations, provide strong evidence that human milk feeding reduces the incidence and severity of diarrhea (Dewey et al., 1995), lower respiratory infection illness and general morbidity (Wright et al., 1989 and Dewey et al., 1995). Besides that infant feeding particularly breast-feeding also protects millions of children from the consequences of malnutrition and infant mortality. As

reported by the United Nation Children Fund (UNICEF, 1998) 1.5 million infant deaths worldwide can be avoided yearly by breastfeeding. Hence the benefit of breastfeeding as compared to bottle feeding or any other alternative feeding is proven in both under-developed and developed countries.

Traditionally, breastfeeding has been the oldest and accepted child feeding practice known to mankind and the nutritional needs of the infant have been successfully met by breastfeeding. Recent studies have shown that infant feeding practice has changed rapidly with regards to the choice of early feeding methods (breast feeding or artificial feeding), the use of solid weaning foods and the frequency of feeding (Lim, 1997 and Li et al., 2002). The success of early nutrition is no doubt dependent on the choice of early feeding methods.

However, in Malaysia the impact of infant feeding on the health status of infants in first six months of life has not been well documented. Most of the reported studies were carried out as descriptive studies in selected communities (Teoh, 1975, Balakrishnan et al., 1977, Kandiah et al., 1984, Wan Manan, 1995, Lim, 1997 and Kam, 2000). Therefore this prospective study is aimed to compare the infants' health status by infant feeding practices.

Problem Statement

The Child Health Clinic at the University Malaya Medical Centre provides health services including assessment of the growth and development of children below six years of age, immunization and health education on childcare and nutrition. Quite a number of children from this clinic delay their immunization due to mild illnesses, which may affect their physical growth and development. They are also at risk of suffering from other severe illnesses. Besides being stressful to children, mild illnesses also have its effect on parents. Caring for sick babies uses time and money and takes parents away from their jobs.

There are many factors, which might cause mild illnesses among children at the Child Health Clinic. One of these factors is feeding practices. After interviewing the caregivers, majority of the babies were found to be either not exclusively or partially breast-fed at all. Many studies have been conducted in different countries around the world regarding the benefits of infant feeding particularly for better nutritional and health status and its importance has been conclusively established (Wright et al., 1989 and Dewey et al., 1995).

However, not much has been done in this country. Most of the studies have been descriptive studies and most of the studies focused on rural areas rather than urban areas (Wan Manan, 1995, Lim, 1997 and Kam, 2000). The need to study the effects of infant feeding on nutritional and health status is important. Not only will it benefit the primary care of babies but it will

also contribute to a reduction in morbidity and mortality in infants in the long term.

Several research questions that will be addressed in this study are:

1. What are the infant feeding practices among infants during the first six months of life?
2. How do the socio-economic and demographic variables affect infant feeding?
3. Do infant feeding practices influence the infant nutrition status?
4. Do infant feeding practices determine infant morbidity?

Significance of the Study

Inevitably, infant feeding especially breastfeeding determines the infant's health, nutritional, immunologic, developmental and psychological status. The most superior form of feeding is breastfeeding as stated in many studies. In addition to individual health benefits, breastfeeding provides significant social and economic benefits to the nation, including reduced health care costs and reduced employee absenteeism for care attributable to child illnesses. The significantly lower incidence of illness in the breastfed infant allows the parents more time for attention to be given to siblings and other family duties and reduces parental absence from work and income loss (Cohen et al., 1995).

Breastfeeding has been found to be extremely vital for child survival and is also beneficial for mothers. Breastfeeding for the first six months contributes positively to the nation's economy, employers, health systems, families and communities. Everyone benefits when our children get the nourishment they need in order to develop their full potential as students, as family members and as the next generation of the workforce.

Since breastfeeding is an essential determinant for quality life, the present study on infant feeding practices and health status is necessary. Hopefully the findings of this study will facilitate the promotion of breast-feeding and convince more mothers, especially all the mothers attending Child Health Clinic to breastfeed their babies without any hesitation.

Hopefully with this superior diet the children and their parents will be able to enjoy a better quality of life with healthy children. Our country will also benefit from lower infant morbidity and mortality rates as this will reduce health care costs since there will be fewer sick children. This study can be an inspiring factor for future study locally and with a larger population. University Of Malaya Medical Centre was chosen as the study area because no similar study has been previously carried out.