# DEVELOPMENT AND VALIDATION OF IYCF-CCPQ TO ASSESS KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) ON INFANT AND YOUNG CHILD FEEDING AND FACTORS ASSOCIATED WITH THE KAP SCORES AMONG CHILD CARE PROVIDERS IN KELANTAN

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| | |
|---|---|
| UNICEF | The United Nations of Children Fund |
| WHO | World Health Organisation |
| IYCF | Infant and young child feeding |
| KAKP | *Kursus Asuhan Kanak-Kanak Permata* |
| KAP | Knowledge, Attitude, Practice |
| EFA | Exploratory factor analysis |
| IRT | Item response theory |
| NGO | Non-governmental organisation |
| PERASKO | *Pertubuhan Pra Sekolah dan Asuhan Kelantan* |
| PTSK | *Persatuan Pengusaha Taska dan Tadika Kelantan* |
| PDBK | *Pegawai Jabatan Kebajikan Masyarakat yang diberi kuasa* |
| EBM | Expressed Breast Milk |
| ICC | Item Characteristic Curves |
| IIC | Item Information Curves |
| TRF | Test Response Function |
| TIF | Test Information Function |
| KMO | Kaiser-Mayer Olkin |
| IYCF-CCPQ | *Borang Kaji Selidik Pemakanan Bayi dan Kanak-kanak dalam kalangan Pengasuh* |
| VIF | Variance Inflation Factor |
| SD | Standard deviation |
| MOE | Margin of error |
| BFFKS | Breastfeeding And Formula Feeding Knowledge Score |
| BFFAS | Breastfeeding And Formula Feeding Attitude Score |
| CFKS | Complementary Feeding Knowledge Score |
| CFAS | Complementary Feeding Attitude Score |

# ABSTRAK


## PEMBENTUKAN DAN VALIDASI BORANG SOAL SELIDIK *'IYCF-CCPQ'* UNTUK MENILAI TAHAP PENGETAHUAN, SIKAP DAN AMALAN TERHADAP PEMAKANAN BAYI DAN KANAK-KANAK SERTA FAKTOR BERKAITAN DENGAN SKOR TAHAP PENGETAHUAN, SIKAP DAN AMALAN DALAM KALANGAN PENGASUH DI KELANTAN

Pemakanan yang mencukupi adalah penting untuk kesihatan kanak-kanak. Terdapat keperluan untuk mengenal pasti pengetahuan, sikap dan amalan (KAP) dalam kalangan pengasuh terhadap pemakanan bayi dan kanak-kanak. Borang kaji selidik sedia ada tidak memuaskan kerana populasi sasaran yang berlainan, teori lemah, dan validasi yang lemah. Objektif kami adalah untuk mewujudkan dan mengesahkan borang kaji selidik baru yang akan digunakan untuk menilai tahap KAP dan faktor yang berkaitan dengannya dalam kalangan pengasuh di Kota Bharu. Kajian ini terdiri daripada dua fasa iaitu Fasa 1 melibatkan proses pewujudan dan validasi borang kaji selidik baru. Manakala Fasa 2 melibatkan penilaian KAP dan faktor yang berkaitan. Borang kaji selidik diwujudkan berdasarkan sumber kajian, pendapat pakar dan teori. Seterusnya, penilaian pembahasan kognitif dan pretesting dibuat. Pengesahan psikometrik dilakukan dalam kalangan 200 orang pengasuh di luar Kota Bharu. Pensampelan Purposif telah digunakan. Analisis Item Teori dan Analisis Faktor Respon digunakan untuk validasi struktur dalaman. Keandalan konsisten dalaman dijalankan untuk semua domain. Bagi Fasa 2, kajian rentas keratan melibatkan 150 pengasuh di Kota Bharu. Pensampelan rawak bertahap digunakan. Tahap KAP ditentukan dan faktor-faktor yang berkaitan dikenalpasti melalui analisis regresi

berganda dan analisis *chi-square*. Hasilnya, soal selidik baru terdiri daripada 218 item dengan 3 domain (99 item pengetahuan, 77 item mengenai sikap, dan 42 item dalam amalan) dan dinamakan sebagai 'Borang Kaji Selidik Pemakanan Bayi dan Kanak-Kanak dalam Pengasuh' atau IYCF-CCPQ. IYCF-CCPQ mempunyai sifat psikometrik yang baik. Konsistensi dalaman dengan kebolehpercayaan marginal adalah 0.74 dan 0.91 untuk domain pengetahuan. Kebolehpercayaan untuk domain sikap adalah 0.89 dan 0.90. Skor pengetahuan terhadap penyusuan susu ibu dan formula (BFFKS) adalah 69.42 (SD 11.31), skor pengetahuan terhadap pemberian makanan pelengkap (CFKS) adalah 76.99 (SD 9.31), skor sikap terhadap penyusuan susu ibu dan formula (BFFAS) adalah 143.61 (SD 12.10); dan skor sikap terhadap makanan pelengkap (CFAS) adalah 176.69 (16.07). Pengalaman penyusuan eksklusif (larasan $b$ = 7.09; 95% CI 1.69,12.48; $p$ = 0.001) dan bilangan pengasuh di taska (larasan $b$ = -0.41; 95% CI -0.77, -0.06; $p$ = 0.022) mempunyai hubungann yang signifikan dengan BFFKS. Status berkahwin mempunyai hubungan yang signifikan dengan BFFKS (larasan $b$ = 6.01, 95% CI 2.32,9.71; $p$ <0.001), BFFAS (larasan $b$ = 5.33; 95% CI 1.40,9.26; $p$ = 0.008) dan CFAS (larasan $b$ = 7.69; 95% CI 2.94,12.45; $p$ = 0.002). Jumlah jam bekerja setiap hari (larasan $b$ = 2.53; 95% CI 1.06,4.00; $p$ <0.001) mempunyai hubungan dengan CFKS. Diploma atau kelayakan yang lebih tinggi mempunyai hubungan dengan CFKS (larasan $b$ = 3.13; 95% CI 0.08,6.19; $p$ = 0.046), dan BFFAS (larasan $b$ = 5.33; 95% CI 21.40,9.26; $p$ = ; 95% CI 5.69,15.79; $p$ <0.001). Skop kerja kurang daripada lima bidang tugas mempengaruhi CFKS (larasan $b$ = 4.67; 95% CI 1.79,7.54; $p$ = 0.001), dan BFAS (larasan $b$ = 3.94; 95% CI 0.29,7.58; $p$ = 8.24; 95% CI 3.53,12.94; $p$ <0.001). Maklumat dari kakitangan kesihatan mempengaruhi CFKS (larasan $b$ = 3.16; 95% CI 0.05,6.27; $p$ = 0.048). Sementara itu, sumber risalah mempunyai hubungan dengan CFAS (larasan $b$ = 5.89;

95% CI 0.79,11.00; $p$ = 0.025). Terdapat hubungkait antara tahap pendidikan ($X^2$ = 8.12 (3), $p$ = 0.044) dan penyusuan eksklusif ($p$ = 0.041, *Fisher Exact Test*) terhadap amalan pengendalian susu ibu. Terdapat hubungkait antara amalan kebersihan yang baik dengan tahap pendidikan ($p$ = 0.048, *Fisher Exact Test*). Kesimpulannya, IYCF-CCPQ adalah boleh dipercayai dan sah untuk digunakan untuk menilai KAP dalam kalangan pengasuh mengenai pemakanan bayi dan kanak-kanak. Secara keseluruhan, tahap KAP pengasuh adalah memuaskan dan faktor-faktor yang telah dikenalpasti ada hubungan signifikan dapat membantu untuk memperbaiki KAP pengasuh di masa hadapan.

**Kata kunci:**

Pemakanan bayi dan kanak-kanak, borang soal selidik, validasi, pengasuh, KAP

# ABSTRACT


## DEVELOPMENT AND VALIDATION OF IYCF-CCPQ TO ASSESS KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) ON INFANT AND YOUNG CHILD FEEDING AND FACTORS ASSOCIATED WITH THE KAP SCORES AMONG CHILD CARE PROVIDERS IN KELANTAN

Adequate nutrition is critical to child health. There is a need to identify the knowledge, attitude, and practice (KAP) on infant and young child feeding among child care providers. Pre-existing questionnaires are unsatisfactory due to a different target population, weak theory, and lack of confirmatory analysis. Our objectives were to develop and validate a new questionnaire that will be used to assess the KAP and its associated factors among child care providers in Kota Bharu. This study consists of two phases which Phase 1 developed and validate a new questionnaire, meanwhile Phase 2 involved assessment of KAP and its associated factors. The questionnaire was developed based on literature review, experts' opinion and theoretical framework. Response process was assessed via cognitive debriefing and pretesting. Psychometric validation was carried out among 200 child care providers outside Kota Bharu. Purposive sampling was applied. Item Response Theory and Exploratory Factor Analysis were used for internal structure validity. Internal consistency reliability was conducted for all domains. For Phase 2, a cross-sectional study involved 150 child care providers in Kota Bharu. Multistage random sampling was applied. Level of KAP was determined and its associated factors were identified through multiple linear regression and chi-square analysis. As a result, the new

questionnaire consists of 218 final items with 3 domains (99 items on knowledge, 77 items on attitude, and 42 items on practice) and named as '*Borang Kaji Selidik Pemakanan Bayi dan Kanak-Kanak dalam kalangan Pengasuh'* or IYCF-CCPQ. IYCF-CCPQ had good psychometric properties. Internal consistency by marginal reliability ranging from 0.74 to 0.91 for domain knowledge. Reliability for domain attitude ranging from 0.89 to 0.90. Breastfeeding and formula feeding knowledge score (BFFKS) was 69.42 (SD 11.31), complementary feeding knowledge score (CFKS) was 76.99 (SD 9.31), breastfeeding and formula feeding attitude score (BFFAS) was 143.61 (SD 12.10); and complementary feeding attitude score (CFAS) was 176.69 (16.07). Exclusive breastfeeding experience (adjusted *b*=7.09; 95%CI 1.69,12.48; *p*=0.001) and number provider per centre (adjusted *b*=-0.41; 95%CI -0.77,-0.06; *p*=0.022) did had association with BFFKS. Being married had significant association with BFFKS (adjusted *b*=6.01; 95%CI 2.32,9.71; *p*<0.001), BFFAS (adjusted *b*=5.33; 95%CI 1.40,9.26; *p*=0.008) and CFAS (adjusted *b*=7.69; 95%CI 2.94,12.45; *p*=0.002). Increased total working hours per day (adjusted *b*=2.53; 95%CI 1.06,4.00; *p*<0.001) did have association with CFKS. Diploma or higher qualification did influence CFKS (adjusted *b*=3.13; 95%CI 0.08,6.19; *p*=0.046), BFFAS (adjusted *b*=5.33; 95%CI 21.40,9.26; *p*=0.008) and CFAS (adjusted *b*=10.74; 95%CI 5.69,15.79; *p*<0.001). Job scope less than five did influence CFKS (adjusted *b*=4.67; 95%CI 1.79,7.54; *p*=0.001), BFAS (adjusted *b*=3.94; 95%CI 0.29,7.58; *p*=0.036) and CFAS (adjusted *b*=8.24; 95%CI 3.53,12.94; *p*<0.001). Source information from health staff did influence CFKS (adjusted *b*=3.16; 95%CI 0.05,6.27; *p*=0.048). Meanwhile, pamphlet source had association with CFAS (adjusted *b*=5.89; 95%CI 0.79,11.00; *p*=0.025). There was a significant association of educational level ($X^2$=8.12(3),*p*=0.044) and exclusive breastfeeding (*p*=0.041,

fisher exact test) with the practice of handling express breastmilk. Meanwhile, hygenic practice did have association with educational level ($p$=0.048, fisher exact test). In conclusion, the IYCF-CCPQ is reliable and valid to be used to assess KAP among child care providers on infant young child feeding. Overall KAP was satisfactory and identified significant factors help in improving child care providers' KAP in future.

**Keywords:**

Infant young child feeding, validation, child care providers, questionnaires, KAP

# CHAPTER ONE

# INTRODUCTION

## 1.1 Overview of infant and young child feeding

The most critical time for good nutrition for a child is in the brief 1,000 day period starting from the day of conception until a child's second birthday. It is important for a child to get the right foods at the right time in order to grow and develop their full potential for better health in future (UNICEF, 2015). Nutrition and environmental factors act as important roles in growth and cognitive development of a child.

The concept of early life nutrition has been expanded as recommended globally by the World Health Organization and UNICEF as follows: initiation of breastfeeding within the first hour after the birth; follow by exclusive breastfeeding for the first six months; and continued breastfeeding for two years or more, together with safe, nutritionally adequate, age appropriate, responsive complementary feeding starting at the age of the sixth month of life (UNICEF, 2015; WHO, 2003).

Breastfeeding has been widely acknowledged as the best start of life and is one of the simplest, smartest and most cost-effective ways that can ensure that all children survive and thrive. Breast milk is age specific, produced at the correct temperature and without any need for preparation. It not only provides the correct amount and balance of nutrients for optimal growth and development, but also protects against

illness. Appropriate complementary feeding is important and it should be given in the right time, given adequately, handle safely and properly fed with applying psychosocial care and responsive feeding to the children (WHO, 2003).

Breastfeeding and appropriate complementary feeding are fundamental to children's nutrition, health and survival during the first 2 years of life. It is known to provide many health benefits, for mothers and children. However, practices of appropriate infant and young child feeding continue to lag behind. Importance of applying appropriate complementary feeding in view of most of the children will become stunted even with optimum breastfeeding if they do not receive sufficient quantities of quality complementary foods after six months of age (Black *et al.*, 2008). There are an estimated 6% or 600,000 under-five deaths can be prevented by ensuring optimal complementary feeding (Bryce *et al.*, 2005; UNICEF, 2005).

Inadequate food intake in the first two years of life is responsible for stunting and underweight in millions of children around the world (Anderson *et al.*, 2008). Poor breastfeeding patterns, low nutrient density and poor quality of the foods that complement breastfeeding accounts for much of the nutrient deficiency (Brown, 1998). These patterns of feeding are not simply the result of low food availability in the household, it also be influence by caregivers' behaviours during feeding of complementary foods (Brown, 1998; Engle *et al.*, 2000).

### 1.2 Prevalence of appropriate implementation of infant and young child feeding

Globally, there were only 39% children less than six months of age in the developing world are exclusively breastfed and only 58% of 20-23 month olds benefit from the

practice of continued breastfeeding (UNICEF, 2015). In the United States, approximately 76.9% of infants are breastfed, but the rates continue to drop to 47.2% breastfed at 6 months and 25.5% breastfed at 12 months (Lucas *et al.*, 2013). In contrast, the exclusive breastfeeding rates increased from 25% in 1993 to 37% in 2013 in low and middle income countries; compared to developed countries which reflect the better practice of infant feeding (Black *et al.*, 2013). Meanwhile, the prevalence of continued breastfeeding at 12 to 15 months decreased from 76% to 73% globally mainly in poor populations that influence by their surrounding culture (Rollins *et al.*, 2016).

In Malaysia; there is increase awareness of breastfeeding among mothers year by year evidence by increase prevalence of ever breastfeeding, predominant breastfeeding, timely initiated breastfeeding one hour of birth and increase percentage of continued breastfeeding. Historically, even the prevalence of ever breastfed did decline from 92% (1950) to 78% (1974) but it did rose to 85% and 94.7% respectively in 1988 and 2006. Prevalence of timely initiated breastfeeding was 63.7% and the percentage of continued breastfeeding up to 2 years of age was 37.4% in 2006 which showed an improvement from the past. However, the prevalence of exclusive breastfeeding declined from 14.5% in 1996 to 9.7% in 2006 (Fatimah *et al.*, 2010).

There were increased in the prevalence of malnutrition i.e. underweight, stunting, and wasting and obesity among the children. A national survey found that the highest prevalence of thinness recorded was 9% among children aged 5 to 9 years old. The prevalence exceeded the national prevalence of 7.8%. Meanwhile, highest prevalence (84.2%) of normal BMI recorded among children aged less than five years old as

compared to children aged 5 - 9 years which were 76.2%. Prevalence of obesity and underweight among children aged 5 to 9 years old was 14.8% and 13.6% respectively which exceed the national prevalence. However, the highest prevalence of stunting and wasting was noted among children below five years old at 17.7% and 8% respectively, which exceed the national prevalence (Institute for Public Health, 2015). Therefore, appropriate implementation of infant and young child feeding during the golden time is very important to ensure optimal growth, development and survival of the child later in life.

### 1.3 Women participation in the labour market

Many mothers return to their workplace during the first year of infants life and they face multiple challenges when they want to continue breastfeeding and start appropriate complementary feeding (Asis *et al.*, 2016). High participation of women into work-force be seen all over the world, in the United States (U.S. Department of Labour, 2006) as well as in Malaysia. The rate of women participation into the workforce in Malaysia is increasing which about 53.6% in 2014 (Labour Force Survey Report, 2014).

With more women in the workforce, families have become reliant on child care. Majority of children under 6 years old are under regular childcare arrangement either formal or informal care. One of the main care choices by working mothers for their children are grandparents (26.8%), non-relative caretaker (24.0%) and childcare centre (14.4%) (Malaysian Population Survey, 2014). Up to 60% of children younger than 6 years of age spend at least 29 hours per week in a child-care setting (Capizzano and Adams, 2000).

Working women need a support from child care provider in taking care of their children and they really depend on the providers' to properly feed their children. However, there were documented suboptimal infant and young child feeding in the childcare centres (Johnston and Esposito, 2007; Joshi *et al.*, 2012). There were also high incidence of malnutrition and inappropriate child feeding practice in childcare centre (Mwase *et al.*, 2015). Another study found that early child care has be associated with a higher risk of obesity among toddlers (Benjamin *et al.*, 2009). Therefore, child-feeding relationship has become shared responsibility between parent and child care provider in order to give benefit to the women and children in turn (Freedman and Alvarez, 2010).

The preventive approach should start in early childhood and it is vital to engage the child care provider as they act as a front liner in implementing appropriate infant and young child feeding practice in the childcare centers. It is a critical period for shaping, influencing feeding and lifestyle behaviour of a child for their future health. Environmental factors can modulate feeding behaviour in children as young as 2 years of age (St-Onge *et al.*, 2003). It is important for parents and another role model in which child care providers help in influence child's choice and preferences of the food (Lumeng *et al.*, 2004).

### 1.4 Role of the child care provider in infant and young child feeding

Child care provider interface frequently with mothers, but little is known about their comfort with encouraging infant feeding (Lucas *et al.*, 2013). Childcare centres play a vital role in health promotion and child health through consistent support on the proper practice of infant and young child feeding (Javanparast *et al.*, 2012).

Effective strategies for mothers to maintain breastfeeding required the child care provider support in handling express breast milk during their care and allowing mothers to breastfeed at their site before or after work. However, lack of knowledge among provider regarding the importance of supporting the proper continuation of breastfeeding at the childcare setting environment need policy support (Batan *et al.*, 2013).

Efforts to promote infant and young child feeding have historically focused only on enhancing the knowledge, attitudes, and beliefs of individual mothers as well as the health care provider. However, there is still lacking in focusing on the child care provider. Ecological health promotion theory suggests broadening health promotion programs beyond the individual to include the environmental and social influences that affect individual behaviour pertaining to infant and young child feeding (Hector *et al.*, 2005).

Integrating infant and young child feeding into child care settings promotes good health for the infant and mother, saves money, and contributes to the overall wellbeing of a community. Proper implementation of infant and young child feeding not just a parent issue, a child care issue, or a health and nutrition issue, but ultimately an important public health issue that affects everyone (United States Breastfeeding Committee, 2002).

**1.5 Problem statement**

Nowadays, the prevalence of exclusive and continued breastfeeding is still low, malnutrition i.e. stunting and obesity among children keep increasing. It did alarm us

about the inappropriate implementation of infant and young child feeding not only among the parents in the nuclear family but also reflect the quality of the support system for working mothers. Support system not only meant the parents workplace but the major system is in the childcare centres. Nowadays, increased participation of women in the workforce and in consequence, most of their children been put on out of home care in which spending long hours with child care providers' in childcare centre; thus the quality of child care provider in childcare centres need to be assessed further and these issues need urgent attention from policy makers.

In Malaysia, there was more support in informal care which is under the care of grandmothers as they give the mother's expressed breast milk accordingly (Asis *et al.*, 2016). In comparison to the formal childcare centre, there were few child care providers that did not understand the right ways to give expressed breast milk to the infant as they mixed the remains milk with the new thawed milk and gave to the infant (Asis *et al.*, 2016). This contradicts the practice in the UK in which formal childcare had high breastfeeding practice rather than informal childcare (Clark *et al.*, 2008).

There were a few mothers were discriminated by the provider as they only prefer to give formula milk rather than expressed breast milk as the provider had difficulty and need to do extra work to prepare expressed breast milk for the infant's feeding. However, they did accept to feed the infant with breastmilk when the mother appeals and provide a warmer (Asis *et al.*, 2016). The discrimination of breastfeeding not only happen in Malaysia, but it also happens in another country. In Australia, in a study done on discrimination of breastfeeding mothers in childcare, there were five

percent of mother experienced discrimination against breastfeeding in childcare as the provider increased the care fees if they need to handle express breastmilk (Smith *et al.*, 2013a).

In Malaysia, there is no specific act to protect working mothers against discrimination of breastfeeding in childcare. Employees' breastfeeding rights are not provided under the Employment Act 1955 (Hassan and Musa, 2014). However, Australia has its protections against discrimination of breastfeeding in childcare, since July 2011 which prohibited by the Act (section 7AA). Direct discrimination under section 7AA includes treating a breastfeeding woman less favourably. This act also highlighted direct discrimination by childcare services include, provider that refusing to accept care of a breastfed child until the breastfeeding was weaned, staff refusing to handle expressed breast milk, or women being prevented from breastfeeding at the childcare premises. Whereby, indirect discrimination under the act occurs if a person imposes a condition, requirement or practice which disadvantaging persons who are breastfeeding. This also includes lack of a suitable place to breastfeed or express milk, lack of lactation breaks for breastfeeding staff as well as requiring extra childcare fees for handling express breastmilk (Smith *et al.*, 2013a).

Apart from the availability of breastfeeding support as mentioned by Batan *et al.* (2013), there is a need to give health education to the provider on handling expressed breast milk, the importance of not to discriminate the mothers on their right to ensure their child receive breastmilk. The provider should maintain the care charges and advisable to reduce the care charges as it will support and motivate the mother to

breastfeed. Thus, this indicates a need for implementation of strategies and policies that include support in a childcare centre and a new policy regard discrimination towards breastfeeding.

Nowadays, little is known about the important role of child care provider on the development of early childhood feeding behaviour and their support towards infant and young child feeding in childcare centres even we know their importance as a front liner. There is also lacking in evidence about the determinant of increase in the knowledge, attitude and practice on infant and young child feeding is focusing the child care providers in Malaysia.

There is also no validated questionnaire pertaining to the measurement of the knowledge, attitude and practice among child care providers on infant and young child feeding at national and local context. Most of the pre-existing questionnaire that focused on child care providers did arise from the western country but it is not suitable to be applied to our Malaysian provider context. There are substantial differences in the educational, socioeconomic, and cultural backgrounds of our child care provider in Malaysia as compare to the providers in the western country. Hence, the adoption of the questionnaire to our Malaysian context is not suitable and practical. Furthermore, some of the existing questionnaires are not well validated and need to re-validate according to our context. Therefore, development of new questionnaire and validation is needed and warranted to gain more information that necessary to inform the evidence for policy maker in order to make the child care setting more infant and young child feeding friendly centre in future.

## 1.6 Rationale of the study

Protection, promotion, and support of infant and young child feeding is a critical public health need. Therefore, it is important to explore the potential of child care providers as health promotion agents who can support working mothers in assist on infant and young child feeding after returning to work, and justify the child care environments inclusion in a large ecological framework that can affect knowledge, attitude and practices among child care providers.

Proper development and validation of the new questionnaire did help in producing a well validated questionnaire that focusing on child care provider. Therefore, with this new validated questionnaire, it can be used by another researcher to explore widely on the scope of infant and young child feeding among child care providers in the childcare centres.

This study also will address the research gap in exploring child care providers' knowledge, attitude and practice on infant and young child feeding. The finding will delineate some important significant associated factors that can be modified and used as a shred of evidence in order to produce good and quality child care provider in the childcare center. It also contributes to the body of literature in the field of association between the factors and the level of knowledge, attitude and practice of the child care provider. It did help researchers to have a deeper understanding of the relationship of the significant factors and the knowledge, attitude and practice scores.

By knowing the child care providers level of knowledge, attitude, practice and its associated factors, it will help in improving existing programs, health promotion, and

nursery modules and also help in providing a quality child care provider in future. It also works as a platform of evidence in order to enhance and implement strategies that help and maintain the sustainability of infant and young child feeding in childcare centers.

It also will give the benefit to all level especially the top manager and stakeholder in which policy maker in order to make infant and young child feeding friendly childcare centre later in Malaysia. Furthermore, this research provides a new validated questionnaire in assessing knowledge, attitude and practice among child care provider in Malaysia settings. Furthermore, it can assist any future researcher in exploring the expanded scope of the child care providers and used all the modifiable factors in the future intervention program which further enhanced the role of child care providers as a front liner in the childcare centers.

### 1.7 Research questions

1. Is the new questionnaire valid to be used to assess knowledge, attitude and practice on infant and young child feeding among child care providers in Kelantan?
2. What are the current levels of knowledge, attitude and practice on infant and young child feeding among child care providers in Kota Bharu?
3. What are the factors associated with the level of knowledge, attitude and practice among child care providers in Kota Bharu?

## 1.8 Research objectives

This part will highlight general and specific objectives for this study.

### 1.8.1 General objective

To develop and validate a new questionnaire as well as to determine the levels of knowledge, attitude and practice; and the associated factors with child care provider knowledge, attitude and practice on infant and young child feeding in childcare centres in Kelantan.

### 1.8.2 Specific objectives

#### 1.8.2 (a) Phase 1

- To develop and validate a new questionnaire that will be used to assess knowledge, attitude and practice on infant and young child feeding among child care providers in Kelantan.

#### 1.8.2 (b) Phase 2

- To determine the levels of child care providers' knowledge, attitude and practice on infant and young child feeding in childcare centres in Kota Bharu.

- To determine the factors associated with child care providers' level of knowledge, attitude and practice on infant and young child feeding in childcare centres in Kota Bharu.

## 1.9 Research hypotheses

- The newly developed questionnaire is valid and reliable to be use for assessment of knowledge, attitude and practice on infant and young child feeding among child care provider in Kelantan.

- The level of knowledge, attitude and practice among child care provider on infant and young child feeding is satisfactory.

- There are significant association between associated factors (i.e. sociodemographic factors, individual factors and working environment factors) with child care providers' level of knowledge, attitude and practice on infant and young child feeding in childcare centres in Kota Bharu.

# CHAPTER TWO

# LITERATURE REVIEW

This chapter details up and evaluates the available literature pertaining to the child care provider on infant and young child feeding. It begins with the important implementation of optimal infant and young child feeding, then role on child care provider, and available evidence on child care provider level on knowledge, attitude, practice, their associated factors, as well as available tools to assess their knowledge, attitude and practice level. It reflects the background information, theoretical perspectives and methodological considerations of relevance. This chapter ends with a conceptual framework for this study to provide the whole overview of the study.

## 2.1 Optimal infant and young child feeding

Children have their right to get adequate nutrition and access to safe and nutritious food, and it is essential for achieving their right to the highest achievable standard of health (UNICEF, 1989). Women, play an important role, to safeguard their child to proper nutrition. They have the right to decide how to feed their children, and to get information on appropriate conditions that will enable them to carry out their decisions (Chilton and Rose, 2009; Quisumbing *et al.*, 1995; WHO, 2003). However, these rights of proper practice on infant and young child feeding often violated in the childcare centres (Smith *et al.*, 2013b). Therefore, important of the integration between the parent's role and child care provider in assist the proper implementation

of quality infant and young child feeding in the childcare centres (Asis *et al.*, 2016; Clark *et al.*, 2008; Lucas *et al.*, 2013).

Infant and young child feeding (IYCF) covers all form of infant feeding including breastfeeding and complementary feeding. Global public health recommendation by WHO and UNICEF in 2003, stated that the optimal infant and young child feeding comprises of exclusively breastfed infant for the first six months of life, followed by safe and nutritionally adequate complementary foods while breastfeeding continues for up to two years of age or beyond in order to achieve optimal growth, development and health (WHO, 2003). This recommendation has been supported by our government policy, a national breastfeeding policy earlier in 1993 then revised Malaysian Breastfeeding Policy in 2006 (Ministry of Health, 2010; UNICEF, 2008).

Optimal IYCF has a greatest potential impact on child survival and it is proven to be preventive. Reduction of child mortality can be reached only when the nutrition in early childhood highly prioritized (Black *et al.*, 2008; WHO, 2003). Out of top 15 preventive child survival interventions listed for their effectiveness in preventing under-five mortality, exclusive breastfeeding up to six months of age with continued breastfeeding up to 12 months was ranked at number one, with appropriate complementary feeding starting at six months was ranked at number three. These two interventions alone were estimated to prevent almost one-fifth of under-five mortality in developing countries (Jones *et al.*, 2003).

Optimal IYCF, especially exclusive breastfeeding, was estimated to prevent potentially 1.4 million deaths out of 10 million annual death among children under five. There were over one third of under-five mortality caused by undernutrition, in

which poor breastfeeding practices and inadequate complementary feeding play a major role (Black *et al.*, 2008).

It is well established that breastfeeding and the use of breastmilk have been shown to provide health, nutritional, immunological, developmental, psychological, social, economic and environmental benefits, which extend to the infant, mother and community (Gartner *et al.*, 2005). However, extended exclusive breastfeeding did not provide adequate nutrition to the infant as they grow further (Butte *et al.*, 2002; Kramer and Kakuma, 2004).

Infants are particularly vulnerable during the transition period when the complementary feeding commences. Ensuring that their nutritional needs are met, thus the complementary foods should be given accordingly to the recommendation by WHO/UNICEF in which given at the appropriate time, adequate, safe and applied responsive feeding (WHO, 2003).

It is important to give the complementary food at the right time in which it is introduced at the age of six months, when the need for energy and nutrients exceeds what can be provided through exclusive and frequent breastfeeding. Meanwhile, giving complementary food adequately refer to the provider or parents should provide sufficient energy, protein and micronutrients to the children in order to meet their growing nutritional needs. Next principle, given food safely meaning that the food is hygienically stored and prepared, and fed with clean hands using clean utensils and not bottles and teats. There were need of properly fed which the food are given in consistent with a child's signal of appetite and satiety, applying appropriate meal frequency and feeding method which is actively encouraging the child, even

during illness, to consume sufficient food using their fingers, spoon or self-feeding that are suitable to their age (Agostoni *et al.*, 2008; WHO, 2003; WHO, 2014).

Appropriate complementary feeding depends on accurate information and skilled support from the family, community and health care system. Inadequate knowledge about appropriate foods and feeding practices is often a greater determinant of malnutrition than the lack of food. Moreover, diversified approaches are required to ensure access to food that will adequately meet energy and nutrient needs of growing children (Agostoni *et al.*, 2008).

The health and nutritional status of mothers and children are closely linked. Improving the infant and young child feeding begins with ensuring the health and nutritional status of women, throughout all stages of life and continues with women as providers for their children and families (Bengtson and Allen, 2009; Bronfenbrenner, 1995; Quisumbing *et al.*, 1995). Mothers and infants form a biological and social unit; they also share problems of malnutrition and ill-health. Whatever is done to solve these problems concerns both mothers and children together. Therefore, important for the child care providers taking care of the mothers right and make ease for them by way of helping them with the support and proper practice of infant and young child in their childcare centres (Engle *et al.*, 2000).

The global strategy for infant and young child feeding is based on respect, protection, facilitation and fulfilment of accepted human rights principles. Rapid social and economic change only intensifies the difficulties that families face in properly feeding and caring for their children. Therefore, to meet their evolving nutritional

requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond (WHO, 2003).

## 2.2 Employment as a barrier to optimal implementation of infant and young child feeding among working mothers

Expanding urbanization results in more families depend either on formal, informal or intermittent employment for certain additional incomes. Increasing women's participation in the work-force is frequently blamed for the low rate of breastfeeding and suboptimal application of appropriate complementary feeding (Johnston and Esposito, 2007; Joshi *et al.*, 2012).

Many mothers return to the workplace during their infant's first year of life and face multiple challenges when they want to continue breastfeeding and start appropriate complementary feeding (Asis *et al.*, 2016). High participation of women into work-force be seen all over the world, in the United States (U.S. Department of Labour, 2006) as well as in Malaysia (Labour Force Survey Report, 2014).

In Malaysia, the increase of female employed persons contributed to the increase in the overall labour force participation rate (LFPR). Female LFPR increased by 1.2 percentage points contributed to 53.6 per cent in 2014. Female participations in the labour market were high, exceeding 55.0 per cent for the prime age groups which is between age 25 to 54 years old (Labour Force Survey Report, 2014). About half of the women in the age range of 15–64 years were employed and they needed to return

to work, usually after a maximum confinement period of three months. Working and practicing exclusive breastfeeding were two major roles that required their sacrifices. Many studies, including those conducted in Malaysia, have shown that employment was a major obstacle to exclusive breastfeeding (Asis *et al*., 2016,Agampodi *et al*.,2007;Otoo *et al*.,2009;Xu *et al*.,2007;Bulk *et al*.,2001).

Employment is one factor that makes it difficult for women to continue breastfeeding and it leads to premature weaning (Kimbro, 2006). Research has shown that mothers who have work full time have similar initiation rates as those who do not work; however, their continuation rates at 6 months were 9% lower than those who are not working (Johnston and Esposito, 2007).

The Second National Health and Morbidity Survey (NHMS II) conducted in 1996 showed the prevalence of employed women who had ever breastfed was 91.4%. However, only 25.4% of employed women practiced exclusive breastfeeding compared to 31.3% among nonworking women. The mean duration of breastfeeding was 26 weeks among working women compared to 30 weeks among those who were not working (MOH, 2008).

Breastfeeding may be less convenient for the working women as there were many obstacles that they need to face which were lack of a supportive environment in their workplace and in the childcare centres. The evidence did show a supportive workplace and working environment as well as supportive childcare centre did influence the success of breastfeeding (Engle *et al.*, 2000).

Study in Nepal had shown that working mother might associate with inappropriate complementary feeding practice in which reduce in meal frequency given to the child (Joshi *et al.*, 2012) and aggressive marketing on processed complementary food and breastmilk substitutes in the market did poses a problem for working mother to implement appropriate infant and young child feeding (Van Esterik, 2002).

### 2.3 Integrating roles between parent and child care provider

Recognition of the importance of the social environment to the mother's initiation of breastfeeding, duration of breastfeeding and appropriate complementary feeding implementation has not to be translated into a focus of the child care providers' role. There is a greater need to understand the role of child care in infant feeding because the majority of mothers today are employed and using child care as early as one month after childbirth (Klerman and Liebowitz, 1999). Therefore, it is important to integrate and strengthen the role of child care provider with the parent in the childcare centre (Asis *et al.*, 2016; Lucas *et al.*, 2013).

Infant feeding friendly childcare centre play a key role in preventing early childhood malnutrition i.e. childhood obesity and stunting (Engle *et al.*, 2000). Child care providers are in an ideal position to educate the mothers and provide adequate support on implementation of infant and young child feeding in their centres. Child care providers support in the way of providing the food, health care, stimulation and emotional support necessary for the children's to grow healthier. These practices incorporate food security and health care into a child's well-being through the ways they are performed (with affection and responsiveness to children). Adequate and

proper care are critical to children's survival, growth and development (Engle and Lhotská, 1997).

Child care environment that likely to influence appropriate implementation of infant and young child feeding, including quality of child care provider, child care quality, type (either relative home, family home or at childcare centre), licensing and policies (Hector *et al.*, 2005). Child care providers who valued and understand the dynamics of infant and young child feeding will be better and able to facilitate working mothers better than providers who are less knowledgeable or supportive. Less supportive and poorly trained provider would create a barrier for working mother that wants to maintain good infant and young child feeding once they worked (Batan *et al.*, 2013).

A study in Baton, USA had found that 65% of the providers believed that supporting breastfeeding is an important part of their job, but only 39% of them considered their role might be effective in sustaining their clients' breastfeeding (Lucas *et al.*, 2013). This finding is supported by a study in Australia suggests that many childcare centres support breastfeeding in a passive than active way as most of the childcare workers and directors did not see the proactive promotion of breastfeeding as part of their role or service, but rather supporting the infant feeding practice chosen by parents (Javanparast *et al.*, 2012). Majority of the providers knew about infant feeding but not practice it into behaviour (Freedman and Alvarez, 2010). The positive attitude of participants, particularly centre directors, towards breastfeeding and its benefits, is likely to have implications on how breastfeeding is encouraged by other staff members (Javanparast *et al.*, 2012).

There was a great effort in Australia in order to integrate the role of child care provider with the parents. The state health promotion authorities work with childcare centres and encourage more proactive engagement and greater support for breastfeeding which is consistent with the National Breastfeeding Strategy (Javanparast *et al.*, 2012).

Supportive attitude towards breastfeeding and having written policies that encourage and support breastfeeding in childcare centres, did help in the protection and promotion of breastfeeding. Breastfeeding promotion and advocacy in childcare centres may encourage more mothers to work comfortably and continue breastfeeding while working. This can be achieved by giving the childcare centres additional credibility and upgrade the quality through credentialing (Javanparast *et al.*, 2012).

There were also important to integrate the role of child care providers and parents for appropriate implementation of complementary feeding. This is because during the period of complementary feeding, children are at high risk of undernutrition if the nutritional needs were not met. The child care providers in the childcare centre often lacked knowledge about recommended complementary feeding practices such as given inadequate and inappropriate complementary feeding as well as lack of spending sufficient time to feed the child in order to meet the child's nutritional needs. They often follow the recommendations and information given by the family or surrounding community that focus more on culture, traditions, and health matters to guide their infant and child-feeding practices in the childcare centres (Nankumbi and Muliira, 2015; Rasheed *et al.*, 2011). Thus, important to incorporate proper

training for the child care providers in applying proper infant and young child feeding practice in the childcare centres.

### 2.4 Childcare center in Malaysia

There is growing number of childcare centre nowadays in view of increased demand as high participation of women into the workforce (Amin *et al.*, 2011). The Childcare centre is defined as any premises where four children or more in a household are cared for on a fee basis (Child Care Centre Act, 1984).

Previously, childcare centres were divided into two categories i.e institutional and home-based. Then, alterations done to Section 5 of Act 308 for the childcare centre category, the centres are further classified into four categories of childcare centres which are home-based, work place-based, community-based and institution-based. Recently, the licence to operate a childcare centre given for five years instead of one year in the past (Child Care Centre Act, 1984).

All categories of childcare centres offer child care services ranging from half-day to full-day. Institutional centre, work-place based centre and community-centred accept ten or more children in custody whereby home based centre did accept four to nine children. Institutional centre either established based on private sector initiatives and non-governmental organizations (NGOs). Meanwhile, a childcare centre in the workplace is established on the employer initiative for employee welfare and community based centre established on the benefit of the community of low income families in urban and rural areas i.e those who had income less than RM2000 (Heng, 2008). Community based centre did receive assistance from the Federal Government

or the State Government. Meanwhile, the home based centre conducted at community residence based on the needs (Department of Social Welfare, 2016).

The childcare centre is developed to assist working parents in giving good care to the child, not only as a place for custodian care. A survey done 25 years ago had found that the quality of child care services available in Malaysia was far from satisfactory (Ministry of Social Welfare Services, 1983; Yusof *et al.*, 1987). The reason behind was there were no pre-established standards and regulations concerning the management of childcare centres.

Previously, the childcare centre premise was poorly designed, unhealthy, and unsafe for young children. Few of the child care providers had education and they were not trained as child care providers. Only 1% of the provider had university or professional qualifications but not in the area of early child care and education. Furthermore, a majority of them, not provide a stimulating environment for children to grow intellectually, socially, and emotionally. The ratio of child care provider to children varied, ranging from one child to as many as 325 children per child care provider (Heng, 2008). As a result, the government approved the Childcare centre Act (Act 308) in 1984. This Act required institution-based childcare centres to register, but not home-based childcare centres (Heng, 2008).

Nowadays, there was a lot of improvement from the past. In Malaysia, childcare centre needs to be registered and need a licensing, from local authorities, fire and rescue department as well as the health department in order to be established. The requirement also applies to child care provider, they need to be registered and prior registration, it is a must for them to attend a course in order to fulfil pre-requisite as registered child care provider (Department of Social Welfare, 2016).