

**FACTORS AFFECTING BREASTFEEDING PRACTICES
AMONG WORKING MOTHERS IN KUALA LANGAT DISTRICT**

SITI HARIROTUL HAMROK BINTI ASIS

**FACULTY OF MEDICINE
UNIVERSITY OF MALAYA
KUALA LUMPUR**

2017

**FACTORS AFFECTING BREASTFEEDING PRACTICES
AMONG WORKING MOTHERS IN KUALA LANGAT DISTRICT**

SITI HARIROTUL HAMROK BINTI ASIS

**THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PUBLIC HEALTH**

**FACULTY OF MEDICINE
UNIVERSITY OF MALAYA
KUALA LUMPUR**

2017

UNIVERSITY OF MALAYA
ORIGINAL LITERARY WORK DECLARATION

Name of Candidate: Siti Harirotul Hamrok binti Asis (I.C No:)

Matric No: MHC090011

Name of Degree: Doctor of Public Health

Title of Project Paper/Research Report/Dissertation/Thesis (“this Work”): Factors affecting breastfeeding practices among working mothers in Kuala Langat District

Field of Study: Family Health

I do solemnly and sincerely declare that:

- (1) I am the sole author/writer of this Work;
- (2) This Work is original;
- (3) Any use of any work in which copyright exists was done by way of fair dealing and for permitted purposes and any excerpt or extract from, or reference to or reproduction of any copyright work has been disclosed expressly and sufficiently and the title of the Work and its authorship have been acknowledged in this Work;
- (4) I do not have any actual knowledge nor do I ought reasonably to know that the making of this work constitutes an infringement of any copyright work;
- (5) I hereby assign all and every rights in the copyright to this Work to the University of Malaya (“UM”), who henceforth shall be owner of the copyright in this Work and that any reproduction or use in any form or by any means whatsoever is prohibited without the written consent of UM having been first had and obtained;
- (6) I am fully aware that if in the course of making this Work I have infringed any copyright whether intentionally or otherwise, I may be subject to legal action or any other action as may be determined by UM.

Candidate’s Signature

Date: 18/4/2017

Subscribed and solemnly declared before,

Witness’s Signature

Date:

Name:

Designation:

ABSTRACT

The aims of this study were to determine the factors associated with breastfeeding duration including employment factors and the provision of employer support for breastfeeding among working mothers at workplace as well as the facilitating factors for working mothers to sustain exclusive breastfeeding practice. A cross sectional study involving 964 mothers with six months old babies was carried out from 1st February to 31st December, 2010. Face to face interview using a validated pretested structured questionnaires was conducted to assess sociodemographic factors, maternal characteristics, infant characteristics, cultural belief characteristic, knowledge, attitude and practice on breastfeeding, employment characteristics, worksite breastfeeding education, breastfeeding policy, facilities available in workplace and breastfeeding practice at six months. Univariate and multivariate analysis were used to determine the factors affecting the breastfeeding practice for six months duration. A qualitative study using purposive sampling from participants involved in an earlier study who expressed breastmilk during working and were exclusively or predominantly breastfeeding their infants up to 4 months were followed-up. The sampling method was theoretical sampling and the data collection technique was by in depth interview. The interviews were audio taped and transcribed verbatim. The transcribed data were analysed via thematic analysis. The sampling was continued until data saturation was met, which in this study was up to 15 participants. Cross sectional study found that the variables that showed positive association of breastfeeding at 6 months were Malay mothers, non working mothers, and good knowledge, had the intention to continue breastfeeding as long as possible, never felt not enough breast milk and breastfeeding due to religion. The employment factors which demonstrated a positive association with breastfeeding at 6 months were working in government sector, working half day, expressed breast milk and availability of room at workplace to express breast milk. The

qualitative study revealed four major themes of facilitating factors. They were i) Personal factors which were perceived breast milk as the best, perceived benefits of breastfeeding especially to babies, the need of breast milk expression in workplace and strong self-motivation to express breast milk in workplace, ii) Work site support for breastfeeding in which flexible hours to express breast milk, support from employers and other employees, provision of facilities to express breast milk particularly place for expression and refrigerator. iii) Preparation for the mother's absence while at work which are learning to express breast milk and educate to feed the baby with expressed breast milk, stockpiling expressed breast milk in the refrigerator and train the baby's carer of the right way to prepare and feed the baby with expressed breast milk, iv) Baby's care taker assistance to support the mother by feeding the baby with expressed breast milk and maintaining the baby's service charged. Good knowledge on breastfeeding and perception of adequacy of breastfeeding only will increase exclusive breastfeeding practice. Education to mothers regarding the importance of exclusive breastfeeding and avoiding the practice of giving water to babies is essential. Supportive employers and a conducive working environment as well as baby's care taker assistance play an important role in sustaining breastfeeding among working mothers.

Key words: Breastfeeding, working mothers, breast milk expression

ABSTRAK

Prevalen penyusuan susu ibu secara eksklusif di bawah enam bulan telah menurun di Malaysia walaupun terdapat banyak kebaikan penyusuan susu ibu. Tujuan kajian ini dijalankan ialah menentukan faktor yang berkaitan dengan tempoh penyusuan susu ibu termasuk faktor pekerjaan dan penyediaan sokongan majikan di kalangan ibu bekerja di tempat kerja serta untuk mengetahui faktor yang membantu ibu bekerja untuk meneruskan penyusuan susu ibu secara eksklusif. Kajian rentas silang telah dijalankan di kalangan 964 ibu yang mempunyai anak yang berumur enam bulan dari bulan Februari hingga Disember, 2010. Kajian kuantitatif menggunakan soalan soal selidik yang telah divalidasi dan dibuat praujian mengkaji faktor sosiodemografi, karakter ibu, karakter bayi, budaya dan kepercayaan, pengetahuan, kelakuan dan amalan susu ibu, faktor pekerjaan, pengajaran penyusuan susu ibu di tempat kerja, polisi penyusuan susu ibu, kemudahan yang ada di tempat kerja dan amalan penyusuan susu ibu pada 6 bulan selepas bersalin. Analisa univariat and multivariat digunakan untuk mengenalpasti faktor yang berkaitan dengan amalan penyusuan susu ibu ketika enam bulan. Ini diikuti dengan kajian kualitatif dengan pemilihan 15 sampel menggunakan kaedah persampelan secara teori dari sampel kajian yang awal. Temuramah secara mendalam telah dijalankan. Temuramah tersebut telah dirakamkan, di transkripsi dan dianalisa menggunakan analisa tema. Hasil kajian rentas silang menunjukkan faktor positif yang berkaitan dengan penyusuan susu ibu pada enam bulan ialah ibu berketurunan Melayu, ibu yang tidak bekerja, pengetahuan yang baik tentang penyusuan susu ibu, keinginan untuk menyusukan lebih lama, tidak pernah merasa susu ibu tidak cukup dan menyusukan kerana ugama. Faktor pekerjaan yang positif terhadap penyusuan ibu pada umur enam bulan ialah bekerja di sektor awam, bekerja separuh hari, memerah susu ibu dan kemudahan tempat untuk memerah susu di tempat kerja. Keputusan kajian kualitatif menunjukkan empat tema yang membantu ibu untuk meneruskan pemerahan

susu ibu bagi ibu bekerja iaitu i) faktor personal yang yakin susu ibu adalah terbaik, yakin kebaikan susu ibu, keperluan untuk memerah susu ibu di tempat kerja dan mempunyai motivasi yang tinggi untuk memerah susu, ii) Sokongan di tempat kerja iaitu masa yang fleksibel untuk memerah susu, sokongan dari majikan dan rakan sekerja, serta majikan menyediakan kemudahan untuk memerah susu ibu terutamanya ruang yang sesuai dan peti sejuk. iii) Persediaan untuk ketiaadan ibu ketika bekerja iaitu mempelajari cara pemerahan susu ibu, mengajar bayi untuk menerima susu perahan, membuat stok penyimpanan susu perahan di peti sejuk dalam waktu pantas dan mengajar penjaga bayi cara yang betul untuk penyimpanan, persediaan dan pemberian susu perahan kepada bayi, iv) Sokongan daripada penjaga bayi untuk pemberian susu perahan kepada bayi dan mengekalkan harga upah menjaga bayi yang diberi susu perahan. Pengetahuan yang tinggi dan keyakinan pemberian susu ibu sahaja adalah mencukupi untuk bayi akan meningkatkan amalan penyusuan susu secara eksklusif. Pendidikan kesihatan tentang pemberian susu ibu sahaja tanpa tambahan pemberian air adalah mencukupi kepada ibu sangat penting. Sokongan majikan dan persekitaran tempat kerja serta bantuan dari penjaga bayi sangat penting bagi ibu bekerja untuk meneruskan amalan penyusuan susu ibu terutamanya penyusuan secara eksklusif.

Kata kunci: Penyusuan susu ibu, ibu bekerja, pemerahan susu ibu

ACKNOWLEDGMENTS

I would like to express my appreciation and my gratitude and special thanks to my supervisor, Associate Professor Dr Nabilla Al Sadat and Associate Professor Dr Hazreen bin Abdul Majid who had suggested multiple ideas, provided encouragement as well as guidance throughout the duration of my study up to the completion of this thesis.

I would like to thank all the Professors, lecturers and staff in the Department of Social and Preventive Medicine, University of Malaya for assisting me to complete the thesis and also providing me a lot of ideas and knowledge. I would like to thank the Medical Officer of Health of Kuala Langat District Health Office, who had allowed me to conduct the research and the staff in Kuala Langat District Office who had assisted me in the data collection effort in the district. The outcome of the study had been shared with the Nutritionist in Kuala Langat District Health Office and the recommendations suggested had also been discussed with the officer in charge for further intervention. A copy of the dissertation will be sent to the Medical Officer of Health of the Kuala Langat District Health Office and a discussion will be held in the near future.

Special thanks to my beloved husband, who had always assisted and encouraged me to complete the thesis, my mother, Mahmudah Mahpul, my sons, Muhammad Amir Hakim, Muhammad Luqman and Muhammad Lutfi and my daughters, Nurul Fatiha and Nur Iman Qaisara for their understanding and support.

To all my colleagues; Doctor of Public Health batch of 2009, thank you for sharing my difficult moments and giving me the support during our study period. I also would like to acknowledge the financial support from the Postgraduate Research Fund, University of Malaya, Kuala Lumpur (Grant Number: PS205/2009C).

TABLE OF CONTENTS

ORIGINAL LITERARY WORK DECLARATION	ii
ABSTRACT	iii
ABSTRAK	v
ACKNOWLEDGMENTS	vii
TABLE OF CONTENTS	viii
LIST OF TABLES	xiv
LIST OF FIGURES	xvii
LIST OF ABBREVIATIONS	xviii
LIST OF APPENDICES	xix
CHAPTER 1: GENERAL INTRODUCTION	1
1.1 Background of the study	1
1.2 Statement of research problem	3
1.3 Problem area of this study	4
1.4 Rationale of the Study and Public Health Significance	7
1.5 Study Objectives	7
General Objective	7
Specific Objectives	7
1.6 Outline of the dissertation	8
CHAPTER 2: LITERATURE REVIEW	10
2.1 Introduction	10

2.2	Benefits of Breastfeeding	10
2.3	Global and Regional Breastfeeding Trends	13
2.4	Breastfeeding in Malaysia	14
2.5	Female Labour Force participation rate in Malaysia	17
2.6	Factors affecting breastfeeding practices	18
2.6.1	Age	18
2.6.2	Education level	19
2.6.3	Ethnicity	20
2.6.4	Household income	23
2.6.5	Obstetric factor	23
2.6.6	Infant factor	24
2.6.7	Breastfeeding factor	25
2.6.8	Early initiation of breastfeeding	25
2.6.9	Breastfeeding education	26
2.6.10	Cultural and belief	26
2.6.11	Social Support	28
2.6.12	Knowledge	30
2.6.13	Perception	31
2.6.14	Attitude	34
2.6.15	Intention to breastfeed	35
2.6.16	Religiosity	36
2.6.17	Pacifier usage	38
2.6.18	Employment	39
2.7	Factors Associated with Breastfeeding Practice in Malaysia	40
2.7.1	Predictors of breastfeeding practice in Malaysia	41
2.7.2	Reasons for breastfeeding cessation in Malaysia	43
2.7.3	Facilitating factors for breastfeeding practice in Malaysia	45
2.7.4	Barriers of Breastfeeding Practice in Malaysia	48
2.8	Breastfeeding and employment	49
2.8.1	Return to work	52
2.8.2	Employment characteristics	54

2.8.3	Type of employer	57
2.8.4	Type of occupation	58
2.8.5	Breastfeeding Policy at workplace	59
2.8.6	Success of Strategies for Combining Employment and Breastfeeding	63
2.8.7	Workplace Breastfeeding Facilities	64
2.8.8	Employer and other employee support	66
2.8.9	Childcare arrangement during working and breastfeeding	68
2.9	Facilitating factors for mothers to continue breast milk expression at workplace	69
2.10	Employment and breastfeeding in Malaysia	71
2.11	Theoretical framework	73
2.12	Conceptual Framework	78
CHAPTER 3: METHODS AND MATERIALS		81
3.1	Introduction	81
3.2	Part One: Quantitative Methods	81
3.2.1	Study design	81
3.2.2	Study area	82
3.2.3	Study duration	85
3.2.4	Study population	85
3.2.5	Study sample	87
3.2.6	Sampling technique	87
3.2.7	Study instrument and methods of data collection	88
3.2.7.1	Instruments development	88
3.2.8	Flow Chart	96
3.2.9	Operational definitions	96
3.2.10	Data Entry and Data Analysis	98
3.3	Part Two: Qualitative Study	100
3.3.1	Study Design	100
3.3.2	Sampling Procedures	101

3.3.3	Data Collection Technique	102
3.3.4	Analysis of qualitative data	104
3.4	Ethical consideration	105
CHAPTER 4: RESULTS		106
4.1	About the Chapter	106
4.2	Results of Quantitative Study	106
4.2.1	Characteristic of participants	106
4.2.1.1	Sociodemographic characteristics of participants	106
4.2.1.2	Employment characteristics of respondent	108
4.2.1.3	Place of delivery	112
4.2.1.4	Obstetric factors and infant characteristics	112
4.2.1.5	Family Characteristics	114
4.2.1.6	Social support	115
4.2.1.7	Past history of breastfeeding	117
4.2.1.8	Breastfeeding knowledge	117
4.2.1.9	Breastfeeding attitude	118
4.2.1.10	Perception on breastfeeding	120
4.2.1.11	Culture and belief	122
4.2.1.12	Lactation problems	124
4.2.1.13	Infant feeding practices	125
4.2.2	Univariate analysis of factors affecting breastfeeding duration at 6 months among all mothers in the study (n=964)	128
4.2.3	Multiple logistic regressions of factors affecting breastfeeding duration at 6 months among all mothers in the study	131
4.2.4	Univariate analysis of factors affecting exclusive breastfeeding at 6 months	134
4.2.5	Multiple logistic regression analysis of factors affecting exclusive breastfeeding at 6 months	136
4.2.6	Breastfeeding Practice among Working and Non working Mothers	137
4.2.6.1	Breastfeeding type according to working status	138

4.2.6.2	Univariate analysis of employment factors affecting any breastfeeding duration at 6 months among working mothers	141
4.2.6.3	Multiple Logistic Regression of employment factors affecting breastfeeding duration at 6 months among working mothers	147
4.2.6.4	Univariate analysis of employment factors affecting exclusive breastfeeding at 4 months among working mothers	149
4.2.6.5	Multiple logistic regressions of employment factors associated with exclusive breastfeeding at 4 months among working mothers	154
4.3	Results of Qualitative Study	155
4.3.1	Participants Characteristics	155
4.3.2	Themes Derived From The Study	157
4.3.2.1	Personal factors	157
4.3.2.2	Worksite support for breastfeeding	170
4.3.2.3	Preparation for mothers absence	190
4.3.2.4	Baby's care taker assistance /role of baby's care taker	195
4.4	Summary of the finding	199
CHAPTER 5: DISCUSSIONS		202
5.1	Introduction	202
5.2	Breastfeeding Practice	202
5.2.1	Ever breastfed	202
5.2.2	Breastfeeding duration	205
5.3	Factors associated with breastfeeding duration	212
5.3.1	Factors associated with any breastfeeding duration	212
5.3.2	Factors associated with exclusive breastfeeding duration	219
5.4	Employment Factors Associated With Breastfeeding Practice	223
5.5	Facilitating factors for mothers to continue breast milk expression at workplace	228
5.6	Study Strength	238
5.7	Limitation of the study	239

CHAPTER 6: CONCLUSION	244
6.1 Introduction	244
6.2 Research Statement	244
6.3 Summary	245
6.4 Recommendations	249
6.3.1 Malaysian Government	249
6.3.2 Employer	251
6.3.3 Ministry of Health	251
6.3.4 Ministry of Women, Family and Community Development	252
6.3.5 Ministry of Education	252
6.3.6 Department of Islamic Development Malaysia (JAKIM)	253
6.3.7 Other recommendations	253
REFERENCES	255
LIST OF PUBLICATIONS AND PAPERS PRESENTED	270
APPENDIX	272

LIST OF TABLES

Table 2.1 Factors associated with breastfeeding practice in Malaysia	42
Table 2.1 Factors associated with breastfeeding practice in Malaysia(continue)	43
Table 2.2 Reason for breastfeeding cessation in Malaysia	44
Table 2.2 Reason for breastfeeding cessation in Malaysia(continue)	45
Table 2.3 : Facilitating factors of breastfeeding practice in Malaysia	47
Table 2.4 : Barriers of breastfeeding practice in Malaysia	49
Table 4.1: Sociodemographic factors(n=964)	107
Table 4.2: Employment variables- Place and Job Characteristics (n=471)	108
Table 4.3: Employment variables- Breastfeeding law and policy and return to work (n=471)	110
Table 4.4: Facilities provided by employer and Childcare (n=471)	111
Table 4.5: Place of Delivery (n=964)	113
Table 4.6: Obstetric factors and infant Characteristics(n=964)	114
Table 4.7: Family Characteristics(n=964)	115
Table 4.8: Social support(n=964)	116
Table 4.9: Past history of Breastfeeding (n=611)	117
Table 4.10: Breastfeeding Knowledge(n=964)	118
Table 4.11 : Breastfeeding attitudes(n=964)	119
Table 4.12: Breastfeeding perception(n=964)	121
Table 4.13: Cultural and Belief(n=964)	123
Table 4.13: Cultural and Belief(n=964)(Continue)	124
Table 4.14: Lactation problems(n=964)	125
Table 4.15: Description of profile of respondents (Dependant variables)	126
Table 4.16: Infant feeding practices at 6 months of baby's age	127

Table 4.17: Percentage of breastfeeding type according to baby's age.	127
Table 4.18: Univariate analysis showing significant independent variables (general factors) affecting breastfeeding duration at 6 months of baby's age (n=964)	129
Table 4.19: Multiple Logistic Regression of factors affecting any breastfeeding duration at 6 months using Backward Logistic Regression (LR) (n=964)	132
Table 4.20: Factors associated with exclusive breastfeeding at 6 months from univariate analysis (significant factors)	135
Table 4.21: Multiple logistic regression of factors affecting exclusive breastfeeding at 6 months	137
Table 4.22: Prevalence of exclusive breastfeeding among working and non working mother by infant age	139
Table 4.23: Univariate analysis employment factors affecting any breastfeeding duration at 6 months of baby's age (place and job characteristics) (n=471)	143
Table 4.24: Univariate analysis employment factors any affecting breastfeeding duration at 6 months of baby's age (breastfeeding policy and return to work) (n=471)	144
Table 4.25: Univariate analysis employment factors affecting any breastfeeding duration at 6 months of baby's age (facilities provided by employer and childcare) (n=471)	146
Table 4.26: Univariate analysis employment factors affecting breastfeeding duration at 6 months of baby's age (Father's employment factors) (n=471)	147
Table 4.27: Multiple Logistic Regression of factors affecting breastfeeding duration at 6 months using Backward LR	149
Table 4.28: Univariate analysis of place of work and job characteristics factors affecting exclusive breastfeeding at 4 months of baby's age among working mothers	150
Table 4.29: Univariate analysis of breastfeeding policy and return to work factors affecting exclusive breastfeeding at 4 months of baby's age among working mothers	152
Table 4.30: Univariate analysis of breastfeeding facilities provided by employer and childcare factors affecting exclusive breastfeeding at 4 months of baby's age among working mothers	153
Table 4.31: Univariate analysis of husband employment factors affecting exclusive breastfeeding at 4 months of baby's age among working mothers	154

Table 4.32: Multiple logistic Regressions of employment factors associated with exclusive breastfeeding at 4 months	155
Table 8.1 : List of Publications and Papers Presented	270
Table 8.1 : List of Publications and Papers Presented (continue)	271

University of Malaya

LIST OF FIGURES

Figure 2.1: Conceptual Framework on Factors Affecting Breastfeeding Practices	79
Figure 2.2: Conceptual framework: employment factors that are associated with breastfeeding practice among working mothers	80
Figure 3.1: Map of Selangor and the Kuala Langat District.	83
Figure 3.2: Government Health Clinics and Community Clinics in Kuala Langat District	84
Figure 3.3: Flow Chart of participants involved	96
Figure 3.4: Interview guide	103
Figure 4.1: Prevalence of Ever Breastfeeding and Breastfeeding At 6 Months According To Employment Status	138
Figure 4.2: Proportion of Breastfeeding Type At 6 Months According To Employment Status	138
Figure 4.3: Proportion of predominant breastfeeding among working and non working mothers at 1, 2, 4 and 6 months of baby's age	140
Figure 4.4: Proportion of complementary breastfeeding among working and non working mothers at 1, 2, 4 and 6 months of baby's age	140
Figure 4.5: Proportion of not breastfeeding among working and non working mothers at 1, 2, 4 and 6 months of baby's age	141

LIST OF ABBREVIATIONS

aHR	Adjusted Hazard Risk
aOR	Adjusted Odds Ratio
aRR	Adjusted Relative Risk
BF	Breastfeeding
BFHI	Baby Friendly Hospital Initiatives
EBF	Exclusive Breastfeeding
HR	Hazard Risk
ILO	International Labour Organization
NHMS	National Health Morbidity Survey
OR	Odds Ratio
RR	Relative Risk
UNICEF	United Nations Children's Fund
WHO	World Health Organization

LIST OF APPENDICES

APPENDIX A Questionnaire	272
APPENDIX B Patient Information Sheet And Consent Form	293
APPENDIX C Permission Letters	299
APPENDIX D Thesis Title Approval Letter	293
APPENDIX E Results of Qualitative Study(Malay Transcribed Verbatim)	294

University of Malaya

CHAPTER 1: GENERAL INTRODUCTION

The body of this dissertation is divided into six chapters. This first chapter provides a synopsis of the study. This includes the background of the study, statement of research problem, problem area of the study, aim and study objectives, and finally the dissertation outline.

1.1 Background of the study

The World Health Organization recommended breast milk as the perfect food for newborn babies, and breastfeeding should be initiated within the first hour after birth. The WHO also recommended exclusive breastfeeding up to six months of age and the infant should continue to receive breast milk up to two years of life (WHO, 2003). All mothers should have access to skilled support to initiate and sustain exclusive breastfeeding for six months and ensure the timely introduction of adequate and safe complementary foods with continued breastfeeding up to two years or beyond (WHO, 2003). Introduction of complementary foods to infants should be at six months of age (180 days) while mothers should continue to breastfeed the infants (Dewey, 2001). The American Academy of Pediatrics recommends the initiation for early and frequent breastfeeding, exclusive breastfeeding for the first six months, and continued breastfeeding for at least 12 months (Zinn, 2000). They also recommended that there should be no supplementation to breastfeeding for the newborns without medical indication and mothers should avoid the use of pacifiers.

Breastfeeding has many benefits to the baby, mother, families and the community, as well as health care providers and employer. These are further described in Chapter Two. Despite the many benefits of breastfeeding, the worldwide prevalence of breastfeeding varies between different countries. In the report 'The state of the world's children' (2011), it stated that the percentage of exclusive breastfeeding for children less than six months was 28% in East Asia and the Pacific Region and 36%

globally between years 2005 to 2009. The percentage of exclusive breastfeeding for children less than six months was 42%, 28%, 24%, 34% and 15% in Indonesia, China, Myanmar, Philippines and Thailand, respectively (UNICEF, 2014). The prevalence of exclusive breastfeeding in Malaysia was lower compared to the neighboring countries as well as the worldwide prevalence. In a nationwide study done in Malaysia in 2006, the prevalence of exclusive breastfeeding for children below six months was 14.5%. The prevalence of ever breastfed among children aged less than two years old increased to 95.0%. However the prevalence of exclusive breastfeeding below four months was 19.3% and below six months was 14.5%. Despite the many advantages of breastfeeding and the promotion of breastfeeding by the Malaysian Ministry of Health, the prevalence of exclusive breastfeeding was decreasing. There was a decrease of 9.7% as evident from the finding of the Third Malaysian National Health and Morbidity Survey (NHMS) in 2006 (19.3%) as compared to 29% in the Second NHMS in 1999. (Fatimah, Siti, Tahir, Hussain, & Ahmad, 2010).

There are increasing numbers of women's participation in the labor force in Malaysia. Recent reports from the Malaysian Department of Statistics stated that the number of employment in Malaysia among male and female increased from 10,659.6(000) in 2008, to 12,723.2(000) in 2012. In 2012, female labor force participation rate was 49.5% (Department of Statistics, 2013) which is a marked increase from the rate in 2006. The female labor participation rates in Selangor were higher in all ethnic groups as compared to rates in Peninsular Malaysia. Female labor force participation rate was 56.7% in Selangor compared to Kedah and Kelantan which was about 44% while in Sabah the rate was 47.6%. In a local study, it was found that female participation in labor force will not discourage them from having more children and did not affect fertility rate (A. K. L. Siah & Lee, 2015).

Many studies done in other countries (Hawkins, Griffith, Dezateux, & Law, 2007; Liben et al., 2016; Mosleh et al., 2015; Ong, Yap, Li, & Choo, 2005; "Promoting the Rights of Working Women to Breastfeed "; Ryan, Zhou, & Arensberg, 2006; J. A. Scott, Binns, Oddy, & Graham, 2006) and a few studies conducted locally (K. L. Tan, 2007, 2009b; K.L. Tan, 2011) reported the negative effect of working mothers with respect to the initiation and duration of breastfeeding. Many factors contribute to the reduction of exclusive breastfeeding rates in Malaysia. However with the large number of working mothers in Malaysia and the benefits of breastfeeding to infants in their later life, it was suggested that a study should be done to collect baseline data on the effects of employment on breastfeeding practices and to identify the facilitating factors to increase the breastfeeding duration, particularly exclusive breastfeeding among working mothers.

The study was conducted in Kuala Langat District, Selangor, Malaysia. The district was chosen as the study area because its exclusive breastfeeding rates for six months was 8.7 % in 2008, which is the lowest among all district in Selangor (Maizatul 2008). The National survey found that the prevalence of breastfeeding was higher in rural areas compared to urban areas (Fatimah, Saadiah, Tahir, Hussain, & Faudzi, 2010). However the breastfeeding rates in Kuala Langat district was the lowest among all districts in Selangor. Eventhough Kuala Langat district is considered as a rural area, it is developing as it is situated near Putrajaya and Kuala Lumpur International Airport. Another reason is the availability and development of many new academic institutions in the area which increase women labour force participation rate .

1.2 Statement of research problem

There is a large number of working mothers in Malaysia and most of them are married (Department of Statistics, 2006, 2007). The percentage of Malaysian mothers participating in the labour force in Malaysia were markedly increased from 35.6% in

2006 to 49.5% in 2012 (Department of Statistics, 2013). Notably, the prevalence of exclusive breastfeeding among children below four months had decreased to 9.7% in the last ten years as shown by the National Health and Morbidity Survey 3 (2006) as compared to National Health and Morbidity Survey 2 (1996) (Fatimah et al., 2010). It was postulated that the reduction of exclusive breastfeeding prevalence could be due to the large numbers of working mothers in Malaysia.

In view of the above scenario, research questions were identified as below:

1. What are the factors affecting breastfeeding duration among mothers in the study population?
2. Is there any difference in breastfeeding duration among non-working mothers and working mothers?
3. What are the employment factors affecting breastfeeding duration among working mothers?
4. What are the proportions of working mothers with worksite breastfeeding support?
5. What are the facilitating factors for working mothers to continue exclusive breastfeeding?

1.3 Problem area of this study

There were a paucity of current local studies on the association between working mothers and breastfeeding duration, particularly in relation to breast milk expression and facilitating factors for sustaining exclusive or predominant breastfeeding among working mothers. A previous study was done in 1992 was entitled 'A descriptive cross-sectional study on breastfeeding practices in a rural area in Northern Perak' (Bakar, 1992). The study reported that the percentage of ever breastfeeding among working mothers was 87.9% and there was no mention about the duration of breastfeeding among the two groups of mothers. Another study done in 1997 also did not state the

association between breastfeeding and employment status (Chye, Zain, Lim, & Lim, 1997). The National Health and Morbidity Survey 2006 also only provided the general finding on breastfeeding among women but did not provide data on the employment status and duration of breast feeding duration (Fatimah et al., 2010). The second National Health and Morbidity Survey 1996, stated that the prevalence of ever breastfeeding among working mothers was 91.4% as compared to 89.3% in non-working mothers. However, the prevalence of exclusive breastfeeding for infants at four months and below was less in working mothers (25.4 %), compared to non-working mothers (31.3 %) (Health, 1996).

Another study done by Chan et al. in 2001 on infant feeding practices at a district hospital with baby friendly hospital initiatives in Perak, found that more non-working mothers (60%) breastfed exclusively at four months compared to working mothers (26%) (Chan & Asirvatham, 2001). Another study done in Klang District also found that working mothers were significantly associated with discontinuation of exclusive breastfeeding (Tan, K.L., 2011). However, the factors determining breastfeeding duration among working mothers were not explored in the above studies. There was a local study done to identify factors affecting breastfeeding duration among working mothers, however the study was done in an urban area and the findings may not be generalized to a rural area. Furthermore, this study only examined the factors of any breastfeeding practice and did not explore the facilitating factors to sustain exclusive breastfeeding among working mothers (Rahmah et al., 2011). There was another local qualitative study done in East Coast Peninsular Malaysia, exploring the perception and experiences related to the feasibility, acceptability and safety of breast milk expression among formally employed women in Kelantan, Malaysia. However this study only involved Malay participants and did not include other ethnic groups and they did not explore the role of baby caretaker to facilitate exclusive breastfeeding among

working mothers (Tengku Alina, Zaharah, Rohana, Wan Manan, & Nik Normanieza, 2012).

The Malaysian government has given the opportunity to working mothers in the public service who delivers a baby, with two months paid confinement leave and three months unpaid breastfeeding leave. In Malaysia, during the time when the study was conducted, the maternity leave for government personnel was still 60 days following the maternity circular in 1998 which stated that each female government servant will be allowed for five maternity leaves during the entire duration of their service in the government, and for each maternity leave, they were allowed 60 days fully paid leave. The government employee was also allowed to apply for another 90 days extension from the end of maternity leave, for them to continue child care leave which is unpaid leave. They were allowed to apply childcare leave for five times during their entire duration of service in government sector (Department of General Service, 1998). However, the policy was revised in October 2010, in which women can have a flexibility to choose their own maternity leave between 60 days to 90 days for each delivery and the total maternity leave allowed is 300 days for their whole service in the government sector (Department of General Service, 2010). Different employers have different maternity leave policies as well as different support systems for employed mothers to breastfeed their child. Some of the employers provide facilities encouraging breastfeeding such as nursery at work place or breast pump availability. However, are these provisions and facilities important in increasing breastfeeding duration? Are the employers really providing support to mothers to continue breastfeeding their children? What are the roles of baby care takers to facilitate the continuation of exclusive breastfeeding among working mothers?

1.4 Rationale of the Study and Public Health Significance

This study can provide the details of breastfeeding duration among mothers including employed mothers in Kuala Langat as well as to increase the awareness among employed mothers to continue breastfeeding. The reduction of breastfeeding duration is shown when mothers return to work. Our study will be able to determine factors associated with positive and negative effects on breastfeeding duration among all mothers including working mothers. The intervention should be targeted on how to improve factors related to mothers returning to work as well as the common general factors.

The findings from our study can be utilised as the evidence or additional data for the government to advocate policy to employers to provide facilities for breastfeeding or expression of breast milk and convenient working hours in the workplace. In addition, breastfeeding rates and duration can be increased with worksite intervention by advocating a policy at workplace, provision of workplace facilities for breastfeeding as well as support from employers and other employees.

Academically, this study contributes to additional research and development to increase breastfeeding rates particularly exclusive breastfeeding among all mothers as well as employed mothers to continue working and breastfeeding

1.5 Study Objectives

General Objective

To determine factors affecting breastfeeding practice among mothers in Kuala Langat District.

Specific Objectives

1. To identify the general factors affecting breastfeeding practice among mothers in Kuala Langat District.

2. To determine the breastfeeding duration among mothers in Kuala Langat District and the difference of breastfeeding duration among working mothers and non-working mothers.
3. To determine the factors affecting breastfeeding duration among employed mothers.
4. To determine the proportion of working mothers with worksite breastfeeding support.
5. To determine the facilitating factors that will sustain exclusive breastfeeding among working mothers including the role of baby care takers.

1.6 Outline of the dissertation

This dissertation is divided into six chapters in which the first chapter described the background of the study, statement of research problem, problem area of the study, study objectives and the dissertation outline.

The second chapter will discuss the benefits of breastfeeding, trends of breastfeeding globally and in Malaysia, employment in Malaysia, breastfeeding initiation and breastfeeding duration or breastfeeding practices comparing working and non-working mothers, and factors associated with breastfeeding practices, including employment factors. Also included in this chapter is the conceptual framework of breastfeeding practices and conceptual framework of breastfeeding practices among working mothers.

The third chapter will discuss the methodology used in the study, the ethical considerations and limitations of the study. The methods used in the study were divided into part one and part two. Part one was a quantitative study in which a cross-sectional study was conducted. Part two was a qualitative study and it was conducted following the findings in the part one study. The quantitative study will identify the general factors affecting breastfeeding duration as well as employment factors affecting breastfeeding

duration among working mothers. The qualitative study will explore the facilitating factors that promote the sustenance of breastfeeding among working mothers.

The fourth chapter will discuss the results of the two parts of this study. In the part one of the study, the results from the cross-sectional study on breastfeeding practice among working and non-working mothers at six months of baby's age will be discussed. For the qualitative study, the results on the experience of working mothers to express breast milk in workplace and the facilitating factors will also be discussed.

The fifth chapter will discuss the results in chapter four on breastfeeding practice which include breastfeeding initiation, any breastfeeding duration and exclusive breastfeeding duration, general factors associated with breastfeeding practice, breastfeeding practice among working mothers and non-working mothers, employment factors affecting breastfeeding practice among working mothers and facilitating factors to sustain breastfeeding among working mothers.

Finally, the sixth chapter will present the summary of the findings of our study and the recommendations based on the findings of our study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter will discuss the benefits of breastfeeding, trends of breastfeeding globally and in Malaysia, employment in Malaysia, breastfeeding initiation and breastfeeding duration or breastfeeding practice comparing working and non-working mothers, factors associated with breastfeeding practices and employment factors associated with breastfeeding practices. Also included in this chapter is the conceptual framework of breastfeeding practices in general and among working mothers.

2.2 Benefits of Breastfeeding

Breastfeeding confers many benefits to the baby, mother, families and community as well as health care providers. Breast milk supplies all the nutrients that the baby needs in the correct quantity during the first six months of life. Breast milk is easy to digest; it provides protection against infection for example diarrhoea and allergy, as well as provides safety and security to the baby (News, 2005). A study by researchers from the University of California, Davis Children's Hospital, the University of Rochester and the American Academy of Pediatrics Centre found that infants who were fully breastfed for six months or more were less likely to suffer from pneumonia, ear infections and colds compared to infants breastfed for four months (Reiss, 2007). A cross sectional study conducted in Vietnam assessed the risk of developing diarrhea and acute respiratory infection (ARI) and breastfeeding practice. The study found that early initiation of breastfeeding had lower prevalence of diarrhea (aOR =0.74, 95%CI= 0.58, 0.93) while infants who were partially breastfed were more likely to have diarrhoea compared to infants who were exclusively breastfed (aOR= 1.55, 95% CI= 1.07, 2.2). Prolactal feeding and partial breastfeeding had higher odds of developing ARI than exclusive breastfeeding (OR=1.16, 95%CI 1.01, 1.33) and (OR=1.24, 95%CI= 1.03,

1.48) respectively (Nema , Phuong, Priya, Tuan, & Lan, 2014). A review of a few studies on the benefits of breastfeeding stated that that exclusive breastfeeding were associated with reduced risk of infections such as developing Hemophilus Influenza infection among Swedish preschool children and infant mortality reduction in Northeast Brazil (Lawrence, 2000). A community-based study of children aged 0–4 years with acute gastroenteritis (AGE) from 30 pediatric practices in Germany and Switzerland and Austria reported that amongst children 0 to 12 months that there was a protective effect against Rotavirus AGE if they were breastfed. The protective effect for children 0 to 6 months of age (OR=0.33; 95% CI= 0.19, 0.55) was stronger than in the group of 7 to 12 months (OR= 0.83; 95% CI=0.52, 1.33). This study, however, did not differentiate between exclusive breastfeeding and any breastfeeding. It was a retrospective study which increased the possibility of recall bias and the investigators were only able to analyse the available data (Plenge-Bönig et al., 2010).

Other than being at lower risk to contract infectious diseases, the other advantages of breastfeeding are protection against non-infectious diseases, reduced risk of chronic diseases such as diabetes, cancer, allergies and asthma, reduced possibility of becoming overweight and obese children and lower incidence of skin disorder (Guilbert, Stern, Morgan, Martinez, & Wright, 2007; Reiss, 2007; WHO, 2008).

A review done by Spatz (2014) stated that breastfeeding reduced the possibility of children becoming overweight and obese. However other factors associated with obesity such as parental overweight, parental smoking, dietary factors, physical activity and socioeconomic factors should also be considered as the confounders. The review also stated that the protective effect of breastfeeding to reduce the possibility of overweight and obesity was less in adulthood as compared to the protective effect in children or adolescent. A large study done in Ireland assessing 7,798 nine year old children's weight and the duration that these children were breastfed found that

children who were breastfed for 13 to 25 weeks were associated with 38 percent reduction in risk of obesity at nine years old ($p < 0.05$) while children who were breastfed for 26 weeks and more were associated with 51 percent reduction in the risk of obesity at nine years old ($p < 0.05$) (McCrary & Layte, 2012). Another study done in China, did not find any statistically significant associations between breastfeeding and childhood BMI or obesity when assessed based on breastfeeding duration. However exclusive breastfeeding was not included in the study variables (Jing et al., 2014).

Another benefit of breast milk to the baby is cognitive development (Der, Batty, & I.J., 2006; Quinn PJ, O'Callaghan M, GM, & al, 2001; Rao, Hediger, & Levine, 2002). A study by Rao MR et al. on 'Effect of breastfeeding on cognitive development of infants born small for gestational age' stated that children who were born small for gestational age and were exclusively breastfed for 24 weeks were predicted to have an 11-point IQ advantage over those who were breastfed for 12 weeks (Rao et al., 2002). Another study done to investigate the effect of duration of breastfeeding on the child cognitive development found that strong positive relationship was demonstrated between breastfeeding and the Peabody Picture Vocabulary Test Revised (PPVT-R) score. The scores increased with increased breastfeeding duration (Quinn PJ et al., 2001).

The benefits of breastfeeding to the mother include natural involution of the uterus, reduced excessive postpartum hemorrhage by the breast stimulus of breastfeeding, earlier return to pre-pregnancy weight, delay fertility in the first six months of exclusive breastfeeding (lactation amenorrhea for family planning) and decreased risk of premenopausal breast cancer (Lawrence, 2000; Reiss, 2007; WHO, 2008). Breastfeeding is also more convenient to the mother and it also promotes bonding between mother and child (Reiss, 2007).

The benefits of breastfeeding to families and communities are seen in the reduction of health care costs and less cost and time spent on buying and preparing formula milk (Reiss, 2007; WHO, 2008). The advantage of breastfeeding to healthcare providers was less visit to healthcare facilities which reduced overall healthcare expenditures (Reiss, 2007; WHO, 2008). In addition, breastfeeding also reduced the rates of mothers' absenteeism from work, increased their morale while working and they were more likely to return to work which also contributed to the benefits for the employers ("Promoting the Rights of Working Women to Breastfeed "; Reiss, 2007)

2.3 Global and Regional Breastfeeding Trends

Exclusive breastfeeding for the first six months of life has the potential to reverse 13% of all under-five deaths in developing countries while timely and appropriate complementary feeding can reverse a further 6% of under-five deaths (UNICEF, 2008b). The UNICEF Fact Sheet, 2008 stated that the exclusive breastfeeding rates for infants less than four months was 61% and at six months was 35% in the East Asia and the Pacific Region. The state of the world's children 2011 report stated that the percentage of exclusive breastfeeding for children less than six months was 28% in the East Asia and the Pacific Region and 36% in the world between 2005 and 2009. The percentage of exclusive breastfeeding for children less than six months was 42%, 28%, 24% ,34% and 15% in Indonesia, China, Myanmar, Philippines and Thailand respectively (UNICEF, 2014) .

A review in China stated that from the national surveys (cross-sectional) showed that exclusive breastfeeding rates at three months and four months were 46.3% and 24.4% respectively (Xu, Qiu, Binns, & Liu, 2009). A national study done in Iran found that the exclusive breastfeeding rates were 57% at 4 months and 28% at 6 months (Olang, Farivar, Heidarzadeh, Strandvik, & Yngve, 2009). A national study was

conducted in Singapore in 2001 in which 2,098 mothers were interviewed at two months after delivery and 6 months after birth among mothers who were still breastfeeding at two months. The study found that about 94.5% of the mothers attempted breastfeeding. The percentage of mothers who were still breastfeeding were 71.6%, 49.6%, 29.8% and 21.1% at 1 month, 2 months, 4 months and 6 months respectively. The study also found that exclusive breastfeeding was not commonly practiced in which about 20% at 1 month reduced to more than 10% at 2 months and markedly reduced 7% and almost 0% at 4 months and 6 months respectively. Most mothers had combined breastfeeding and formula milk at this time. However the study only assessed the factors associated with any breastfeeding duration at 2 months and 6 months and did not assess the association of factors related to exclusive breastfeeding in this study. Maternal education (higher), maternal age (older), Muslim and Christian religion, ethnicity, non working mothers, previous breastfeeding experiences, and awareness of breastfeeding benefits were all associated with longer duration of breastfeeding in this study. (Foo, Quek, Ng, Lim, & Deurenberg-Yap, 2005). The percentage of exclusive breastfeeding for children less than six months in Malaysia was 29% between 2005 to 2009 (UNICEF, 2011). The percentage of exclusive breastfeeding in Malaysia was lower compared to the world percentage. In a nationwide study conducted in 2006, the percentage of exclusive breastfeeding at four months in Malaysia was reduced from 29% to 14.5%. (Fatimah et al., 2010).

2.4 Breastfeeding in Malaysia

The national breastfeeding policy was introduced in 1993 by the Malaysian government to support, promote and protect breastfeeding practices in Malaysia (UNICEF, 2008a). The revised Malaysian Breastfeeding Policy was announced in 2006 stating that “All mothers are encouraged to breastfeed their babies exclusively with breast milk from birth until six months of age and thereafter to continue until the child is

two years old. Complementary foods should be introduced when the baby is six months old.” (UNICEF, 2008a). The Ministry of Health, Malaysia has implemented Baby Friendly Hospital Initiatives and Code of Ethics of Infant Formula to promote and protect breastfeeding practice in Malaysia (Ministry of Health, 2005). The Baby Friendly Hospital Initiatives was launched in 1993 and the first Baby Friendly Hospital Initiatives hospital was developed in 1995. A total of 116 out of 128 government hospitals under Ministry of Health had implemented Baby Friendly Hospital Initiatives by end of year 2006. There are six private hospitals, two government hospitals under the Ministry of Defense and two government hospitals under the Ministry of Education that were designated Baby Friendly Hospitals in 2006 (Ministry of Health, 2006). The Innocenti Declaration, 1990 and the Innocenti 2005 on the protection, promotion and support of breastfeeding also helped to promote, protect and support breastfeeding among women (WHO & UNICEF, 1990; WHO, UNICEF, & WABA, 2005). Working mothers can continue to breastfeed their babies if they have accurate information, the support from their family and the healthcare system and adequate support from the employers who provide worksite support for breastfeeding (Biagioli, 2004; Zinn, 2000).

Although there are many advantages of breastfeeding and the availability of promotion of breastfeeding given by the Ministry of Health as mentioned above, the prevalence of exclusive breastfeeding for babies below four months had decreased by 9.7% as reported in the Malaysian National Health and Morbidity Survey 3, 2006, in comparison to the findings in the National Health and Morbidity Survey 2, 1996. The prevalence of ever being breastfed among children aged less than two years old was 95.0%; however the prevalence of exclusive breastfeeding below four months was 19.3% and below six months was 14.5 % (Fatimah et al., 2010). A large cohort study done in Sabah (sample size 2,072) found that the rate of breastfeeding initiation was 95.6% while the percentages of ‘full breastfeeding’ were 67.2%, 49.8% and 36.1% at

one, four and six months respectively while ‘any breastfeeding’ rates were 95.9%, 88.2% and 80.7% respectively at similar age. In this study, full breastfeeding include exclusive and predominant breastfeeding (Aza Sherin, 2013). Another study done in Selangor (cross-sectional study, sample size 682), the prevalence of exclusive breastfeeding were 63.3%, 40.6% and 32.4% at one, four and six months respectively (K. L. Tan, 2009b). Another study done by the same investigator (cross-sectional, sample size 508) in the same area found that the prevalence of ever breastfeeding was 92%, while the prevalence of exclusive breastfeeding at one and four months were 55.1% and 20.5%, respectively (K. L. Tan, 2007). Another study done in a rural area in Kedah in 2005 (cross-sectional study, sample size 115) stated that 99.0% had initiated breastfeeding but exclusive breastfeeding was 21.0%, predominant breastfeeding practice was about 12.2% and complementary breastfeeding was 65.2% at four months (Yadav, 2010). A study in Kuala Lumpur found that the exclusive breastfeeding rate at the first, fourth and sixth months postpartum were 79.6%, 40.5% and 12.3% respectively, while the percentage of mothers who practiced predominant breastfeeding at the first, fourth and sixth months were 7.3%, 10.3% and 1.6% respectively. There were 6.7%, 38.0% and 74.5% of mothers who practiced complementary breastfeeding at one, fourth and sixth months postpartum, respectively. The percentage of mothers who completely stopped breastfeeding was 6.4% at the first month but increased to 11.2% and 11.6% at the fourth and sixth months, respectively (Norzakiah & Nabilla, 2013).

A study on breastfeeding rates during the last decades in a rural area in Kelantan (sample: 566 mothers with children below two years old) was done. In this study, all mothers were Malays and Muslims, almost all (97.3%) breastfed their children and 51.2% were exclusively breastfeeding (282). Analysis according to duration of breastfeeding found that most mothers exclusively breastfed below seven months, 2 to 3 months (57.5%), 4 to 5 months (80.0%), 6 to 7 months (76.1%) except for age one

month and below (35.5%). Over a quarter of mothers who stopped breastfeeding gave the reason of insufficient milk (28.3%), followed by working (19.7%) and mothers becoming pregnant again (16.4%) (Zulkifli, Kyi, & Abdul Rahman, 1996).

It should be noted that in the above studies, the differences in breastfeeding rates may be due to the different tools of questionnaire used to assess the breastfeeding practice, as well as population-level variation.

2.5 Female Labour Force participation rate in Malaysia

With the increasing numbers of females of reproductive age in the Malaysian labour force, issues will arise regarding breastfeeding practice at workplace. The reduction of prevalence of exclusive breastfeeding in Malaysia might be related to the increasing number of women participating in the labour force. The number of working women in Malaysia is 3,656,800 (35.6% of all employed workers) in which the married females are 2,151,600 (58.8% of all of working female) (Department of Statistics, 2006). Labor force participation rates of females in Malaysia are increasing from 45.8% in the fourth quarter of 2006 (Q4/2006) to 46.1% in the first quarter of 2007 (Q1/2007). The report also stated that 58.3% employed females were in the 25-44 years age group (Department of Statistics, 2007).

A recent report from the Malaysian Department of Statistics stated that the total employment in Malaysia among male and female has increased from 10,659.6(000) in 2008 to 12,723.2(000) in 2012. In 2012, the female labor force participation rate was 49.5 % (Department of Statistics, 2013) which is a marked increase from 2006. Female labor force participation rate was 56.7% in Selangor compared to Kedah and Kelantan which was about 44% while in Sabah the rate was 47.6%. The female labor participation rates according to ethnicity in Peninsular Malaysia were 48.1%, 50.2% and 45.5% for Malay, Chinese and Indian, respectively. The female labour participation rate according to ethnicity in Selangor were 56.0% for Malay and Chinese and 49.5%

for Indian (Department of Statistics, 2013). The female labour participation rates in Selangor were higher in all ethnic groups compared to rates in Peninsular Malaysia.

2.6 Factors affecting breastfeeding practices

There are many factors associated with breastfeeding practice. Listed below are factors related to breastfeeding practice as identified in the previous other studies.

2.6.1 Age

A mother's age plays a role in breastfeeding practice either breastfeeding initiation or breastfeeding duration. Some studies found that older mothers have higher breastfeeding rates compared to young mothers. A study in India found that exclusive breastfeeding practice was seen more in the mothers who had married between the ages of 19 to 25 years old compared to those with early marriage between the ages of 14 to 19 years old. According to the researcher, younger mothers were less aware of the importance of breastfeeding for their child and the physical immaturity may also affect the breastfeeding practice (Kameswararao, 2004). A recent study among nurses and midwives in Ethiopia found that older women (36 to 45 years old) were 2.8 times more likely than mothers age 25 years old and less to practice exclusive breastfeeding (aOR = 2.8; 95% CI=2.16,3.24) (Dachew & Bifftu, 2014). Another study done in the US also found that increasing maternal age was significantly associated with the duration of any breastfeeding. However, it was not significant for exclusive breastfeeding as the hazard ratio was 0.97 (95% CI=0.95, 0.98) (Y. Huang et al., 2013). However in a study done in China reported that mothers who were more than 25 years old were less likely to exclusively breastfeed compared to those who were younger, OR=0.58 (95%CI=0.43, 0.79) and for age more than 30 years old compared to less than 25 years old, OR=0.51 (95%CI= 0.34, 0.75) (Qiu, Zhao, Binns, Lee , & Xie, 2009).

In Singapore, mothers aged between 30 to 39 years old were associated with higher breastfeeding duration of two months, OR=1.30 (95%CI=1.04, 1.61) compared to mothers aged between 20 to 29 years old (Foo et al., 2005). A study in an urban polyclinic in Malaysia found that older mothers had longer duration of breastfeeding with 51.6% of mothers in the age group of 41 to 50 years old breastfeeding beyond 12 months (p value <0.05) (C. K. Siah & Yadav, 2002).

2.6.2 Education level

Mother's education levels either lower education or higher education was associated with breastfeeding practice. Many other studies found that higher education was associated with higher breastfeeding rates. In a study done in USA, mothers with higher education were positively associated with exclusive breastfeeding at 3 months, aOR=1.55 (95%CI=1.08,2.21) compared to mothers with high school education (Nnebe-Agumadu, Racine, Laditka, & Coffman, 2016). A study in Nigeria found that mothers with primary education and secondary education were less likely to practice EBF compared to mothers with tertiary education, with OR=0.33 (95% CI=0.13, 0.81) and OR= 0.57 (95% CI =0.29, 1.11), respectively. A longitudinal study done in US, also found that mothers with less education i.e. high school and less and some college, have the higher risk for exclusive breastfeeding cessation within first 6 months compared to college and university graduates, hazard ratio=1.67 (95%CI=1.41,1.99) and HR=1.36(95%CI= 1.20,1.55), respectively (Y. Huang et al., 2013). In Australia, first time mothers who had tertiary education were 1.5 times more likely to be aware of the recommendation for exclusive breastfeeding for six months than those who had a school certificate or less (ARR adjusted for age 1.45, 95% CI =1.08,1.94). This study also found that mothers who were aware of the recommendation had the higher intention to breastfeed their child following the recommended duration(Wen, Baur, Rissel, Alperstein, & Simpson, 2009). In Singapore, mothers with higher education tend

to breastfeed longer. Mothers with degree level of education had the odds of more than 6 higher compared to mothers with primary education mothers, OR=6.42 (95%CI=4.41,9.34). The odds reduced to about 3, OR =2.90 (95%CI= 2.05,4.09) for post secondary education mothers and was greatly reduced to less than 2, OR=1.86 (95%CI:=1.37,2.51) for mothers with secondary education mothers compared to those mothers with primary education (Foo et al., 2005). In a study done in a rural area in Kedah, Malaysia, women with formal education had longer duration of breastfeeding as compared with women with no formal education (p value<0.05) (Yadav, 2010).

A few other studies had found lower education was positively associated with breastfeeding practice. In a study done in Philippines, mothers with higher education level practiced less breastfeeding as compared to mothers with lower education level. This study reported that, as education increases at the post-secondary level, the hazard rate increased. The estimated risk of ceasing breastfeeding was 1.53 times compared to women with no education. The researcher suggested that most of the women with higher education were involved with formal employment (Abada, Trovato, & Lalu, 2001). In Sabah, highly educated mothers had higher odds (1.258) in giving prelacteal feeds than mothers with lower education (Aza Sherin, 2013).

2.6.3 Ethnicity

In many studies, ethnicity was related to breastfeeding practice. In Singapore, though there are Indian, Chinese and Malay ethnicity, a study done in 2001 did not find any statistical significant differences between these ethnics groups and breastfeeding duration at two and six months. Although, the researcher stated that Indians were more likely to breastfeed at two months compared to Chinese, the OR was not significant(Foo et al., 2005).

In Malaysia, ethnicity was observed to be associated with breastfeeding practice. In a study done in Klang, Indians were 4.06 times more likely not to breastfeed

exclusively (95%CI=2.41,6.84) compared to Malays at 4 weeks post-partum while no statistically significant difference were found between Chinese and Malay mothers (K. L. Tan, 2009a). Another study done by Tan in the similar year, found that Chinese women were more likely not to practice exclusive breastfeeding at 6 months compared to Malay women (OR= 18.27, 95% CI=3.95,84.54) however, while there was no statistical significance found between Indian and Malay mothers in similar duration (K. L. Tan, 2009b). In another study done among 682 mother-infant pairs with infants up to 6 months by the same researcher, it was noted that Chinese mothers were less likely to exclusively breastfeed compared to Malay mothers (OR = 0.20, 95% CI= 0.11,0.35). According to Tan, Chinese mothers were less likely to exclusively breastfeed because in Malaysia, it is customary for Chinese mothers to employ an experienced helper to take care of the infant and the household needs during the first month of confinement (Tan K.L., 2011). This finding was supported by a study done in Singapore, in which it is a culture for Chinese to have a confinement nanny, someone who provides infant and maternal care at the woman's home and they frequently recommended formula milk for the new born (Choo & Ryan, 2016). In another study done in an urban polyclinic in Kuala Lumpur, Chinese mothers were found to have the shortest duration of breastfeeding with a majority of them (61.3%) stopping breastfeeding when their infants were only 3 months old. None of them continued breastfeeding beyond 15 months. The Malay mothers were more persistent with their breastfeeding practice with only 21.7% of them stopping at three months and 15.4% continued to breastfeed even at 24 months and beyond. Among the Indian mothers, 40.9% stopped breastfeeding at three months of the infants' age and 9.1% up to 24 months, (*p* value was <0.005) (C. K. Siah & Yadav, 2002). In another study done among employed mothers in an urban district in Selangor (Petaling district), which comprised Malay, Indian and Chinese mothers, the latter were 3.7 times more likely to discontinue breastfeeding early, aOR= 3.7 (95%

CI=1.7,7.8) and Indian mothers were 7.3 times more likely to discontinue breastfeeding, aOR= 7.3(95% CI =1.9,27.4) (Rahmah et al., 2011). In general, many studies had found that Chinese had lower breastfeeding practice compared to Malay followed by Indian compared to Malay.

In a small cohort study among 30 primiparous Chinese women attendees of the in Municipality Maternal and Child Health (MCH) Clinics Ipoh Perak, one of them intended to bottle feed from birth, and 29 of them intended to breastfeed. All intended to breastfeed exclusively initially, but on followed up it was found that 10 of them breastfed for 1 month and 19 of them breastfed for 6 weeks or more. Thereafter, they intended to change to formula milk feeding and none of them intended to give complementary feeding. A total of 25 out of 30 mothers exclusively breastfed their children however, after 6 weeks, only 4 mothers continued breastfeeding. Out of 19 mothers who intended to breastfeed for more than 6 weeks only 3 mothers were able to achieve their target. According to the researcher, majority chose 1 month as their intended duration to breastfeed as this is the duration of the traditional post-delivery confinement period in the Chinese culture. A total of 75% mothers felt that they required further assistance with breastfeeding while still in the ward but this was not offered and another 17.8% stated that they felt they were being forced by the nursing staff to breastfeed against their wishes. When asked, at 6 weeks post-natal 24(80%) mothers felt that the health staff had adequate knowledge on breastfeeding to help them. It was noted that 10 mothers knew that a breastfeeding policy existed in the hospital and all felt it was too rigid. In this study, mothers did not feel that they were provided adequate support by the health staff during hospitalization and in the community. The reasons for breastfeeding cessation were insufficient milk was the commonest reason (22 of 26), followed by inconvenience (18), returning to work (17), and breast engorgement (15). In this study, the sources of help in infant feeding came mainly from

the family such as mother (21), friends (6), husband (2) and confinement lady (2). In this study, the participants were aware that professional support was available whether while they were in the hospital or after being discharged from the healthcare worker. However they did not seek help and prefer to depend on non-professional advice which sometimes were not positive towards breastfeeding practice (Teh, Chong, Tan, & Ho, 2000).

2.6.4 Household income

Household income had been documented to be associated with breastfeeding practice. In a study in Hong Kong, although higher household income was associated with a higher score in the Breastfeeding Self-Efficacy Scale, higher household incomes were negatively associated with exclusive breastfeeding, aOR = 0.18 (95% CI= 0.04,0.73) (Ku & Chow, 2010). In a secondary analysis of a longitudinal study in the USA, middle income mothers had lower odds to exclusively breastfeed at six months compared to low income mothers, aOR=0.5 (95% CI= 0.38-,0.87) (Nnebe-Agumadu et al., 2016). A study done near Kuala Lumpur stated that mothers with household income more than RM3500 per month had the lower exclusive breastfeeding rates at 4 weeks postpartum aOR=1.90 (95%CI=1.04,3.45) compared to lower household income (less than RM 3500) (K. L. Tan, 2009a). In another study done by similar researcher, similar findings were found in which higher income was associated with less exclusive breastfeeding at 6 months, aOR= 3.68.(95%CI=1.52,12.72) (K. L. Tan, 2009b).

2.6.5 Obstetric factor

Obstetric factors had been documented as a relevant factor associated with breastfeeding practice. In a study in USA, mothers who delivered with caesarian delivery had the lower odds to exclusively breastfeed at 3 months and 6 months with aOR= 0.54;(95 % CI= 0.37,0.79) and, aOR=0.37 (95% CI= 0.17,0.80), respectively

compared to vaginal delivery (Nnebe-Agumadu et al., 2016). In another study done in Kuwait, mothers who delivered by caesarean section were less likely to exclusively breastfeed at discharge from hospital, aOR= 0.15:(95% CI= 0.05,0.43) (Dashti, Scott, Edwards, & Al-Sughayer, 2010). In another cohort study done in Sabah, Malaysia, the method of delivery also showed similar findings in which Lower Segment Cesarean section (LSCS) had lower risk of full breastfeeding practice, aHR= 0.748 (95%CI =0.57,0.97) (Aza Sherin, 2013). A study in Klang, Malaysia, observed that primiparous mothers were almost twice more likely not to exclusively breastfeed at four weeks postpartum (95%CI=1.28,3.05) compared to multiparous mothers (K. L. Tan, 2009b). In another study done by Tan, 2011, found that multiparous mothers were more likely to exclusively breastfeed at 6 months compared to primiparous, aOR=1.68 (95%CI=1.17,2.42) (K.L. Tan, 2011). In a qualitative study done among primiparous mothers to explore the difficulties faced during breastfeeding period, barriers to breastfeeding were challenges and support for breastfeeding in the initial period after birth particularly latching on technique, low degree of support for breastfeeding in the workplace, uneasiness to breastfeed in front of others and emotional and psychological aspects of breastfeeding (Choo & Ryan, 2016).

2.6.6 Infant factor

A study in Singapore found that male babies were less likely to be breastfed at 6 months compared to female babies, OR=0.78 (95%CI=0.62,0.98) (Foo et al., 2005). In Malaysia, a study done in Klang District found that women with male infants were 1.98 times more likely not to practice exclusive breastfeeding (95% CI=1.08,3.87) compared to women with female infants (K. L. Tan, 2009b). In a study done in Australia, mothers with preterm birth ($p = 0.01$) and lower birth weight ($p < 0.0004$) were associated with premature cessation of breastfeeding (Quinlivan, Kua, Gibson, McPhee, & Makrides, 2015). In Kuwait, mothers with infants who were not been admitted to Special Care

Nursery(SCN) were significantly more likely to have initiated breastfeeding (aOR= 5.67, 95%CI= 2.49,12.95) (Dashti et al., 2010).

2.6.7 Breastfeeding factor

A study in Singapore found that mothers who did not breastfeed other children were less likely to breastfeed their baby at six months, OR=0.26 (95%CI=0.13,0.54) compared to mothers who breastfed other children (Foo et al., 2005). In a study done in Australia, mothers who had problems with breastfeeding would prematurely cease breastfeeding as compared with those with no breastfeeding problems. In the above study, women who had breastfeeding problems in the first 24 to 48 hours postpartum were negatively associated with any breastfeeding at 6 months, aOR=0.58 (95%CI=0.41,0.81) (D. A. Forster et al., 2015). An earlier cohort study conducted in Perth, Australia, also found the similar findings in which difficulties in the first 4 weeks were associated with the risk of discontinuing full breastfeeding duration before 6 months and any breastfeeding before 12 months, aHR=1.75 (95%CI=1.35,2.23) and, aHR=1.64 (95%CI=1.29,2.10) respectively (J. A. Scott et al., 2006). In Kelantan, Malaysia, having breastfeeding problems were associated with early discontinuation of exclusive breastfeeding, aOR=1.15(95%CI=1.07,1.24) (Tengku Alina, Wan Manan, & Mohd Isa, 2013).

Bed sharing was also documented to be positively associated with breastfeeding. A study by Tan KL found that bed sharing mothers with infant were more likely to exclusively breastfeed at 6 months compared to mothers who did not practice bed sharing, aOR=1.50 (95% CI=1.12,2.37) (K.L. Tan, 2011).

2.6.8 Early initiation of breastfeeding

Early introduction of breastfeeding was positively associated with breastfeeding practice. In a cohort study in Australia, feeding only directly at the breast in the first 24

to 48 hours of life, was positively associated with any breast milk feeding at 6 months, aOR=1.80 (95CI=1.30,2.49) (D. A. Forster et al., 2015). In a cross sectional study done in Ethiopia among 333 mothers with infants below 6 months, initiation of breastfeeding within 1 hour after birth was positively associated with exclusive breastfeeding below 6 months, aOR=5.46 (95 % CI=1.93,15.41) (Liben et al., 2016). In a study in Kelantan, women who initiated breastfeeding more than 1 hour after delivery had 2.40 times odds of early discontinuation of exclusive breastfeeding compared to those who initiated breastfeeding within 1 hour after delivery, aOR = 2.40(95%CI= 1.26,4.57) (Tengku Alina et al., 2013).

2.6.9 Breastfeeding education

Breastfeeding education either during antenatal, delivery, post-natal, or child health visits to health clinics is another factor associated with breastfeeding practice. In a study done in Ethiopia, mothers who received infant feeding counselling during postnatal care visit were nearly 4 times more likely to breastfeed their infants exclusively compared to those who did not get counselling during postnatal care, aOR= 3.88(95 % CI 1.88,7.99) (Liben et al., 2016). Mothers who didn't receive advice about breastfeeding during antenatal care (aOR= 1.9; 95 % CI=1.0,3.4) were more likely to cease breastfeeding early as compared to mothers who did not receive antenatal breastfeeding advice (Gultie & Sebsibie, 2016). However, in contrast to the findings in Sabah, Malaysia, mothers who did not attend antenatal class was negatively associated with full breastfeeding, aHR=0.80 (95%CI= 0.68,0.95) (Aza Sherin, 2013).

2.6.10 Cultural and belief

Culture and belief in certain communities and ethnic groups also influence breastfeeding practice. In a qualitative study done among Muslim participants in Malaysia, almost all participants felt uncomfortable to breastfeed in public and the

women tried to keep breastfeeding discreet and would prefer that people not knowing that they are breastfeeding (i.e. breastfeeding in prayer rooms, fitting rooms or in the car). As Muslim women are required to cover their full body, all respondents felt the need to breastfeed in a discreet manner, in order to uphold their integrity and modesty as Muslim women. In the Malay culture, breasts are regarded as sexual objects and breastfeeding in public are often seen as deviant behavior. However, some rural women continue to breastfeed in public because in the rural area it is a norm or culturally acceptable to breastfeed their child anywhere and whenever needed by their child (Emma, Abdul Latif, Samsudin, & Latifah, 2013). In a cohort study among 204 women, who were followed up from 32 weeks of gestation up to one month post delivery, in Kelantan, Peninsular Malaysia, it was reported that it was a cultural practice to express and discard the breast milk, therefore, breast milk expression was associated with early discontinuation of exclusive breastfeeding (aOR= 0.38, 95CI=0.20,0.72). In this study, around 11.0% of the respondents introduce water to their new borns in addition to breast milk which was also a cultural practice among Kelantanese women which affected exclusive breastfeeding practice. Reasons given for water introduction were to avoid/treat jaundice, hot weather, no breast milk and to avoid constipation (Tengku Alina et al., 2013). A few other studies reported that culture of giving water had reduced exclusive breastfeeding practice as compared to women without the culture of giving water. In a cross sectional study done in Democratic Republic (DR) of Congo, the main reasons for water supplementation included “heat” and cultural beliefs that water was needed for proper digestion of human milk, as treatment for hiccups and the perception of not enough breast milk (Yotebieng, Chalachala, Labbok, & Behets, 2013). In a cohort study done in Tanzania, 36% of the infants had been given water at the age of one month and this practice increased to 73% by the third month of the infant’s life. About 43% of babies had been

introduced to water during first week of infant's life and thus affecting the exclusive breastfeeding practice. The prevalence of exclusive breastfeeding was 48.8 % at 1 month, 22.0 % at 3 months and 0.2 % at 6 months after delivery (Hussein et al., 2015). However, the above studies did not show any statistical significant relationship of the culture of giving water and exclusive breastfeeding. In a qualitative study done in the district of Pasir Mas, Kelantan, the culture of giving water was a barrier to exclusive breastfeeding as almost all participants fed their infants with plain water, and they believed that it was the right practice. Their main concern was related to the infant's hunger, thirst and constipation (Tengku Alina, Wan Abdul Manan, & Mohd Isa, 2014). Educating the mothers during the antenatal period, delivery period and post natal period is very important to break the cultural practice of giving water in the community.

2.6.11 Social Support

The support of husbands and families are important for mothers to successfully breastfeed their child. A mixed method study done in Jakarta, Indonesia, assessed the role of fathers in helping breastfeeding mothers facing lactation problems, found that husbands played an active role to discuss general, nutrition and health problems of the child. The husband helped with the household chores, therefore more mothers did not experience sore nipple or perceived breast milk insufficiency (Chi-square test, $p < 0.05$) (Februhartanty, Bardosono, & Septiari, 2006). In another study done in USA, women with husband/partner support or baby's father support has the higher chance to exclusively breastfeed at 3 months and 6 months, aOR=1.50 (95%CI= 1.13,1.99) and aOR= 1.72 (95% CI=1.01,2.92) respectively as compared to women with no husband/partner support (Nnebe-Agumadu et al., 2016). A study done near Kuala Lumpur also found a similarity that husband's support was positively associated with exclusive breastfeeding at 6 months, aOR=4.20 (95%CI=1.12,15.75). In a study in Virginia, USA, women who reported their husband or partner as supportive of

breastfeeding (85%) were more likely to continue to breastfeed at 6 months, ($p < 0.01$). Only a small percentage (14%) reported their partner had no opinion on how the baby was fed and less than 2% stated they preferred bottle feeding. Seventy-four percent of mothers responded that their family and friends were positive about the benefits of breastfeeding and supported them. These same mothers were statistically more likely to continue to breastfeed until six months of age, ($p < 0.002$) (Augustin, Donovan, Lozano, Massucci, & Wohlgemuth, 2014).

Mother and mother in law had been documented as having an influence on breastfeeding practice in a few studies. In a study done in a rural area in Australia, women who perceived that their own mother were ambivalent about breastfeeding or preferred formula feeding were 96 % more likely to have ceased any breastfeeding by 26 weeks and more than twice as likely to have ceased any breastfeeding by 52 weeks. In this study, women with such perception had higher risk to discontinue any breastfeeding at 26 weeks and 52 weeks, $aHR = 1.96(95\%CI = 1.08, 3.54)$ and $aHR = 2.05(95\%CI = 1.37, 3.08)$ respectively (Cox, Giglia, & Binns, 2015). In an earlier study done in Australia, babies with grandmothers who preferred breastfeeding had the lower risk to discontinue any breastfeeding below 12 months compared to babies with grandmothers are ambivalent or preferred formula milk, $aHR = 1.92(95\%CI: 1.40, 2.64)$ (Scott et al., 2006). Women with supportive mothers were more likely to exclusively breastfeed up to 6 months as compared to women without mothers' support. Mothers usually will make sure that the best is being done for their children. Usually mothers will assist in the household chores so the women who had just delivered will have more time with their babies. In a qualitative study done in USA, the mothers would support newly delivered women by informing the value of breastfeeding (Grassley & Eschiti, 2008). In another qualitative study done among first time mothers in Southern Ireland, support from the participants' mothers was very helpful as they were involved

in a close relationship with the young mothers and provided direct childcare or became the main carer of the baby (Cronin, 2003). In another qualitative study in Singapore, some mothers felt appreciated when they were supported by family members particularly their own mothers who would always guide and assist them to breastfeed. However, for some mothers they faced challenges to breastfeed as their mother in law and sometimes their own mother would always offer formula milk when they had difficulties to breastfeed and they felt unsupported (Choo & Ryan, 2016).

6.2.12 Knowledge

Good knowledge on breastfeeding will increase breastfeeding practice as compared to poor knowledge. Having good knowledge on breastfeeding is important for mothers to continue breastfeeding. In a study done in Ethiopia, mothers who received postnatal counselling (aOR=3.88; 95 % CI=1.88,7.99) were positive predictors of exclusive breastfeeding. In another study done in another province in Ethiopia, being illiterate (AOR=3.2; 95% CI=1.2,8.3) and no advice during antenatal care about breastfeeding (AOR=1.9; 95% CI=1.0,3.4) were significantly associated with early cessation of breastfeeding (Gultie & Sebsibie, 2016). In another cross-sectional study among 383 lactating mothers in Nigeria who had breastfed for not less than six months and up to two years, there was a significant association between having previous training on breastfeeding and cumulative breastfeeding knowledge score level ($p = 0.013$). In this study, the researcher found that good knowledge was associated with longer breastfeeding practice at least for the duration of 6 months (Mbada et al., 2013).

The finding in this study was also similar to a cross sectional study among 115 mothers in a rural area in Kedah, Malaysia. Mothers who scored more than 50% in more than seven correct answers in the knowledge questions demonstrated a longer duration of breastfeeding as compared to those who answered less than seven correct answers. In a cross sectional study among 508 mothers done in Klang District, they also observed

similar finding in which mothers with good knowledge practice breastfeeding more common as compared to mothers with poor knowledge (ever breastfeeding, $p < 0.001$ and exclusive breastfeeding at 1 month, $p < 0.001$). These findings could be due to the fact that mothers who were aware of the benefits, techniques and complications of breastfeeding would breastfeed longer as compared to those with poor knowledge on breastfeeding as they were not aware of the benefits, the proper technique and complication of breastfeeding (Yadav, 2010). A study in Klang, reported that 71% of all women reported that 'Breast milk is the best' for the infant and this knowledge had an influence on the breastfeeding practice (Tan K.L., 2009b). Having a good knowledge is important for mothers to have good attitude and perceptions towards breastfeeding as well as practice. In another study by the same researchers, the women's knowledge, regarding, 'breastfeeding for three months is considered long enough' scored 78 on a scale of 100, indicating agreement with this item. Most women agreed with the statement that breastfeeding is a good contraceptive method (score = 68) and that breastfeeding decreased diarrhea (score = 89). Good knowledge had an influence on the positive attitude towards breastfeeding. These women found that breastfeeding was easier than using infant formula milk and it was less expensive than feeding infant formula milk with score of 83 and 87 respectively. However, mothers who were not satisfied with the length of the maternity leave and the workplace facilities for breastfeeding and community encouragement towards breastfeeding scored of 34, 26 and 22 respectively (K. L. Tan, 2009b).

2.6.13 Perception

It is important for mothers to have good perception about breastfeeding practice in order for them to practice breastfeeding, particularly exclusive breastfeeding up to the recommended period. In a secondary analysis of a longitudinal study conducted in USA, valuing the benefits of exclusive breastfeeding during pregnancy was a strong

independent predictor of actual exclusive breastfeeding duration. In the above study, the strong value of exclusive breastfeeding was assessed by “strongly agreed” by statement ‘baby should be exclusively breastfed for the first 6 months’, and it had more than twice the odds of exclusive breastfeeding for at least 3 months, aOR= 2.29 (95%CI=1.84,2.85) and for 6 months, aOR=2.49 (95%CI=1.76,3.53) compared to those who did not strongly value exclusive breastfeeding (Nnebe-Agumadu et al., 2016). In Singapore, mothers who viewed breastfeeding as the best infant feeding method were more likely to continue breastfeeding till six months, OR=3.18 (95%CI=1.74,5.82) compared to those who believed in other feeding methods (Foo et al., 2005). Mothers who had good perception of breastfeeding will help mothers to continue breastfeeding practice while those with a wrong perception towards breastfeeding will promote mothers to add either water or formula milk or weaning early or stop breastfeeding practice.

In a qualitative study done in Kelantan, a good perception on breastfeeding such as perception of fulfillment of the mother’s reproductive role to give the best by giving breast milk and increasing their love for their child, breast milk is the gift from God and fulfillment of religious duty, internal feeling such as feeling proud of their ability to breastfeed the baby, feeling joyful and satisfied and knowledge on superiority of breastfeeding as well as breastfeeding requires sacrifice- started early at 1 month to express their breast (as a stock) and planned their time to express their breast milk regularly as well as breastfeeding is feasible to practice although they are working. Those who were not able to exclusively breastfeed had negative perception toward breastfeeding such as the perceptions of inadequate breast milk for their infants and the need to supplement with formula milk or other foods, wrong perception that certain formula milk had similar quality as breast milk, experienced a sense of discomfort and fatigue especially among those who were working, having bad experiences with

previous breastfeeding practice and feeling difficult to express their milk at work and unable to make adjustments (Tengku Alina, Wan Abdul Manan, Zaharah, Rohana, & Nik Normanieza, 2012). The perception of sufficient breast milk is very important to continue breastfeeding so that they will not add water or formula milk to be given to the baby. A cross sectional study in Saudi Arabia found that insufficient breast milk was among the main reasons given by 169 of participants (44%), for stopping breastfeeding before two years (Al-Binali, 2012).

In a recent systematic review done in Saudi Arabia, the most common reason for stopping breastfeeding was insufficient breast milk (Al Juaid, Binns, & Giglia, 2014). In a study done among Lebanese women, several women wanted to introduce formula milk feeding because they felt their infants were not getting enough milk. They introduced formula milk supplementation to satisfy the hunger of the infant as the baby continued to cry after feedings or because the mother was no longer having the engorgement that is commonly associated with breastfeeding in the first few weeks. This study also stated that lack of breast milk was inherited in the family (Osman, El Zein, & Wick, 2009). Similarly, a survey done among 556 mothers in Kelantan, found that the main reason of stopping breastfeeding was insufficient breast milk (28.3%) (Zulkifli et al., 1996). In a recent cohort study done in Kelantan among 210 mothers, gave reason of no breast milk (33.3%) and insufficient breast milk (25.5%) for giving formula milk and water to their babies (Tengku Alina et al., 2013). In another qualitative study done in the same state, the perception of the need to give water was also a barrier and influenced breastfeeding exclusivity (Tengku Alina et al., 2014). Breastfeeding education is important in influencing a mother's perception and attitude towards breastfeeding.

2. 6.14 Attitude

Women's attitude towards breastfeeding plays an important role in influencing their decision to choose the type of infant feeding practice. In a study done in Australia, women with positive attitude will continue any breastfeeding longer compared to women with intermediate or negative attitude toward breastfeeding. The Australian mothers who had Iowa Infant Feeding Attitude Score (IIFAS), <65 , ceased exclusive breastfeeding earlier compared those with higher score at 26 weeks and any breastfeeding stopped earlier at 26 weeks and 52 weeks with $aHR=1.81(95\%CI= 1.30, 2.51)$, $aHR=3.45(95\%CI=2.05,5.81)$ and $aHR=2.38(95\%CI=1.63,3.49)$ respectively (Cox et al., 2015). In an earlier cohort study done in Perth, Australia, breastfeeding duration was positively associated with maternal infant feeding attitudes (J. A. Scott et al., 2006). In a study done in private hospitals in Malaysia, which had not yet implemented BFHI, 62% mixed breastfeeding with infant formula milk and only 30% breastfeed only their baby, while about 8% gave formula milk to their baby. In general, their knowledge on breastfeeding was still lacking, and their attitude towards breastfeeding and choice of infant feeding was influenced by the mother herself (83%) and mothers/mothers-in-law (27%), husband, (16.7%), doctors (14.3%) and nurses (15.9%). From these findings, the attitude of breastfeeding was influenced particularly by their own choice as well as their mothers/mothers-in-law and husbands. The health worker's influence on the breastfeeding practice were still lacking for mothers attending to private hospitals in Malaysia. In this study, the majority's attitude towards breastfeeding was "not so easy", "not so hard" (84%) (Adlina, Narimah, Hakimi, & Mazlin, 2006). In another study done in one of the hospitals with BFHI near Kuala Lumpur, 183 (83.9%) mothers responded positively towards BF. Majority of them 86.2% considered breastfeeding as easy, while 92.2% denied breastfeeding had negative effect on marital relationship, 91.7% did not think that breastfeeding was difficult while

taking care of their family. The commencement of breastfeeding straight after delivery was considered important by 98.6%. Many respondents (68.3%) agreed with the banning of bottles usage and teats in any hospital unless prescribed by the doctor. This suggested that mothers visiting government hospitals with BFHI had positive attitude towards breastfeeding as compared to those attending private hospitals not implementing BFHI (Tan, Choong, Leong, Ng, & Yong, 2008).

2.6.15 Intention to breastfeed

Intention to breastfeed during the antenatal period and postnatal period had documented increased breastfeeding practice. In a cohort study done recently in USA, of the 1799 women who prenatally intended to exclusively breastfeed within the first few weeks postpartum, 34% and 9% exclusively breastfed for at least 3 months and 6 months respectively. In this study, mothers who strongly valued exclusive breastfeeding had over two times the odds of exclusively breastfeeding for at least three months, aOR=2.29(95%CI=1.84,2.85) and six months, aOR=2.49(95%CI=1.76,3.53) compared to mothers who did not strongly value exclusive breastfeeding. Mothers who strongly agreed with the statement of 'babies should be exclusively breastfed for the first 6 months' were considered to have strong values for exclusive breastfeeding (Nnebe-Agumadu et al., 2016). In another study done among 889 mothers in Australia, mothers who never intended to breastfeed up to 6 months or more were less likely to breastfeed at six months, aOR= 0.28(95%CI:=0.18,0.44) as compared to mothers who had the intention to breastfeed at 6 months and more. In this study women who had either an antenatal or postnatal intention to breastfeed up to six months or more were more likely to breastfeed at six months as those mothers who had this intention at both time points. The writer suggested that interventions during pregnancy to increase women's intention to breastfeed such as antenatal breastfeeding education may have an effect (D.A. Forster, McLachlan, & Lumley, 2006). Similar finding was found in a prospective

cohort study comprising 1003 mothers in Melbourne, Australia; mothers with intention to breastfeed more than 6 months were more likely to breastfeed at 6 months $aOR=3.46$ (95%CI=2.39,5.00) (D. A. Forster et al., 2015). In a prospective longitudinal study of 695 women in China, mothers who were undecided on how long to breastfeed, $aHR=1.41$ (95% CI=1.16,1.72), were more likely to terminate lactation within 1 year. This study found that mothers with no intention on how long to breastfeed their baby had ceased breastfeeding early (Tang, Lee, & Binns, 2015). In another cohort study done in Kelantan, it was found that women with longer prenatal intended exclusive breastfeeding duration were less likely to discontinue exclusive breastfeeding at one month after delivery, $AOR=0.80$ (95%CI=0.71,0.91) (Tengku Alina et al., 2013). The intention to breastfeed for longer duration had an influence on mothers to breastfeed longer. Similarly, in another study done in Sabah, Malaysia, mothers with the intention to breastfeed were significantly associated with full breastfeeding and any breastfeeding with $aHR=1.56$ (95%CI=1.11,2.17) and $aHR=1.98$ (95%CI=1.22,3.23) respectively.

2.6.16 Religiosity

In a few studies, certain religious teachings were associated with breastfeeding practice. For the Moslem mothers, this might be related to Islam's stance towards breastfeeding as stated in the Quran (Chapter 2, Verse 233) that 'mothers shall give suck to their offspring for two whole years'. A review on breastfeeding practice among Muslims found that the breastfeeding initiation among Muslim mothers were high. Almost all of Muslim mothers had initiated breastfeeding on the first day of postpartum. The breastfeeding initiation rates were 98% and 77.8% among Turkish and Saudi Arabian mothers, respectively and the breastfeeding rates were also high. Evidence revealed that the breastfeeding rates among Muslim Indonesian, Egyptian, and Turkish mothers were 98%, 95.8%, and 86%, respectively. However, the EBF rates among Muslim mothers were low. The EBF rates were only 9% and 12% among Egyptian

mothers and Saudi Arabian mothers, respectively (Anggraeni, Punthmatharith, & Petpichetchian, 2014).

In a national study done in Singapore, Muslim mothers were 6.7 times more likely to breastfeed their babies at two months, OR= 6.69(95%CI= 2.69,16.65) and two times higher at six months, OR=2.39(95%CI=1.68,3.41) compared to Buddhist/Taoist mothers. Christian mothers were also more likely to breastfeed their babies longer compared to Buddhist/Taoist mothers, at 2 months and 6 months with OR=2.4 (95%CI=1.80-3.32) and OR=2.60 (95%CI=1.80-3.75) respectively. The researcher explained that the variable ethnicity in this study was not significant though religion was found to be statistically significant. The researcher stated that in Singapore among the Malay mothers, all were Muslims whereas among the Chinese mothers, their religion were varied in which about half were Buddhists/Taoists, about a quarter were Christians, and another quarter had no religion (Foo et al., 2005).

A study in Sabah, found that the Buddhists had higher odds (OR=5.06) in to give prelacteal feeds compared to the Muslims, (Aza Sherin, 2013). An earlier study done in Kelantan among Muslim mothers found that the breastfeeding initiation and exclusive breastfeeding rates were high for babies less than 7 months and Zulkifli et al stated that, the finding might be related to the Islamic religious belief as stated in the Holy Quran that 'a mother shall breastfeed her child for two years' (Zulkifli et al., 1996). In a qualitative study done among Muslim participants in Malaysia, all respondents felt the need to breastfeed in a discreet manner, in order to uphold their integrity and modesty as Muslim women and some participants viewed breasts as sexual objects and breastfeeding in public as improper behavior. Nevertheless, women in the rural group had positive experiences breastfeeding in public places and felt strongly that the society support breastfeeding mothers as they felt that breastfeeding was important for their baby. Most women in the city groups felt uncomfortable with breastfeeding in

public and felt that society was not ready to accept it in public discourse as some of their own negative experiences when breastfeeding in public (Emma et al., 2013). Therefore, breastfeeding room or private area for breastfeeding should be provided in the public areas such as in shopping malls or rest areas particularly targeting city women to continue breastfeeding practice.

2.6.17 Pacifier usage

Pacifier usage had been documented to reduce breastfeeding practice. Secondary analysis of a nationwide study in Malaysia involving 2147 mothers, showed that the prevalence of pacifier use was 32.9% which was about one third of the study participants. In this study, Chinese children and those living in the urban area reported significantly higher usage of pacifier with 53.2 (95% CI= 47.5,58.7) and 35.1 (95% CI= 32.5,37.7) respectively. Those who used pacifier had significantly shorter breast feeding duration (11 weeks) compared to those who did not use pacifiers (18 weeks) ($p<0.01$) and non-pacifier users were significantly associated with exclusive breastfeeding, aOR=8.3(95%CI=3.02,22.97). In the above study, the pacifier usage was not associated with acute respiratory illness (Siti, Joanita, Nisa, Balkish, & Tahir, 2013). Similarly, in a cohort study done in Australia among 587 women who were recruited in hospitals in Perth and were followed up by telephone interview at 4, 10, 16, 22, 32, 40, and 52 weeks postpartum of introduction to a pacifier, had found a negative association with breastfeeding duration. The risk of discontinuing full breastfeeding duration before 6 months and any breastfeeding before 12 months among infants who were introduced the pacifier at the age of less than 4 weeks of the infants' age was higher compared to no pacifier, aHR= 1.92 (95%CI=1.40,2.64) (J. A. Scott et al., 2006).

2.6.18 Employment

Employment had been documented to be negatively associated with breastfeeding practice as reported in many studies. Non working mothers and mothers who did not have any plan to return to work had higher odds to either exclusively breastfeed or had longer breastfeeding duration compared to working mothers. In a study done in USA, mothers with no plan to return to work had the higher odds to exclusively breastfeed at 3 months and 6 months with aOR=1.61 (95% CI=1.07,2.41) and aOR= 4.26 (95% CI= 1.65,10.99) respectively (Nnebe-Agumadu et al., 2016). Working was also negatively found to be associated with exclusive breastfeeding. A study done in Klang showed that non working mothers were 3.5 times more likely to exclusively breastfeed compared to working mothers (OR =3.66(95% CI= 2.45-5.46)) (K.L. Tan, 2011). Study done in Kuala Lumpur also found that the reason given for breastfeeding cessation was returning to work (Norzakiah & Nabilla, 2013). A large cohort study done in Sabah also found that employment status was inversely associated with full breastfeeding duration (aHR=0.760(95% CI=0.621,0.931)) (Aza Sherin, 2013). In another study done among 566 mothers in a rural area in Kelantan found that 19.7% gave the reason for breastfeeding cessation was mother was working (Zulkifli et al., 1996). Many studies done abroad, showed that working or employment had a negative effect on breastfeeding outcome especially breastfeeding duration, prevalence or time frame (DeRose, 2003; Fein & Roe, 1998; Hawkins et al., 2007; Kimbro, 2006; Kuo et al., 2008; Ong et al., 2005; Ryan et al., 2006). However, the negative effect mainly affect the full time and longer working hours, the fab or manual work or administrative workers as compared to self employed, part time, professionals or agricultural workers where they have flexible working hours to enable them either to express their breast milk, or breastfeed their babies or brought their babies to work. A review of four studies in Saudi Arabia also found that working mothers breastfed less frequently and had

shorter duration than non working mothers (Al Juaid et al., 2014). In a qualitative study done in Australia among Indian Immigrants, employment was also found to be the reason for breastfeeding cessation. In this study, women in paid employment felt that they had to cease breastfeeding before resuming work. The women had started weaning their infants prematurely during maternity leave by giving bottle feeds to the baby. They also felt that expressing breast milk was seen as time consuming and inconvenient (Maharaj & Bandyopadhyay, 2013). In a study done in Australia, age of infant of less than 6 months and 6 months to less than one year when mothers returned to work was associated with the risk for discontinuing any breastfeeding before 12 months, HR=1.69 (95%CI=1.28,2.34) and full breastfeeding before 6 months, HR=1.42(95%CI=1.08, 1.88) (J. A. Scott et al., 2006).

2.7 Factors Associated with Breastfeeding Practice in Malaysia

A total of 23 recent studies conducted in Malaysia had been reviewed .It included one randomized control (Norzakiah & Nabilla, 2013), three cohort studies (Aza Sherin, 2013; Teh et al., 2000; Tengku Alina et al., 2013), 13 cross-sectional studies (Adlina et al., 2006; Fatimah et al., 2010; Noraini, Nani, Rosediani.M, & Harmy, 2015; Rahmah et al., 2011; C. K. Siah & Yadav, 2002; Siti et al., 2013; A. E. Tan et al., 2008; K. L. Tan, 2007, 2009a, 2009b; K.L. Tan, 2011; Yadav, 2010; Zulkifli et al., 1996), one mixed method study (quantitative and qualitative study)(Normadiah, Nadhirah, Zurita, Norsuhaily, & Che Suhaili 2015) and five qualitative studies (Chang, Denney, & Cheah, 2015; Emma et al., 2013; Nazatul & Ruby, 2009; Tengku Alina et al., 2014; Tengku Alina, Wan Abdul Manan, et al., 2012) all assessing factors associated breastfeeding practices as well as the motivating factors and barriers related to breastfeeding practice in Malaysia. From the three cohort studies, the study by Teh had the lowest number of participants (30). Though, cohort study was considered as good quality studies, small sample size in study done by Teh limits the study. Out of the

13 cross sectional studies reviewed, only six studies had assessed the predictors of breastfeeding practice (Fatimah et al., 2010; Rahmah et al., 2011; Siti et al., 2013; Tan K.L., 2009a, 2009b; Tan K.L., 2011) which reported the level of confidence interval, while three studies assessed only the *p*-value (C. K. Siah & Yadav, 2002; Tan K.L., 2007; Yadav, 2010). The rest of cross sectional studies only reported the descriptive results without the statistical analysis.

2.7.1 Predictors of breastfeeding practice in Malaysia

From the review, five cross sectional studies found that Malay women were more likely to breastfeed their babies as compared to Chinese and Indian women. Chinese women were the least likely to breastfeed their babies either exclusively or any breastfeeding compared to other ethnic groups. The reason had been explained in paragraph 2.6.3. The other common predictors of breastfeeding were non working mothers and intend to breastfeed. Four studies found that mothers who intended to breastfeed were positively associated with breastfeeding. Three cohort studies reported that mothers who had intended to breastfeed their babies were positively associated with exclusive breastfeeding practice (Tengku Alina et al., 2013), full breastfeeding practice (Aza Sherin, 2013) and any breastfeeding practice (Teh et al., 2000) while one cross sectional study reported similar reason. Four studies found that non working mothers were positively associated with breastfeeding practice. A cohort study which considered as good quality done by Aza in 2013 had found that none working mothers was positively associated with full breastfeeding. The other three cross sectional studies also documented the similar findings.

The other predictors identified from the review were: rural residence, good knowledge, positive attitudes towards breastfeeding, sociodemographic factors such as older mothers, formal education, high household income, vaginal deliveries, multiparous women, term, female and normal birth weight infant. All these factors were

positively associated with breastfeeding practice. In addition, women with husbands' support, women who practice bed sharing, mothers who initiated breastfeeding less than one hour after delivery, attending breastfeeding class, women who received advice from health care providers, women who received telephone lactation counselling by certified counsellors and women who had experienced less breastfeeding difficulties and women who did not smoke were also positively associated with breastfeeding practice. Table 2.1 showed the positive factors associated with breastfeeding practice in Malaysia.

Table 2.1 Factors associated with breastfeeding practice in Malaysia

Factors associated with breastfeeding practices	References
Intend to breastfeed	(Aza Sherin, 2013; A. E. Tan et al., 2008; Teh et al., 2000; Tengku Alina et al., 2013)
Malay ethnicity compared to Chinese and Indian	(Rahmah et al., 2011; C. K. Siah & Yadav, 2002; K. L. Tan, 2009a, 2009b; K.L. Tan, 2011)
High household income	(K. L. Tan, 2009a, 2009b)
Maternal age-older age	(C. K. Siah & Yadav, 2002; Yadav, 2010)
Formal Education	(Yadav, 2010)
Non working mother	(Aza Sherin, 2013; K. L. Tan, 2009a, 2009b; K.L. Tan, 2011)
Knowledge on breastfeeding	(Noraini et al., 2015; A. E. Tan et al., 2008; K. L. Tan, 2007)
Positive attitude	(Adlina et al., 2006; Noraini et al., 2015; A. E. Tan et al., 2008)
Husband support	(Aza Sherin, 2013 2; K.L. Tan, 2011)
Methods of delivery(vaginal vs LSCS)	(Aza Sherin, 2013)
Delivered in government hospital as compared to private hospital	(C. K. Siah & Yadav, 2002; K. L. Tan, 2007)
Term infant	(K. L. Tan, 2009a; K.L. Tan, 2011)
Birth weight more than 2500 grams	(K. L. Tan, 2009a)

Table 2.1 Factors associated with breastfeeding practice in Malaysia(continue)

Factors associated with breastfeeding practices	References
Female infant	(K. L. Tan, 2009b)
Multiparous mothers	(K. L. Tan, 2009a; K.L. Tan, 2011)
Mothers who attend breastfeeding class	(Aza Sherin, 2013)
Advice from health care providers	(Adlina et al., 2006)
Initiated breastfeeding less than one hour after delivery	(Tengku Alina et al., 2013)
Not experience breastfeeding difficulties	(Tengku Alina et al., 2013)
Express breast milk	(Tengku Alina et al., 2013)
Rural residence	(Fatimah et al., 2010; Siti et al., 2013; K.L. Tan, 2011)
Not using Pacifier	(Siti et al., 2013)
Mothers who practice bed sharing	(C. K. Siah & Yadav, 2002; K. L. Tan, 2009a; K.L. Tan, 2011)
Non- smoking mothers	(K. L. Tan, 2009a; K.L. Tan, 2011)

2.7.2 Reasons for breastfeeding cessation in Malaysia

Various reasons for breastfeeding cessation reported by studies done in Malaysia are listed in Table 2.2. The most common reason of breastfeeding cessation was low or insufficient breast milk which was in six studies, followed by working or return to work. Five studies found that mothers discontinued breastfeeding due to working. Majority of mothers who felt that insufficient breast milk would cease breastfeeding earlier or supplemented the baby's feeding with either plain water or formula milk. Lack of knowledge on breastfeeding might have contributed to for the feeling of inadequate breast milk for their babies. Health education on knowledge of breastfeeding as well as proper technique on breastfeeding should be reinforced during antenatal, post partum post natal follow up in the health clinics. Working or return to work was another

common reason given for breastfeeding cessation as they felt it was difficult to combine work and breastfeeding. Paragraph 2.7.4 had suggested that their barrier at work were non flexible working hours and unavailability of facilities for breast milk expression. The other common reason for breastfeeding cessation was mothers had experienced breastfeeding problems. Breastfeeding difficulties, breast engorgement, nipple sores were the common breastfeeding problems faced by breastfeeding mothers which later caused them to cease breastfeeding.

The other reasons for breastfeeding discontinuation were inconvenience, baby refused breastfeeding, mothers had bad experienced when breastfeeding, mothers experienced discomfort and fatigue, delivered via caesarean section, child is old enough to stop breastfeeding, availability of formula milk and had received sample of formula milk and the child preferred formula milk. Family member's advice to stop breastfeeding, perception that certain formula milk had similar quality of breastmilk, husbands had negative attitudes and mothers were pregnant were other reasons for breastfeeding discontinuation given from the studies reviewed.

Table 2.2 Reason for breastfeeding cessation in Malaysia

Reason of breastfeeding cessation	References
Low or non-existent breast milk supply, insufficient breast milk	(Norzakiah & Nabilla, 2013; C. K. Siah & Yadav, 2002; Teh et al., 2000; Tengku Alina, Wan Abdul Manan, et al., 2012; Tengku Alina et al., 2013; Zulkifli et al., 1996)
Planning to resume working soon after end of confinement	(Norzakiah & Nabilla, 2013)
Return to work	(Norzakiah & Nabilla, 2013; C. K. Siah & Yadav, 2002; Teh et al., 2000; Tengku Alina et al., 2013; Zulkifli et al., 1996)
Inconvenience	(Teh et al., 2000; Zulkifli et al., 1996)
Baby refused breastfeeding	(Norzakiah & Nabilla, 2013) (C. K. Siah & Yadav, 2002)

Table 2.2 Reason for breastfeeding cessation in Malaysia(continue)

Reason of breastfeeding cessation	References
Experience breastfeeding problems (painful nipple, engorgement,discomfort)	(Norzakiah & Nabilla, 2013) (Teh et al., 2000; Tengku Alina, Wan Abdul Manan, et al., 2012)
Experienced discomfort and fatigue	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Bad experience	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Caesarian section	(Tengku Alina et al., 2013)
Child is old enough to stop the practice	(C. K. Siah & Yadav, 2002; Zulkifli et al., 1996)
Sample of formula milk were given to mothers	(C. K. Siah & Yadav, 2002)
Availability of formula milk and child prefer formula milk	(Zulkifli et al., 1996)
Family member's advice to stop breastfeeding	(C. K. Siah & Yadav, 2002)
Perception of certain formula milk has similar quality with breast milk	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Feeling difficult to express their milk at work	(Tengku Alina, Wan Abdul Manan, et al., 2012)
High percentage of husband negative attitude-shyness, affect relationship with child and wife, more than 90% of fathers in both groups did not agree to help their wife doing household chores	(Noraini et al., 2015)
Mother pregnant	(C. K. Siah & Yadav, 2002; Zulkifli et al., 1996)

2.7.3 Facilitating factors for breastfeeding practice in Malaysia

The facilitating factors for breastfeeding practice in Malaysia included personal factors, social support and mothers' knowledge which are listed in Table 2.3. Two studies found that personal factors such as feeling that breastfeeding was God's gift for their babies and it was their duty to fulfil their religious obligation by breastfeeding. Eventhough study by Tengku Alina et al , 2015 only include Malay participants who

were all muslims and the study by Chang was done in Sarawak among aboriginal natives, their finding were similar. The other personal factors involved were mothers felt that they were needed by the baby when they breastfed and they felt that breastfeeding will increase their love for their babies. Although some mothers felt that breastfeeding required their sacrifice, strong personal factors such as mothers responsibility to give the best for their babies and fulfil their maternal role, having positive internal feeling when breastfeeding their babies as well as increase their physical bonding with babies. All these factors were facilitated them to breastfeed their babies. The other personal factor was the feeling breastfeeding was feasible to be practiced by increasing their knowledge on breastfeeding through reading and sharing experiences with other colleagues as well as proper planning and adjustment for breastmilk expression or breastfeeding particularly before and after they have returned to work (Tengku Alina, Wan Abdul Manan, et al., 2012)

The other facilitating factors found from the review were social support from their husbands, mothers, relatives and friends. Positive social support from them facilitated women to breastfeed their babies either by having assistance to do the house chores, sharing knowledge and experience on breastfeeding and giving advice on the proper technique on breastfeeding. The support from health care workers also facilitated mothers to exclusively breastfeed their babies by giving knowledge on breastfeeding and the proper technique of breastfeeding.

Mothers' good knowledge on breastfeeding had also favoured them to practice breastfeeding. By knowing the superior quality of breast milk and good benefits of breastfeeding their infant further facilitated mothers to initiate and continue the practice. Mothers who had gained the breastfeeding knowledge from health workers, from reading materials, from their own mothers, relatives, friends and from their previous personal experience of breastfeeding another child. Mother to mother support for

breastfeeding was another important factor for women to gain knowledge on breastfeeding.

Table 2.3 : Facilitating factors of breastfeeding practice in Malaysia

Facilitating factors	References
Self-factor- felt needed when breastfed, increase love to baby	(Normadiah et al., 2015)
Fulfillment of reproductive role as a mother	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Mothers responsibility to give the best	(Chang et al., 2015)
Gift from God and fulfillment of religious duty	(Chang et al., 2015; Tengku Alina, Wan Abdul Manan, et al., 2012)
Relations with internal feeling, i.e. feel proud, joyful and satisfied	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Strengthening emotional and physical bonding	(Chang et al., 2015)
Requires sacrifice	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Feasible to practice- through reading, sharing experiences with others and good planning and adjustment	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Supportive husband	(Chang et al., 2015; Nazatul & Ruby, 2009; Normadiah et al., 2015)
Support from mother	(Chang et al., 2015)
Support from health worker	(Chang et al., 2015)
Mother to mother support group(relatives and friends)	(Nazatul & Ruby, 2009)
Superiority of breastfeeding	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Benefits to infant	(Chang et al., 2015; Normadiah et al., 2015)
Started early to express breastmilk and planned time to express breast milk regularly	(Tengku Alina, Wan Abdul Manan, et al., 2012)
Women in the rural group had positive experiences breastfeeding in public places and felt strongly that the society is supportive of breastfeeding mothers	(Emma et al., 2013)

2.7.4 Barriers of Breastfeeding Practice in Malaysia

From the review, three studies (shown in Table 2.4) had found that giving plain water to babies was a common practice. The study in Sabah reported that giving water was a common practice and therefore the researcher had considered full breastfeeding practice as the success of breastfeeding outcome in her study and was not using exclusive breastfeeding practice as the study outcome (Aza Sherin, 2013). Study by Tengku Alina in 2014, found that giving water to babies was a common practice in Kelantan as almost all mothers claimed that there were no issues of mixing breastfeeding and giving plain water to their babies. Majority of mothers had received advice from their husband, own mother, mother in law, friends and other older people to give water to their babies. The reasons of giving plain water to the babies were to reduce hunger, to prevent thirst, to wet the infant's mouth, throat and tongue, to prevent constipation, to train the infant to drink water and lack of knowledge. Another study done by Tengku Alina in 2013 found that another reason for giving water were following nurses' advice, to avoid/treat jaundice and because of hot weather. The common practice of giving water and lack of knowledge that exclusive breastfeeding is adequate for the baby below six months of age were common barriers of exclusive breastfeeding practice in Malaysia. The other barriers identified in a qualitative study done by Emma were social and religious factors. Most women felt uncomfortable to breastfeed in public and would prefer that breastfeeding be a hidden activity. Majority of Malaysian population are Malay and are Muslim. As a Muslim, the breasts were seen as a sexual object and exposing their breasts while breastfeeding in public would be considered as not a good muslim. A study by Nazatul in 2009, found that another barrier of breastfeeding practice were lack of support from the health worker, parents, siblings, unavailability of facilities to express breast milk at workplace and non flexible

working hours. Lack of support at home and workplace would enhance mothers to cease breastfeeding early particularly exclusive breastfeeding practice.

Table 2.4 : Barriers of breastfeeding practice in Malaysia

Barrier	References
The common practice of giving plain water:	(Tengku Alina et al., 2013), (Aza Sherin, 2013; Tengku Alina et al., 2014)
Lack of knowledge on breastfeeding	(Nazatul & Ruby, 2009)
Social factor: -Women felt uncomfortable to breastfeed in public and tried to keep breastfeeding discreet and would rather people not know that they are breastfeeding	(Emma et al., 2013)
Religion factor: In order to uphold their integrity and modesty as a Muslim women, they need to breastfeed in a discreet manne. Breasts were seen as a sexual objects and breastfeeding in public as deviant behavior.	(Emma et al., 2013)
Lack of support from health professionals, parents and siblings.	(Nazatul & Ruby, 2009)
Facilities to express breast milk at work were not available such as place to pump	(Nazatul & Ruby, 2009)
Non flexible working hours	(Nazatul & Ruby, 2009)

2.8 Breastfeeding and employment

A review was done to determine the effect of employment or working status as well as the employment characteristics, breastfeeding policy and workplace breastfeeding facilities on breast feeding practices either breastfeeding duration, breastfeeding initiation, breastfeeding prevalence or breastfeeding timeframe.

Several cohort studies (Aza Sherin, 2013; D. L. Bai, D. Y. Fong, & M. Tarrant, 2015a; R.T. Kimbro, 2006; Mirkovic, Perrine, Scanlon, & Grummer-Strawn, 2014a; Ryan et al., 2006) found that maternal employment had a negative effect on

breastfeeding duration although different studies had different outcome of measurement. Ghana was an exception, where employment had a positive effect on breastfeeding duration (De Rose, 2003). The prevalence of breastfeeding in 1988 according to maternal work characteristics for mothers who were not working was 47.5%, modern employment was 3.3%, traditional employment was 38.5% and agricultural employment was 10.7%. Prevalence of breastfeeding in 1998 according to maternal work for mothers who were not working was 27.%, modern work was 1.5%, traditional work was 45.8% and agricultural work was 25.6% (De Rose, 2003). However, on closer examination, it was noted that, the findings were only positive in the traditional work characteristic but the negative effect was still seen on modern and agricultural characteristics. From the review, one cross-sectional study found the negative effect of employment on breastfeeding outcome in which only 10.6% mothers continued to breastfeed after returning to work (Ahmadi & Moosavi, 2013; Chen, Chi Wu, & Chie, 2006; Dachew & Bifftu, 2014; Danso, 2014 (Tan, 2011 #312; Liben et al., 2016; Rahmah et al., 2011; Sattari, Serwint, Neal, Chen, & Levine, 2013; K.L. Tan, 2011).

For the cross-sectional studies, three studies found the positive effect of employment on breastfeeding practices or duration. The studies in Nairobi, Kenya (Lakati, Binns, & Stevenson.M., 2002) in which the subjects were all employed mothers (53% self-employed and 47% were in formal employment), breast feeding initiation was 99.8% and at 6 months of the baby's age, the prevalence was 92.2% which was comparable with the Kenyan rate of 94.4% at six to nine months reported by United Nation International Children Fund (UNICEF). In this study, the lower socio-economic groups were more likely (53.1%) to take their infants to work, therefore allowing them more time to breastfeed, had a higher breast-feeding rate as compared to women in higher socioeconomic groups who were more likely to be in formal paid employment. Mothers from the higher socio-economic groups usually employed a

'house-girl' as a baby carer and therefore had higher rate of formula milk feeding during working hours though about 4% fed their babies with expressed breast milk (Lakati et al., 2002). The study in Ankara, Turkey, showed a prevalence of exclusive breastfeeding for mothers who work was 68.8%, p value <0.001 as compared to mothers who did not work (47.2%). Based on the results of multivariate logistic regression analysis, the mother's employment, $OR=0.49(95\%CI=0.29,0.83)$ considerably reduced the incidence of complementary foods (Karacam, 2008). The study of employed mothers who were exposed to Women, Infant and Child (WIC) program in the United States of America also found that 87.6% mothers breastfed at 6 months as compared to the national objectives of 50% breastfed at 6 months (Whaley, Meehan, Lange, Slusser, & Jenks, 2002). This study found that employees who were provided with breastfeeding facilities and opportunities at their work place had higher duration of breastfeeding as compared to the national average. From this study, the predictors of breastfeeding duration among the women were intent to exclusively breastfeed ($p<0.001$), delay introduction of formula milk and attendance of breastfeeding support group ($p<0.01$). Although, the cross-sectional studies are considered to be not good quality studies, the positive finding may be due to the characteristics of the working subjects in the study area. For example in Kenya, most of the working mothers were self-employed and they have flexible time to breastfeed their babies (Lakati et al., 2002). However in Turkey, the selection of sample as convenient sampling may make the internal validity questionable (Karacam, 2008). For the Women, Infant and Children study, the availability of worksite breast pumps was found to be factor ($p<0.05$) but the statistical analysis was not done properly to identify whether the finding was due to chance or was it statistically significant (Whaley et al., 2002).

From the review, the variables return to work, work or employment characteristic, working with private sector or public sector, type of occupation, breastfeeding education at workplace, breastfeeding policy, provision of facilities for breastfeeding or breast milk expression, support from employer and other employees and baby arrangement when mother works were associated with breastfeeding practice among working mothers.

2.8.1 Return to work

Return to work had been documented as one of the barriers for working women to continue breastfeeding practice. Longer duration of returning to work is more likely to continue breastfeeding practice either any breastfeeding or exclusive breastfeeding practice. Shorter duration of returning to work was related to early breastfeeding cessation or introduction of formula milk. In a cohort study done in Hong Kong, delay in returning to work (>10 weeks) was associated with lower rate on any breastfeeding and exclusive breastfeeding cessation, aHR=0.78 (95%CI=0.65,0.95) and aHR=0.78 (95%CI=0.65,0.95) respectively, compared to earlier returning to work. Breastfeeding practice among employed women in Hong Kong was very low where only one-third of the participants (32%) were able to combine breastfeeding and employment (Bai et al., 2015a). In a study done in USA, mothers planning to return to work within 6 weeks and return to work between 6 weeks to 12 weeks had lower odds in planning to exclusively breastfeed, aOR=0.60(95%CI=0.46,0.77) and aOR=0.72(95%CI=0.56,0.92), respectively compared to mothers who were planning to return to work after 12 weeks (Mirkovic, Perrine, Scanlon, & Grummer-Strawn, 2014b). In another cross sectional study done among nurses and midwives in Euthopia, resumption of work after 3 months had the higher odds to exclusively breastfeeding, aOR = 1.61(95% CI 1.24, 2.35) as compared to earlier resumption of work. Although, as a health worker, nurses and midwives should have better knowledge, attitude, perception and practice on breastfeeding, earlier

return to work limited their practice to exclusively breastfeed. Education targeting this group of employee is very important in the community as they are seen as the role model by general public (Dachew & Bifftu, 2014). In a cohort study in Taiwan, employed women who returned to work less than 1 month had the lower odds to breastfeeding initiation, aOR=0.71 (95% CI=0.62,0.80) compared to women who never returned to work. Mothers who return to work less than 1 month to 6 months had the higher hazards of breastfeeding as compared to longer and never return to work, aHR=1.49 (95%CI=1.4,1.57) and aHR= 1.26 (95% CI=1.17,1.36) respectively (Chuang et al., 2010). In another study done in the USA, a discrete-time logit model of quitting breastfeeding found that mothers who return to work were more likely to quit breastfeeding, AOR=2.18 (95% CI=1.74- 2.74) (R.T. Kimbro, 2006). In a study done in UK, mothers returning to work less than 3 months had lower risk to breastfeed at 4 months, aRR=0.81(95%CI=0.68,0.96) compared to returned to work at 5 months (Hawkins et al., 2007). In Singapore, non-working mothers were more likely to breastfeed their babies for a longer duration, OR= 2.62 (95%CI= 2.01,3.41). The positive association between returning to work and terminating breastfeeding became more pronounced at 2 months and beyond as working mothers tend to return to the workforce at that time as the maternity entitlement is 8 weeks in Singapore (Foo et al., 2005). Early return to work will determine the mother's decision to either initiate or continue breastfeeding as most mothers felt that they were unable to be with the child when working and therefore they decided to introduce early of formula milk as a preparation and educate the baby to receive formula milk. This situation was particularly related to full time workers with longer working hours as will be discussed below in relation to employment characteristics.

2.8.2 Employment characteristics

From the above finding, although a few studies had found the positive association of employed mother on breastfeeding outcome, majority of other studies found that working or employment had negative effect on breastfeeding outcome especially breastfeeding duration, prevalence or time frame (Aza Sherin, 2013; De Rose, 2003; Sara B. Fein & Roe, 1998; Hawkins et al., 2007; Rachel Tolbert Kimbro, 2006; Kuo et al., 2008; Liben et al., 2016; Ong et al., 2005; Ryan et al., 2006; K.L. Tan, 2011). However, the negative effect mainly affected the full time and longer working hours, the fab or manual work or administrative workers as compared to self-employed, part time, professionals or agricultural workers where they had flexible time either to express their breast milk, or breastfeed their babies or bring their babies to be breastfed while working.

Working full time and longer working hours had been documented to be negatively associated with breastfeeding practice compared to shorter working hours, part time and self-employed as well as unemployed mothers. In a cohort study done in USA among 1488 mothers, part time employment had no effect on breastfeeding duration as compared to non working mothers, the adjusted mean duration was 25.1 weeks for non working mothers, 24.4 weeks for those working 1 to 19 hours per week, and 22.5 weeks for those working 20 to 34 hours per week ($P>0.05$). However, working full time decreased the breastfeeding duration as compared to non working mothers. The women working full time breastfed an average of 16.5 weeks, which was 8.6 weeks less than non working mothers ($P<0.05$). This study found that mothers with shorter duration of working hours were more likely to breastfeed longer compared to those engaged in longer working hours (Sara B. Fein & Roe, 1998). In another cohort study done among 6917 employed mothers in UK, women with part-time employment or self-employment were more likely to breast-feed for at least 4 months than those

with full-time employment aRR =1.30 (1.17,1.44) and 1.74 (1.46,2.07), respectively. In this study, women with longer duration of working hours was less likely to breastfeed at 4 months as compared to shorter working duration (Hawkins et al., 2007). In another cohort study done in Hong Kong, among 1738 mothers who returned to paid employment postpartum and followed up to 12 months of baby's age, women with shorter working hours were less likely to wean from any or exclusive breastfeeding, unadjusted hazard ratios for cessation of any breastfeeding for full time working hours as compared to part time was 1.44 (1.18-1.75). Although after adjustment, the aHR=1.25(0.96,1.64) the finding was not significant as this study suggested that shorter duration of working hours increased breastfeeding duration as compared to full time working hours or office hours (Bai, Fong, & Tarrant, 2015). Similarly, in another cohort study done in USA among 1470 mothers, full time work was associated with shorter breastfeeding duration than part time work (<35 h/week) (28.3 weeks vs. 36 weeks, $p < 0.05$) (Mandal, Roe, & Fein, 2010). In an earlier study done in USA, mothers in part time employment had higher odds to breastfeed at 6 months as compared to those who work full time, aOR=1.50 (95%CI=1.45,1.54)(Ryan et al., 2006). In contrast, a cohort study done among 3697 mothers in Australia found that part-time employment of less than 30 hours per week, or casual employment of variable hours had a strong negative effect on the likelihood of continuing to breastfeed for 6 months, aOR=0.49 (95%CI =0.37,0.64) and aOR= 0.72 (95%CI=0.54,0.97) respectively. The working full time mother had aOR=0.35(95%CI=0.22,0.55) on breastfeeding continuation at 6 months (Cooklin, Donath, & Amir, 2008). Study done by Cooklin et al. compared the breastfeeding duration among full time, part time and casual workers with non working mothers. In a study done in USA, prenatal plans to return full-time work (≥ 30 hours/week vs. part-time) was associated with lower odds of planning to exclusively breastfeed, aOR=0.61 (95% CI=0.51,0.77). The prenatal intention of breastfeeding was

important in the decision to continue practising breastfeeding among employed mothers. Women with the lower intention to return to full time work, it was postulated that less women in this group would practice exclusive breastfeeding after returning to work. (Mirkovic et al., 2014b). Mothers who worked part time and self-employed had more time to spend with their babies and had flexible hours to breastfeed their child as compared to full time worker. Less provision of facilities at work for breastfeeding for full time working mothers would further influence earlier breastfeeding cessation and early introduction of formula milk.

In some studies, the work characteristics were studied to determine which contribute towards the negative effect or positive effects of breastfeeding practices. Identifying these factors can help in future planning, intervention, implementation or developing breastfeeding policy in the work place to improve the breastfeeding achievement among employed mothers. In a large cohort study conducted in United Kingdom among 6917 employed mothers, the employment characteristics were assessed such as employment status, return to employment, number of working hours, working atypical hours, working for financial reasons, working because maternity leave had fully utilised, employers offered any family arrangement, employers offered any flexible arrangement, number of employees, availability of day care and maternity leave as well as maternity leave pay. A few factors were found to affect breastfeeding duration among working mothers. Mothers were less likely to breastfeed for at least 4 months if they returned to work for financial reasons $aRR= 0.86(95\% CI=0.80,0.93)$ or used informal day care arrangements rather than care by themselves or their partner, $aRR=0.81 (95\% CI= 0.71,0.91)$. Mothers were more likely to breastfeed for at least 4 months if the number of employees were more than 25 workers or alone compared to 2 to 24 employees, $aRR=1.60(95\%CI=1.35,1.91)$ and $aRR=1.15(95\%CI=1.05,1.27)$ respectively, their employer offered family-friendly arrangement, $aRR=1.14(95\%$

CI=1.02,1.27) or flexible work arrangements, aRR=1.24 (95% CI =1.00,1.55), or they received Statutory Maternity Pay (SMP) plus additional pay during their maternity leave rather than SMP alone, aRR=1.13(95% CI=1.02,1.26) (Hawkins et al., 2007). In another study done in a semiconductor factory in Taiwan, older age group, lower education, fab work, shift work, inflexible schedule, and not knowing about worksite breastfeeding policies were all associated with the discouragement of breastfeeding initiation ($p<0.001$). In this study, years of employment were negatively correlated to breastfeeding initiation, (>10years compared to less than 6 years), aOR=1.77 (95%CI=1.17,2.67). The increased likelihood of a mother continuing to breastfeed after returning to work was associated with older age, higher education, having less than one-year old child, office work, non-shift work, flexible schedule and knowing about worksite breastfeeding policies (Chen et al., 2006). Although in the above study, non shift work was associated with breastfeeding continuation, this contradict the finding in Kenya, in which at 1 month and 2 months after birth, the mode of work (fixed working hours as opposed to shift work) was associated with exclusive breastfeeding, aOR=0.45 (95% CI= 0.24,0.83) and OR: 0.39 (95% CI 0.21,0.74), respectively (Lakati et al., 2002).

2.8.3 Type of employer

Type of employer was also associated with breastfeeding practice. A study in an urban area in Selangor involving 290 working mothers also found that 57% of mothers who worked in the private sector had ceased breastfeeding as compared to 40% mothers who worked with the government ($p < 0.01$). Women working in the private sector were less likely to continue breastfeeding as compared to those who work in the government sector, unadjusted OR=0.52(95%CI=0.32-0.86) (Amin et al., 2011). Another cross sectional study done among 297 employed mothers in Pakistan also found that government employers provided flexible time to express breast milk (23%) as compared

to the private sector (9%), $P < 0.01\%$. Mothers in the government sector tend to have higher workplace breastfeeding support as compared to private sector due to the job nature. Working in the private sectors such as banks, factories and companies were more rigid and employees had short resting period. In this study, the 3 months maternity leave for government employees was 99% as compared to 81% in private sector employees. The Pakistan public sector also more likely to adopt breastfeeding friendly policies(Soomro, 2015).

2. 8.4 Type of occupation

A few studies had found that the type of occupation was associated with breastfeeding practice. In a study in Taiwan, mother's working as professionals, technicians and other jobs were less likely to continue breastfeeding below 6 months compared to housewife. However, this study did not compare the breastfeeding duration between different employment types. In Kenya, 53% of the mothers were self-employed and 47% were in formal employment. Self-employed mothers commonly spent their day selling at the market or in the retail sector. Majority of self employed mothers were from lower socio-economic group and they were more likely to take their infants to work with them than mothers in the higher socio-economic group. The breastfeeding rate was higher among low socio-economic group, at infants' 6 months of age, the prevalence was 92.2% (95%CI=89.1,95.3), 98.4% among the lower socio-economic group and 87.1% among the higher socio-economic group (Lakati et al., 2002). In Ghana, the prevalence of breastfeeding was higher among traditional workers (45.8%) and agricultural workers (25.6%) compared to modern type of occupations (1.5%) (De Rose, 2003). In a few studies, professional workers had been documented to have higher breastfeeding rates compared to other types of occupations. In a qualitative study done among professional women in UK, although a few barriers particularly, employer and superior's wrong perception on breastfeeding and 'taboo' of breastfeeding in workplace,

out of 20 mothers, 13 mothers continued breastfeeding during working hours, while 2 mothers gave up within 4 weeks after returning to work. A total of 11 mothers, continued until babies were between 6 months and 2 years old. These mothers developed a range of personal strategies to facilitate (while concurrently concealing) breastfeeding, combined with individual and covert support provided by colleagues or friends/ partners either by directly breastfeeding their babies or using expressed breast milk during working hours (Gatrell, 2007). In a recent study in Ghana, 48% of professional working mothers were able to practice exclusive breastfeeding and about 90.5% claimed that work was a barrier to exclusive breastfeeding (Danso, 2014). However, a study in Malaysia, did not find any association between professional and not professional (Rahmah et al., 2011).

2.8.5 Breastfeeding Policy at workplace

The breastfeeding policy is important at workplace to protect and promote working mothers to continue breastfeeding after returning to work as many working mothers either ceased breastfeeding or had to complement breastfeeding with infant formula. Breastfeeding policy at workplace includes provision of longer duration of maternity leave, breaks for breastfeeding and flexible hours to breastfeeding. In certain countries or workplaces, provision of childcare leave or family leave either paid or unpaid promoted longer breastfeeding practice particularly exclusive breastfeeding. In a global comparative study by World Health Organization to assess breastfeeding policy, it was found that globally more than two thirds of the countries had paid breastfeeding breaks (130 countries) and unpaid breaks in 7 countries (4%). Another 25% of the countries, had no policy on breastfeeding break. Provision of breastfeeding breaks had increased the breastfeeding duration. The guarantee of paid breastfeeding breaks for at least 6 months was associated with an increase of 8.86 percentage points in the rate of exclusive breastfeeding ($p < 0.05$) (Heymann, Raub, & Earle, 2013). In a study done in

Pakistan, 12% of the sites were providing breastfeeding breaks, almost 86% of the mothers had received 3 months maternity leave., 15% were provided lighter jobs, 5% were provided information about breastfeeding, less than 1% of the sites had separate lactation rooms, a nursery for childcare, breast milk pump and refrigerator for storing mother's milk (Soomro, 2015). In a study in Iran among employed mothers, 77% has maternity leave more than 6 months, 22% had nurseries, 24% had a suitable physical space for milking and pumping, 34% milked their breasts at their workplace, 78% had been trained for milking and about 49 % were allowed to use breastfeeding breaks. The workplace facilities were higher and maternity leave was longer compared to study in Pakistan. In this study, mothers with maternity leave less than 6 months was associated with usage of formula milk ($p<0.05$)(Ahmadi & Moosavi, 2013). In a cross sectional study done in USA to assess the effect the Affordable Care Act (Karacam), 59% having access to reasonable break time to express milk, 45% had access to a private space, 40% had both break time and private space. In this study, reasonable break time to express milk was associated with exclusive breastfeeding at 6 months while private room to express milk, $aOR=3.81(95\%CI=1.41,10.34)$ and both break time and private room, $aOR= 1.49(95\%CI=1.08,2.06)$ were associated with longer duration of exclusive breastfeeding. This study had shown that the availability of facilities and breastfeeding break policy at workplace can prolong exclusive breastfeeding duration up to 6 months (Kozhimannil et al, 2016). In a study among female physicians, factors associated with breastfeeding duration were not a requirement to make up missed work or call that occurred as a result of pregnancy or maternity leave ($p=0.016$), longer duration of maternity leave ($p=0.005$) and availability of time at work to express milk or breastfeed ($p=0.013$) (Sattari et al., 2013). Although in many studies, longer maternity leave was associated with longer breastfeeding duration, in a study in Malaysia found- that maternity leave of more than 2 months was associated with breastfeeding

discontinuation, $aOR=5.2(95CI=1.7,15.9)$. This might be related to lack of breastfeeding intention to continue breastfeeding when the mother knew they had to return to work after 2 months (Rahmah et al., 2011). In another cross sectional study in Malaysia, only 34% agreed that maternity leave of 2 months is enough to successfully breastfeed their child (Tan KL, 2009b). In a review for breastfeeding policy done in Malaysia, the writer stated maternity leave in Malaysia was lower compared to leave suggested by the International Labour Organization(ILO) standard should not be less than 14 weeks. Duration of maternity leave in Malaysia is comparably low compared to other South East Asian countries. Other South East Asian(SEA) countries such as Thailand, Laos, and Cambodia have longer maternity leave in about 90 days. The length of maternity leave in Vietnam is 4 to 6 months, and 12 weeks in Myanmar and Singapore. The percentage of exclusive breastfeeding for children less than 6 months was 42%, 28%, 24%, 34% and 15% in Indonesia, China, Myanmar, Philippines and Thailand respectively (UNICEF, 2014). The exclusive breastfeeding rate in Malaysia was lowest compared to other SEA countries (14.5% at 4 months). Other countries such as China and Egypt provide 90 days of maternity leave. Maternity leave in Brazil is 120 days. In Europe, Britain and Spain, the maternity leaves are 52 and 16 weeks respectively. However, female employees on maternity leave in Malaysia are fully paid during the coverage period and this provision is much better than Cambodia and Myanmar where wages paid during the coverage or eligible period is 50% and 67% respectively (Hassan & Musa, 2014). In a study done in UK, employer offered family-friendly arrangement, $aRR=1.14$ (95% CI= 1.02,1.27), flexible work arrangements $aRR=1.24(95\% CI =1.00,1.55)$, received Statutory Maternity Pay (SMP) plus additional pay during their maternity leave rather than SMP alone, $aRR=1.13(95\%CI=1.02,1.26)$ were associated with longer breastfeeding duration (Hawkins et al., 2007). California passed a Paid Family Leave (PFL) law when it was enacted on September 23, 2002 as an

additional to Family and Medical Leave Act (FMLA). Although FMLA entitles eligible workers to a maximum of 12 weeks of job-protected leave that can be used for maternity leave, many who need the leave did not utilize it as the limited use of family leave provided by FMLA arises from its limited coverage and the fact that the leave is unpaid. In a study done in California, among working mothers, in which they were offered Paid Family Leave (PFL) for both full-time and part time workers. The eligible workers received up to 6 weeks of partially paid family leave to bond with a new child or to care for a sick family member. There was evidence of an increase of 3–5 percentage points for exclusive breastfeeding through the first 3 and 6 months, and an increase of 10–20 percentage points for breastfeeding through the first 3, 6, and 9 months (R. Huang & Yang, 2014). In a study done in USA assessing breastfeeding law among different race, relative to Whites, Mexican-American infants were 30% more likely to breastfeed for at least 6 months in areas with laws protecting break-time from work to pump, and 20% more likely to breastfeed for at least 6 months in areas with pumping law enforcement provisions. However, relative to Whites, they were less likely to breastfeed at 6 months in areas with provisions to provide break-time from work, aOR=0.6(95%CI=0.5,0.8), private areas to pump at work, aOR=0.6(95% CI= 0.4,0.8), exemption from jury duty, aOR=0.6(95% CI=0.4,0.9), awareness education campaigns, AOR=0.5(95% CI= 0.3–0.8), and pumping law enforcement provisions, AOR=0.6(95% CI=0.5–0.8). Smith et al, 2014, explained further, in USA, many workplace laws were not generalized. These laws only applied to employers with 50 or more employees and not for any salaried people, such as teachers. Thus, workplace laws need to be applied to all workplace environments, including small businesses where African Americans work as well as salaried workers. This explained the observed discrepancy of the breastfeeding rates among those races (Smith-Gagen, Hollen, Walker, Cook, & Yang, 2014).

2.8.6 Success of Strategies for Combining Employment and Breastfeeding

Breast milk expression during working hours and or direct breastfeeding during working had been documented the success strategy for combining breastfeeding and work. In a study done in USA among 810 mothers who worked and breastfed, 43% of mothers pumped milk at work only and 32% fed the infant directly from the breast only. For the outcome of breastfeeding duration, directly feeding from the breast, direct feeding from breast and pumping and pumping only were associated with longer duration compared to neither pumping nor breastfeeding during the work day. Direct breastfeeding had the longest breastfeeding duration while neither direct breastfeeding nor pumping had the shortest duration. This study suggested that to enable direct feeding included on-site child care, telecommuting, keeping the infant at work, allowing the mother to leave work to go to the infant, and having the infant brought to the work site (S. B. Fein, Mandal, & Roe, 2008). In a cohort study done among 60 mothers in USA, mothers who planned to work by 6 months had aOR=7.67 (95%CI=1.86,31.67) to express breast milk at 4 weeks postpartum as compared to women who did not plan to work. The study had claimed that maternal employment was strongly predictive of breast milk expression and their study had shown that mothers expressed who their milk even prior to returning to work (Geraghty, Davidson, Tabangin, & Morrow, 2012). In a cohort study done in Australia among 587 mothers, the risk of discontinuing any breastfeeding at 6 months was lower, aRR=0.71(95%CI=0.52-0.98) among women who expressed breast milk as compared to women who did not expressed breast milk. According to Win et al, 2006, breast milk expression allowed a mother to be away from the baby or and not directly breastfeed the baby which may allow mothers to return to work or undertake some social activities while continuing to breastfeed (Win, Bins, Zhao, Scott, & Oddly, 2006). In a retrospective study done among working mothers enrolled in an Employer-Sponsored Lactation Programme in USA, those who were

provided with private room in the workplace with equipment for pumping, 98% of the women who attempted to express milk at work, expressed milk in the workplace for a mean of 6.3 months and up to 21 months. In the above study, 84% of the women who expressed milk at work were employed full-time and 74% of women who pumped at work were still breast-feeding at 6 months (Ortiz, McGilligan, & Kelly, 2004). In a study done among health workers in Australia, most breastfeeding women used a manual pump (51%) or electric pump (33%) to express, and most used their own pumps (83%) (Weber et al., 2011).

2.8.7 Workplace Breastfeeding Facilities

Provision of breastfeeding facilities play an important role to facilitate success of breastfeeding among working mothers. Nevertheless, many studies found that lack of support from employers to provide adequate facilities for female employees to continue breastfeeding activity or breast milk expression. In a study done in England in 2006, which examined the role of employers in supporting women who wish to breastfeed and work in 4 organizations in England, reported that 80% of women wanted to continue breastfeeding after returning to work, only 37 % of respondents has workplace nursery, 90.7% of respondents required flexible hours for breastfeeding and 36.4% respondents wanted breaks to express and store milk during working hours (Kosmala-Anderso & Wallace, 2006). In a study done in Ghana among professional workers, 17.5% of mothers responded to no proper place to breastfeed at workplace as a challenge to breastfeeding (Danso, 2014). In a study done in Iran, unavailability of suitable physical space for milking was associated with formula milk use compared to availability of space, (p value <0.05) (Ahmadi & Moosavi, 2013).

In a cross sectional study done among 290 working women in an urban area in Malaysia, inadequate breastfeeding facilities at the workplace was a risk factor for breastfeeding discontinuation, aOR=1.8(95% CI=1.05,3.1). In this study, women who

were provided with a refrigerator, were less likely to discontinue breastfeeding practice, OR=0.59 (95%CI=0.37-0.96) as compared to those who were not provided with refrigerator. It was observed that adequate facilities to express breast milk provide supportive environment for working mothers (Rahmah et al., 2011). In another study done in Klang, Malaysia, regarding the attitude towards breastfeeding, only 26% agreed that a workplace should provide designated place for breastfeeding (Tan KL, 2009b). In a study in Australia done among 462 lactation sponsored programme, which included the employees' choice of a class on the benefits of breastfeeding; services of a certified lactation consultant (CLC) and private room in the workplace with equipment for pumping, 97.5% of participants initiated breastfeeding with 57.8% continuing for at least 6 months. In this study, of the 435 (94.2%) who returned to work after giving birth, 343 (78.9%) attempted pumping milk at work, and 336 (98%) were successful. The mean duration of breast milk expression was 6.3 months (SD = 3.9). The mean age of infants when the mothers stopped pumping at work was 9.1 months (SD = 4.1) (Ortiz et al., 2004). In another study done among employed mothers exposed to workplace accommodation in USA, women with private space and both accommodations (private space and breaks) were 3.8 (95%CI,1.4,10.3) and 1.5 times (95%CI=1.1,2.1) as likely, respectively, to continue breastfeeding exclusively each month. (Kozhimannil, Jou, Gjerdingen, & McGovern, 2016). In another earlier study in USA among women participating in WIC programme, attendance of breastfeeding support group ($p<0.01$) and availability of worksite breast pump ($p<0.05$) was associated with longer breastfeeding duration (Whaley et al., 2002). In a qualitative study done in Kelantan, Malaysia, it was stated that among women who were able to exclusively breastfeed their child up to 6 months, they had started expressing breast milk from early postpartum period (Ismail, Sulaiman, Jalil, Muda, & Man, 2012).

2.8.8 Employer and other employee support

The right support from employer and other employees are important factors for mothers to continue breastfeeding. In a study done among 715 employed mothers working in a breastfeeding friendly workplace setting (providing lactation rooms and breast-pumping breaks) in Taiwan, encouragement by colleagues to use breast-pumping breaks, OR= 1.76 (95%CI= 1.01,3.13) increased the intention to use breast pump break. Encouragement by supervisors increased the use of breast pump break (71.0% vs. 52.9%, $p < 0.0001$). Other associated factors were higher education (OR=2.33), non-clean room worksite (OR=1.51), awareness of breast pumping breaks (OR= 4.70), and greater awareness of the benefits of breastfeeding (OR= 1.08) were significant predictors of the use of breast-pumping breaks after returning to work. However the perception of inefficiency when using breast-pump reduced an employed mother's intention to use breast-pumping breaks (OR= 0.55) (Tsai, 2014). In a cross sectional study done among working mothers in Australia, only 5% of the 493 respondents had been given written or verbal informations from their employer about the option to continue breastfeeding upon their return to work. Support from management and colleagues, 11% (n = 43) and 13% (n = 51) respectively, were also important as an enabler to continue breastfeeding while at the workplace. However, there was no statistical association of support and women's intention to breastfeed or breastfeeding practice (Weber et al., 2011). In a study among female physicians, participant's perception on level of support for her breastfeeding efforts at work from her colleagues (p value <0.05), and program director or chief (p value <0.05) were associated with increase in breastfeeding duration (Sattari et al., 2013). However, in certain workplaces, employers' and other employees' attitude can reduce breastfeeding practice. In a study done among low income mothers in USA, which stated that with their current job scope, the employers might not understand their need to express breast

milk while working. The male boss will label them taking breaks to express breast milk as extra breaks and use it as an excuse. However, a female boss would make combined breastfeeding and work a little easier than working for a male boss. The mothers in the above study also anticipated a lack of breastfeeding support from their co-workers especially the male workers when they make unkind comments on time taken for breast milk expression by these women (Rojjanasrirat & Sousa, 2010). Similar to study above, a qualitative study done among primiparous mothers in Singapore, supervisor's perception of taking time away from work to express milk was associated with inefficiency (Choo & Ryan, 2016). Another qualitative study done among professional employed mother in UK, found that breastfeeding activities at work were considered to be 'taboo'. Mothers had to either cease breastfeeding or conceal their breastfeeding activity. Some employers were non supportive for mothers to continue breastfeeding, and some of male co workers, will discriminates them if they continued breast milk expression at work (Gatrell, 2007). Nevertheless, practice of other worker who breastfed or expressed breast milk in workplace, increased the intent of other female workers to practice similar activity. In a study of 407 employees to assess attitudes towards workplace breastfeeding and/or breast milk expression among employees of a large US corporation that provided a variety of on-site services for breastfeeding, having had a co-worker who breastfed or expressed milk was associated with a 2.4-point increase in average IBA (Index of breastfeeding attitude score) ($p < 0.01$) (Suyes, Abrahams, & Labbok, 2008). Similar to study done by Tsai, 2014, mothers who were able to continue breastfeeding had become the role models as they were successful in breastfeeding their child. Their colleagues asked for their opinions or consulted them about their breastfeeding experience (Wu et al., 2008).

2.8.9 Childcare arrangement during working and breastfeeding

A few studies found that childcare arrangement during working hours was also associated with infant feeding practice. In a study done in UK, use of informal day care arrangements rather than care by the mothers themselves or their partner was negatively associated with breastfeeding duration (AR= 0.81(95% CI= 0.71,0.91) (Hawkins et al., 2007). In another study done in UK, childcare was associated with a reduced likelihood of breastfeeding as compared to being looked after only by a parent. The reduced likelihood of breastfeeding was seen in informal childcare and formal childcare. For informal childcare, both part-time and full-time care was associated with a reduced risk of breastfeeding, whereas for formal care, only full-time formal childcare was associated with a reduced likelihood of breastfeeding. Informal care was defined if the care was provided by a friend, neighbour, grandparent or other relative, babysitter or unregistered child minder; while 'formal' if the infant was cared for in a nursery or childcare centre, or by a registered child minder, nanny or au pair (Pearce et al., 2012). This study, however, did not explore how child care takers act to facilitate or discourage breastfeeding. Similarly, a study in Taiwan stated that one of the independent factors that increased the likelihood of formula milk feeding during the first 1 to 2 months of life was grandmothers or other people who were the main child care takers (Chen, Liu, Merrett, Chuo, & Wan, 2008). In a study in Australia assessing breastfeeding in childcare, found that most childcare services were unaware of the relevant discrimination laws for breastfeeding and some of the childcare facilities may discriminate breastfeeding mothers. Breastfeeding prevalence in childcare services was higher where specific support for breastfeeding was offered (J.P. Smith et al., 2013). In another study done in Australia among female health care worker, 51% of respondents anticipated childcare arrangements that involved only informal care arrangements, 34%, a mix of formal and family-based care and only 15% would use only formal childcare

facilities. Informal arrangement was preferred because it was more convenient when partners and their mother can take care of their child as they have frequent shift changes and working hours is not fixed (Nowak, Naude, & Thomas, 2013). However, this study did not explore the type of childcare arrangement and breastfeeding practice.

2.9 Facilitating factors for mothers to continue breast milk expression at workplace

Apart from the factors described above, a few studies had found that personal factors or mother's internal factors which are good knowledge and good perception on benefits of breastfeeding had facilitated mothers to continue breastfeeding at workplace particularly breast milk expression. In a qualitative study done in USA among 20 working mothers, breastfeeding was seen as a practice that supported their baby's well being and the mothers were satisfied in knowing that their breast milk contributed to the development of their baby (Payne & Nicholls, 2010). Another qualitative study done among low income mothers who planned to breastfeed their infants and already working or planning to return to work full- or part-time after childbirth, most mothers recognized the benefits of breastfeeding for the mothers, the infants' health and employers. A few mothers in the study also stated that commitment and effort as well as plan to accomplish the goal and meet the baby's needs by breast milk expression at work. (Rojjanasrirat & Sousa, 2010). In another study done among nurses in Taiwan, all the participants accommodated and adjusted their work schedule in order to express breast milk although they were very busy (Wu, Kou, & Rin, 2008). In a qualitative study among employed professional workers in Pakistan, noted that positive personal maternal factors such as knowledge about breastfeeding, planning, self-commitment, and open communication, as well as availability of social and workplace support were essential to enable them to combine breastfeeding and working. The presence of support from people in the social network, including family, and child

daycare staff was described as the biggest facilitator for participants in deciding whether to initiate and continue breastfeeding their babies (Hirani & Karmaliani, 2013).

Mothers had to prepare themselves during confinement leave by learning and practicing to express breast milk and stockpiling the expressed breast milk. In a secondary qualitative analysis among women who were able to combine breastfeeding and work in New Zealand, the practices performed by the mothers involved stockpiling breast milk, maintaining milk supply and preparing the baby ready for mothers' absence. They started building up a stockpile of breast milk several weeks prior to their return to work as well as learning techniques of expressing, producing, handling and storing breast milk. After returning to work, they had to maintain milk supply by regular expression at workplace, though they had to sacrifice some of their tea time and part of lunch hours and remaining silent and invisible as a breastfeeding worker (Payne & Nicholls, 2010). Another study done in Kelantan, Malaysia, also stated that among women who were able to exclusively breastfed their child up to 6 months, they had started expressing breast milk from early postpartum period. They were able to exclusively breastfeed while at work as they planned their schedule for regular breast milk expression at workplace, during which most of the time they sacrificed part of their lunch hour break for breast milk expression. They brought to the workplace their own equipments for breastfeeding such as breast pump and cooler for milk storage. Women in this study expressed breast milk either by using breast pumps or hand expression. However, a few of them gave direct breastfeeding as they are working near their house. Strong self motivation, proud and confident about their practice in addition to having good knowledge on breast milk expression and breastfeeding facilitated these mothers continued with exclusive breastfeeding. Lack of facility and negative attitudes towards breastfeeding were barriers to continue exclusive breastfeeding in this study (Tengku Alina, Zaharah, et al., 2012).

2.10 Employment and breastfeeding in Malaysia

In Malaysia, not many studies assessed the association of working and breastfeeding duration. In the earlier studies, only percentage of breastfeeding practice comparing working and non working mothers were assessed. In a descriptive cross-sectional study on breastfeeding practices in a rural area in Northern Perak only stated the percentage of ever breastfed among working mothers were 87.9% and the percentage of ever breastfed among non working mother were 78.8% (Bakar, 1992). The study did not mention about the duration of breastfeeding among the two groups of mothers. Another study done in 1990 stated that breastfeeding initiation proportion was less in working mothers compared to non working mothers in urban (48.6% to 51.4%) and rural area (22.0% to 78.1%) . However the study did not look at the factors associated with breastfeeding duration among working mothers (Mohd, 1990). Other studies done in 1997 on 'Breastfeeding at 6 weeks and predictive factors' by Chye et al. and a study on Breast-feeding and infant feeding practices in selected rural and semi-urban communities in Terengganu also did not examined the relationship of breastfeeding and employment status (Chye, Zarin, Lim, & Lim, 1997; Manan, 1995).

Another study done on breastfeeding practices in Kelantan found that one of the reasons for discontinuing breastfeeding was working mothers factor (19.7%) (Ahmad, Kyi, & Isa, 1996). The second National Health and Morbidity Survey 1996 stated that the prevalence of ever breastfeeding among working mothers was 91.4% as compared to 89.3% in non working mothers. However, the prevalence of exclusive breastfeeding for infants at 4 months and below was less in working mothers (25.4 %) compared to non working mothers (31.3 %) (Health, 1996). Another study done by Chan et al. in 2001 on infant feeding practices, a district hospital in Perak with Baby friendly Hospital Initiatives, found that more non-working mothers (60%) were breastfeeding exclusively at 4 months than working mothers (26%) (Chan & Asirvatham, 2001). However, the

factors determining the breastfeeding duration among working mothers were not explored in both studies. The latest nationwide study, The National Health and Morbidity Survey in 2006 also stated only the general findings on breastfeeding duration among women and there were no data on the association of employment status and breastfeeding duration (Fatimah et al., 2010). In a recent study done in Kuala Lumpur, only stated that the reason for breastfeeding discontinuation was related to returning to work. However, this study did not state the percentage and the assess risk of the association of working mother and non working mother to continue breastfeeding (Norzakiah & Nabilla, 2013). In a cohort study done in Kelantan assessing factors of early discontinuation of breastfeeding did not find any association of mothers work status and exclusive breastfeeding. It stated that 9.8% expressed that they will return to work as the reason for giving infant formula milk (Tengku Alina et al., 2013).

A few studies had found breastfeeding was inversely associated with breastfeeding duration. A large cohort study done in Sabah also found that employment status was inversely associated with full breastfeeding duration, aHR=0.76(95%CI=0.62,0.93) (Aza Sherin, 2013). In another study done in Klang District, Selangor, working mothers were associated with discontinuation of exclusive breastfeeding (Tan,K.I., 2007, 2009a, 2009b; Tan,K.L.,2011). In this study, they only measured the attitude of mothers who were on maternity leave duration for 2 months and the workplace provided designated place for breastfeeding. However, the factors determining the breastfeeding duration among working mothers were not explored in the above studies. In a cross sectional study done in Petaling Jaya, Selangor, among 290 working mothers with children between the age 3 and 12 months, 51% had discontinued breastfeeding in which 54% were breastfed less than 3 months, 35% discontinued between 3 to 6 months and 12% discontinued after 6 months. This study

found that inadequate breastfeeding facilities at the workplace and maternity leave more than 2 months, were factors contributing to breastfeeding discontinuation, aOR=1.8 (95%CI=1.1,3.1) and aOR=5.2(95CI=1.7,15.9) respectively. The study had assessed factors affecting breastfeeding duration among working mothers. However, the study was done in an urban area and the findings might not be generalized to a rural area. This study only examined the factors of any breastfeeding practice and did not explore the facilitating factors to sustain exclusive breastfeeding among working mothers (Rahmah et al., 2011). A qualitative study done in East Coast Peninsular Malaysia, exploring the perception and experiences related to the feasibility, acceptability and safety of breast milk expression among formally employed women in Kelantan, Malaysia, found 3 themes related to breast milk expression which are lack of feasibility of expressing breast milk, negative feelings about expressing breast milk and doubts about the safety and hygiene of expressed breast milk. This study also suggested that strong self motivation to express breast milk at work eventhough there was lack of workplace breastfeeding facility and preparation during confinement were facilitating factors among mothers who were able to combine exclusive breastfeeding and work. However, this study only involved Malay participants and did not include other races and they did not explore the role of baby care takers to facilitate exclusive breastfeeding among working mothers. (Tengku Alina, Zaharah, et al., 2012).

2.11 Theoretical framework

Based on the literature review, the socioecological model was used as the theoretical framework to guide the current study. There are five levels of influence in the Social-Ecological Model which includes microlevel factors which is also known as individual level such as knowledge, attitudes, beliefs, interpersonal level such as family, peers, social networks, associations, organizational levels such as rules, regulations, policies & informal structures, community level such as social networks, norms,

standards and lastly, macrosystem which are structures, policies, systems level such as local, state and federal policies and laws to regulate/support healthy actions (Bentley, Dee, & Jensen, 2003; Raffle, Ware, Borchardt, & Strickland, 2011)

In a report done by (Raffle et al., 2011) and in a study done by (Bentley et al., 2003), the factors affecting breastfeeding were categorized using Socioecological Model as listed below.

2. 111 Individual Level Factors Impacting Breastfeeding

Within the social-ecological model, the individual category includes the history, knowledge, beliefs, attitudes, and experiences of the individual. Ethnicity, maternal age, education, employment, parity and marital status have been widely reported as important factors in breastfeeding. First time mothers are less likely to initiate breastfeeding and continue to breastfeed at 6 months compared to multiparaous mothers as they were more experienced. Intention to breastfeed has been demonstrated to be a strong predictor of breastfeeding initiation. Several studies found that women who had positive attitudes toward breastfeeding and a strong determination were more likely to breastfeed long term. The perceived ease of breastfeeding in comparison to formula feeding and belief that breastfeeding is easier, more satisfying for child and mother, healthier, more natural, more economical, and more convenient were all associated with breastfeeding practice. The review had also found that experiencing problems in the first week of postpartum was shown to negatively impact continued breastfeeding.

Insufficient milk supply is a chronic concern for many women and is among the most frequently cited reasons for discontinuing breastfeeding. Maternal self-efficacy, a woman's belief and self-confidence in her ability to breastfeed, were a good predictors of breastfeeding duration. Knowledge and perception as well as belief were also important personal factors that influence breastfeeding. A woman's particular job can hinder her ability to use a breast pump at work and make it more difficult to continue

breastfeeding for the long term. A woman who works part-time is more likely to breastfeed than a woman who works full-time. Working mothers are just as likely to initiate breastfeeding, but have a lower rate of exclusive long-term breastfeeding. Pacifier use was negatively related to extended exclusive breastfeeding duration. Breastfeeding education and technique demonstration were shown to have a positive impact on breastfeeding success.

2.112 Interpersonal Level Factors Impacting Breastfeeding

The social-ecological model identifies interpersonal factors as an individual's social networks and support systems, such as family, friends and work groups. It is also the set of individuals that make up a woman's social network, such as family, friends and health care providers, among others. It focuses on whether, how and when they talk to each other about breastfeeding or alternative choices (Bentley et al., 2003). The opinions and support of the people who surround an individual everyday can influence the behavior and the attitude of the individual. Friends and family can make breastfeeding easier by providing emotional support and relevant personal experiences or make it more difficult by expressing displeasure or behaving in ways that counter breastfeeding success. Mothers return to work was a barrier to continuing to breastfeed their infant. Mothers returning to work need support from their supervisors and other co-workers. Mothers also need to take frequent breastfeeding breaks. Difficulties of expressing milk at the workplace, can negatively impact a woman's commitment to exclusive long-term breastfeeding.

Family and friends can influence a woman's likelihood to breastfeeding through encouragement and social support. Other than health care workers, the other common source of breastfeeding information comes from family and friends. The family attitudes on breastfeeding have a strong impact on a woman's feeding decision. Research has found that both partners/spouses and the baby's maternal grandmother can positively or

negatively influence breastfeeding. The health providers also need to discuss the benefits of breastfeeding with expecting mothers during prenatal visits. Postdelivery, the health care provider should educate mothers on the proper technique to breastfeed and proper measures should be taken when having breastfeeding problems or difficulties. They also should advise breastfeeding or skin to skin contact just after delivery.

2.113 Organizational Level Factors Impacting Breastfeeding

The social-ecological framework identifies organizational factors as agencies within the health care system that influence an individual's decision to breastfeed. Health care systems, health care plans, local health departments, and health clinics represent potential sources of organizational messages and support for breastfeeding. Individuals working within the organizations, specifically doctors, nurses, midwives, and lactation consultants, are well positioned to support or undermine a woman's choice to breastfeed. Initiation of breastfeeding and the experiences women have in the hospital directly after birth have a critical impact on breastfeeding success. Breastfeeding has been shown to be more frequent and for longer intervals when the mother and child are kept together, and it also decreases the likelihood of formula supplementation. Increased skin-to-skin contact can also positively influence a mother's understanding of her infant's cues, which will aid in breastfeeding. Breastfeeding policies such as providing prenatal breastfeeding education to hospital staff and teaching breastfeeding techniques to new mothers is important such as BFHI.

Providing workplace support and facilities for breastfeeding would also promote breastfeeding practice among working mothers. Many mothers ceased breastfeeding due to lack of organizational support at workplace.

2.114 Community Level Factors Impacting Breastfeeding

Within the social-ecological model, community-level factors are based on community and social environments in which an individual has experiences and relationships such as neighborhoods and places where individuals frequently visit. For example, a perceived lack of support for breastfeeding in a community can send a message that breastfeeding in public is an inappropriate behavior and may deter women from initiating breastfeeding. Conversely, a community which embraces and supports breastfeeding mothers can positively influence women to not only initiate breastfeeding, but also to persist. Breastfeeding support groups and lactation consultants and encouraging women to seek out other women who are or who have breastfed can be an important form of social support and breastfeeding knowledge. The sexualization of breasts in the media has influenced normative beliefs which influence women to feel embarrassed by breastfeeding their infants in public.

2.115 Policy Level Factors Impacting Breastfeeding

The social-ecological model frames local, state, federal policies and laws that regulate or support healthy actions and practices for disease prevention, early detection, control, and management as policy-level factors. Policies at many levels influence decisions to initiate breastfeeding as well as the ability to persist with breastfeeding. Developing national breastfeeding policy and encouragement for work organizations to provide adequate arrangements for breastfeeding mothers will influence breastfeeding practice. Provision of legislation on breastfeeding in public locations and legislation that mandates employer lactation support in the form of space and time to breastfeed and breast pump are essential. In addition, having regulations for child care centers protecting a woman's right to have her child receive breast milk is also important.

2.12 Conceptual Framework

The Conceptual framework of factors affecting breastfeeding practices is shown in figure 2.1 and the conceptual framework of employment factors that are associated with breastfeeding practice among working mothers is shown in figure 2.2. The conceptual framework was based on socioecological model.

University of Malaya

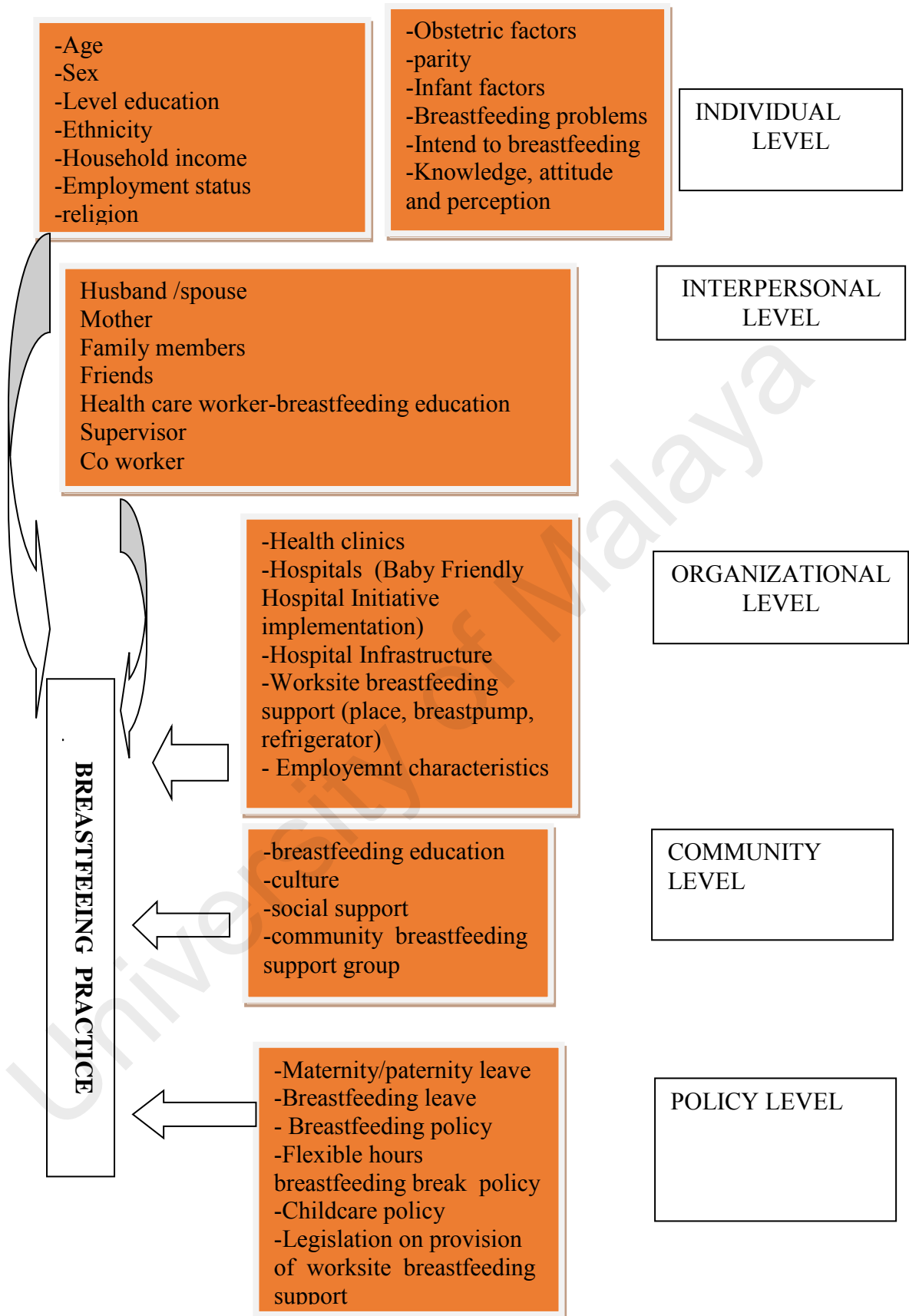


Figure 2.1: Conceptual Framework on Factors Affecting Breastfeeding Practices

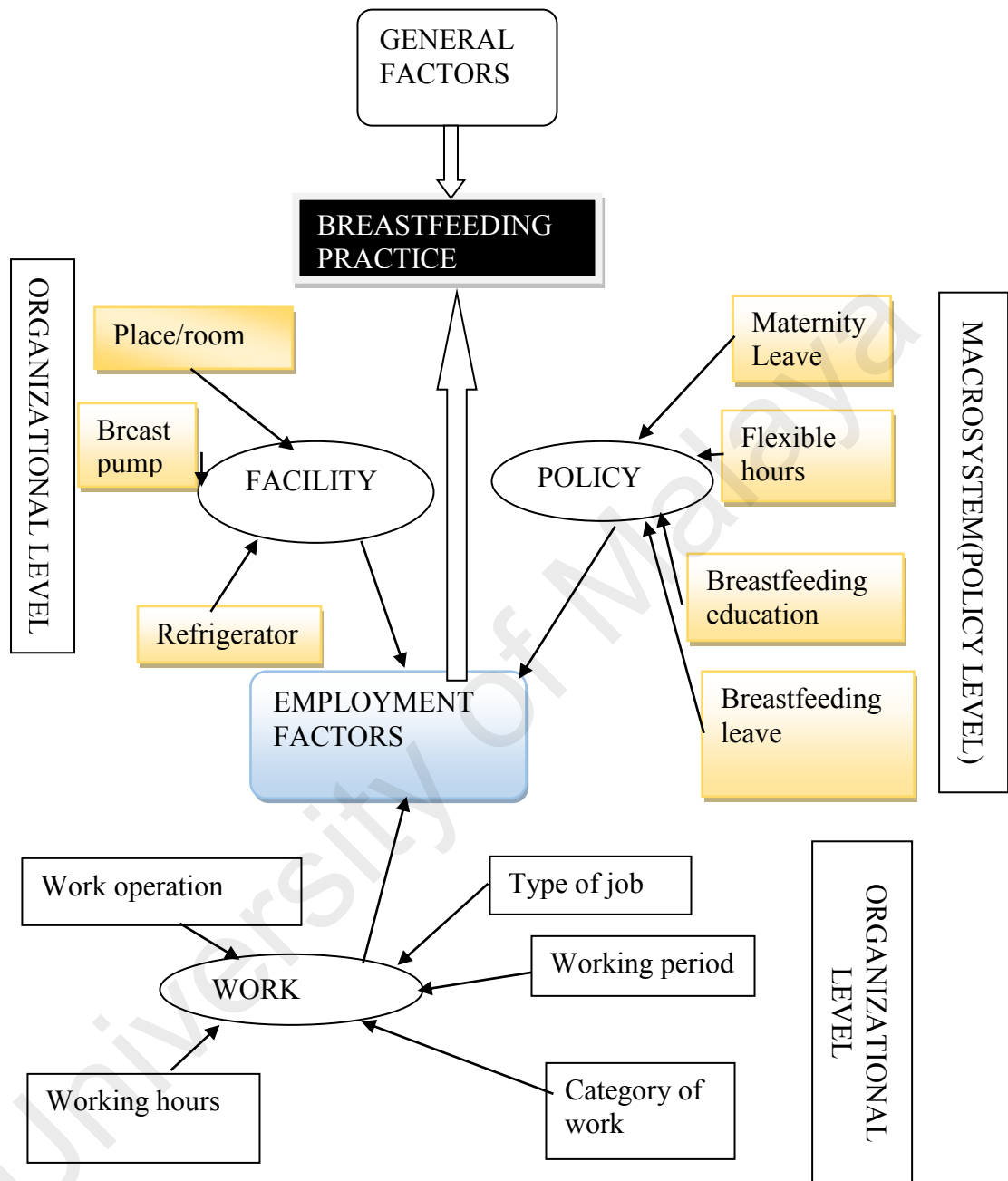


Figure 2.2: Conceptual framework: employment factors that are associated with breastfeeding practice among working mothers

CHAPTER 3: METHODS AND MATERIALS

3.1 Introduction

This chapter will discuss the methodology, the ethical considerations and the limitations of the study. The methods used in this study were divided into two parts; part one and part two. Part one was a quantitative study in which a cross-sectional study was conducted. Part two was a qualitative study and it was conducted based on the findings in part one. A quantitative study helps to identify the general factors affecting breastfeeding duration as well as employment factors affecting breastfeeding duration among working mothers. The qualitative study will explore the facilitating factors of sustaining breastfeeding among working mothers. The study design was chosen to investigate the general factors and employment factors as well as to explore the experience of working mothers to sustain breastfeeding.

3.2 Part One: Quantitative Methods

3.2.1 Study design

This was a cross-sectional questionnaire survey involving mothers with six months old babies who came to government health clinics in Kuala Langat District from 1st February 2010 to 31st December 2010. The study was conducted to determine the prevalence of breastfeeding practice for up to six months and the exposure of breastfeeding practice including breastfeeding support activities in workplace. The objectives could be achieved by this study design because it can be achieved with a short duration and less expensive to perform. However, a cross-sectional study cannot ascertain the temporal relationship between the predictors of breastfeeding duration.

The hypothesis of this study were as follows:

The null Hypothesis: There is no difference in breastfeeding duration between employed mothers and unemployed mothers.

The alternative Hypothesis: There is a significant difference in breastfeeding duration between employed mothers and unemployed mothers.

The null Hypothesis: There is no difference in breastfeeding duration among working mothers who expressed breast milk and working mothers who did not expressed breast milk.

The alternative Hypothesis: There is a significant difference on breastfeeding duration among working mothers who expressed breast milk and working mothers who did not expressed breast milk.

3.2.2 Study area

The study area for this study was the district of Kuala Langat, Selangor, Malaysia. There are 13 states in Malaysia. The state of Selangor has the highest population in Malaysia with a total population of 5,411,324 which is 19.63 per cent of the country's population. It is also among the states that experienced high population growth during 2000–2010 (Department of Statistics, 2010a, 2010b). The Selangor state is also one of the most developed states in Malaysia with higher employment opportunity compared to other states in Malaysia. There are nine districts or administrative areas in Selangor, including Kuala Langat (Department of Statistics, 2010a). It is situated in the southwestern part of Selangor. Kuala Langat district is bordered by the districts of Klang to the north and Sepang to the east (Figure 3.1). Its southern border forms part of Selangor's border with the state of Negeri Sembilan. The Strait of Malacca forms its western border (Authority; Local Authority, 2011). The district covers an area of 885 square kilometers with a population of 242,100 in 2010 (Department of Statistics, 2010a).

Kuala Langat district is one of the rural areas in Malaysia. However the area is developing as it is situated near Putrajaya, the Federal Territory of Malaysia and Kuala Lumpur International Airport. Furthermore the area was linked together by the new highway. There is also a free trade zone area in the district with many industries and factories operating at the same time thus increasing job opportunities in the area. New academic institutions around the area had also increased job opportunities there (Local Authority, 2011).

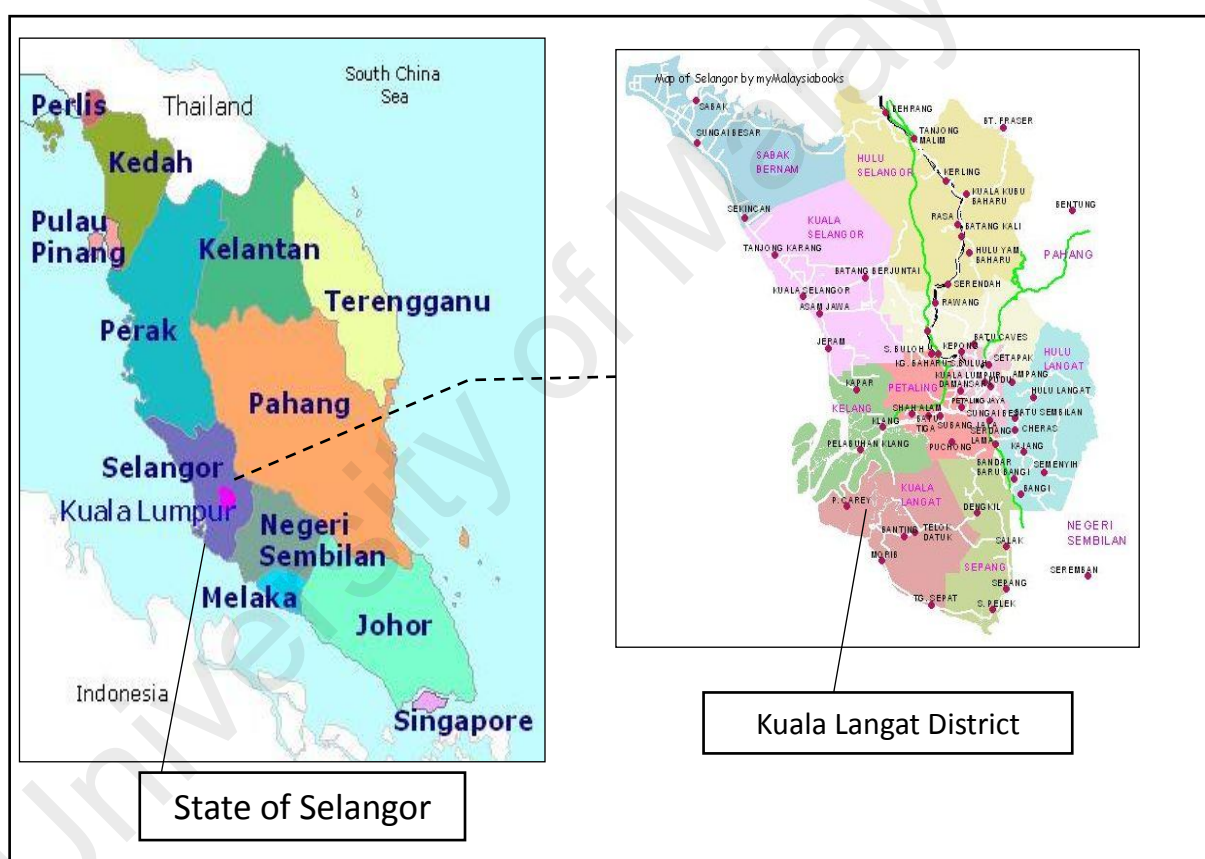


Figure 3.1: Map of Selangor and the Kuala Langat District.

In 2007, 48.6% of the population in Kuala Langat district were between the ages of 15 to 64 years old. There are eight government health clinics, 20 community clinics, 40 private clinics (general practitioner) and four dental clinics in the district (District Health Office, 2007). It was estimated that there were 54,682 females aged 15 to 44 years in the year 2007 in Kuala Langat (District Health Office, 2007)



Figure 3.2: Government Health Clinics and Community Clinics in Kuala Langat District

Kuala Langat district was chosen as the study area due to its low rate of exclusive breastfeeding for six months, which was only 8.7 % in 2008, making it the lowest among all districts in Selangor (Maizatul 2008). The National survey conducted in Malaysia found that the prevalence of breastfeeding was higher in rural areas compared to urban areas (Fatimah et al., 2010). However, despite its status as a rural area, the breastfeeding rates in Kuala Langat district was the lowest among all districts in Selangor. Although Kuala Langat is considered as rural area, another reason for choosing this area as the study area is because of its developing situation as it is situated near Putrajaya, Kuala Lumpur International Airport and there are many new academic institutions which eventually will increase the women labour force participation rate in the area (Local Authority, 2011).

3.2.3 Study duration

The cross-sectional study was conducted over a period of 11 months from 1st February 2010 until 31st December 2010. The reason for excluding January from the survey was that the approval letter from the National Medical Research Registry from Ministry of Health was sent to the researcher on 27 January 2010. The data collection was implemented from 1st February and adequate sample size was achieved in December, 2010.

3.2.4 Study population

The study population comprised of females of reproductive age group residing in Kuala Langat district. The unit of observation was ‘females who brought their six months old child to government health clinics or community clinics in the district’. There are eight government health clinic and 20 community clinics in the area.

In Malaysia, maternal and child health service in government clinics is comprehensive. Pregnant mothers are monitored from the time they register at the government health clinic until the time of delivery. After delivery, once they register for postnatal visit, the midwives or community nurses will visit the women and their babies at home (home visits) to monitor the health status of postnatal mothers as well as their babies. Infant feeding practice is also monitored.

The healthcare worker is scheduled to visit the mothers and babies on day 2, day 3, day 4, day 5, day 10 and day 20 of the baby’s age. At one-month of the baby’s age, the mothers and infants are advised to go to the nearest health clinic or community clinic for postnatal health check-up. Since then, the babies are followed-up monthly until the age of six months to monitor their growth, development and infant feeding practice as well as provision of immunization according to age (Ministry of Health, 2008). Subsequently, the children will be scheduled for check-ups at government health clinics at eight months old up to six years of age (Ministry of Health, 2008). Usually

the babies are brought to the government health clinics or community clinics by their mothers according to the appointment given by the healthcare staff.

In Malaysia, babies at six-months of age were usually given appointment to visit the nearest government health clinics or community clinics for nutritional assessment and the third dose of Hepatitis B immunization. During the study period, all mothers who brought their six-months old babies to the government health clinics or community clinics in Kuala Langat district were invited to participate in the study. Mothers with six-months old babies were chosen to take part in the study in accordance to the World Health Organization suggestion that babies should be breastfed exclusively up to six months (WHO, 2001) and recall bias can be minimized at six months of infant feeding practice. Additionally, there were not many studies done in Malaysia to measure the exclusive breastfeeding practice at the first six months since the introduction of the revised National Breastfeeding Policy in 2006, which changed exclusive breastfeeding up to four months to exclusive breastfeeding up to six months..

The participants who met the inclusion and exclusion criteria and agreed to participate in the study were selected from all government health clinics and community clinics in the district.

The inclusion criteria for this study are Malaysian citizens, regardless of marital status, age 18 years old and above, mothers with six months old baby and had delivered their baby between 1st August 2009 until 31st June 2010, singleton delivery and had not changed their working status from the time of delivery until six months of the baby's age. The exclusion criteria included mothers of children with disabilities, mothers who were unconscious after delivery and were admitted to intensive care unit for one week and more, and mothers who did not accompany the babies during clinic visits.

3.2.5 Study sample

The minimum sample size was calculated using Epi-Info version 6 software. The value was added with another 20% for errors and limitation. The sample size for this study was calculated by using data from a previous study in which the prevalence of breastfeeding among employed mother was used.

For this study, the breastfeeding data among working and non-working mother was taken from a study in Singapore done by Ong et al. (Ong et al., 2005). The proportion of working and non-working mothers was taken from the Department of Statistic of Malaysia data, stating the number of employed female at the aged between 25 to 44 years of age (assumed as the reproductive age group) (Department of Statistics, 2007).

Sample size calculation for a cross-sectional study was conducted using Epi-Info version 6. Setting the confidence level at 95%, power 80%, and the ratio of unexposed:exposed as non-working mothers (41.7%) and working mothers (58.3%) ratio (unexposed: exposed ratio) which is 0.71:1, and the prevalence of breastfeeding with six months duration in working mothers (disease in exposed) is 18.8% and expected frequency of breastfeeding in non-working mothers (disease in non-exposed) is 27.5% , the total estimated sample size was 797 (unexposed- 331 and exposed 446). Another 20% was added to the computed sample size to reduce errors and limitation, particularly to compensate for potential non-response from participants or loss of samples, making up the total sample number of 957.

3.2.6 Sampling technique

The sampling technique used in this study was universal sampling. All females with six months old baby who attended the government health clinics during the study period, who were eligible based on the inclusion and exclusion criteria, were invited to participate in the study.

3.2.7 Study instrument and methods of data collection

The study instrument used was a pre-tested and structured questionnaire. The structured questionnaire was administered face-to-face to participants by the interviewers to mothers with six months old babies.

3.2.7.1 Instruments development

In this study, the questionnaire was developed based on literature review and consultation with breastfeeding experts. Factors affecting breastfeeding practice among mothers such as socio-demographic factors, employment factors, place of delivery, obstetric factors, family characteristics, social support, cultural belief, religion, knowledge and attitude on breastfeeding, infant characteristics as well as paternal factors, were reviewed. (Ahmad et al., 1996; Ameer, Al-Hadi, & Abdulla, 2008; Bakar, 1992; Biagioli, 2004; Chan & Asirvatham, 2001; Chen et al., 2006; Chye et al., 1997; De Rose, 2003; Joan E. Dodgson, Codier, Kaiwi, Oneha, & Pagano, 2007; Sara B. Fein & Roe, 1998; Hall & Hauck, 2007; Hawkins et al., 2007; Health, 2006; Karacam, 2008; Rachel Tolbert Kimbro, 2006; Koon, Peng, & Karim, 2005; Kosmala-Anderso & Wallace, 2006; Kuo et al., 2008; Lakati et al., 2002; Manan, 1995; Mohd, 1990; Ong et al., 2005; Rampal, 2006; Ryan et al., 2006; Sulong & Salim, 2006; A. E. Tan et al., 2008; K. L. Tan, 2009a, 2009b; Whaley et al., 2002).

A closed-response questionnaire was constructed which was designed as an interview schedule to guide the interviewer (Polgar & Thomas, 2008). The questionnaire was reviewed by four experts; a public health specialist who is also a family health lecturer and supervisor, a primary care specialist who worked in the District of Kuala Langat, a nutritionist and a senior nurse who also worked in Kuala Langat District, to assess the content and face validity of the questionnaire. They reviewed the questionnaire to verify whether it sufficiently covered the intended area, and whether it reflected their clinical or professional experience.

The questionnaire was developed in English. It was translated to Bahasa Malaysia, the national language of Malaysia. Back translation from English to Bahasa Malaysia was done by an English teacher. The Bahasa Malaysia version was translated back to English by a post graduate public health student to assess the consistency of the questionnaire.

The questionnaire was pre-tested among 30 mothers, who brought their six months baby to two health clinics in Kuala Langat District from 1st September 2009 to 30th September 2009. This was done to assess the readability and clarity of the questionnaire, the respondent reactions, the duration of interview, and the criticisms and suggestions concerning the questionnaire. A few respondents complained of too many questions and some repetitive questions. The initial questionnaires consisted of 86 questions. It was then refined according to the suggestions, including having a few repetitive and not important questions removed. The amended questions were reduced to 78 questions which were closed ended questions.

The reliability of the questionnaire was assessed by the test-retest method. The test was conducted on 1st December 2009 in one of the health clinics in the district. The retest of questionnaires was conducted two weeks after the first test. Intra-class correlation coefficient (ICC) was used to measure the interval or ratio-scale measurement. For categorical variables, kappa coefficient was used to measure reliability. From this instrument, the correlation coefficient ranged from 0.72 to 0.82 which showed satisfactory agreement and correlation among the two tests.

The questionnaires covered independent and dependent variables that are listed below(Appendix 1):

i. Independent variables

a. Socio-demographic factors

Sociodemographic factors assessed in the questionnaire were mother's age, mother's ethnicity, mother's religious, mother's education level, monthly household income, household size, marital status, and occupational status before delivery as well as current occupational status.

b. Employment variables

Employment variables assessed in the questionnaires were divided into parts which were place of work either private, government or self-employed, job characteristics type of occupation, job designation, duration of working in the same occupation, occupational status or work status, work operation and working hours.

Work policies relating to breastfeeding which were assessed were maternity leave, type of maternity leave, breastfeeding leave, type of breastfeeding leave, paternity leave for husbands, flexible working hours and time breaks for breastfeeding or breast milk expression.

Facilities provided by employer which were nursery provide by employer, breastfeeding education or training at the workplace, workplace provide breast pump, refrigerator to store breast milk in the workplace and a place or room for breastfeeding or breast milk expression.

The questionnaire also included questions on the mother's return to work, child care if the child is not sent to a nursery provided by the employer, whether they express breast milk during working hours, type of breast milk expression used, whether they have their own breast pump and the storage of expressed breast milk. The husband's

employment characteristics were also assessed, particularly the type of occupation and place of work.

c. Place of delivery

Data on place of delivery were collected, including whether they delivered in private or government hospitals, whether they knew the place was a baby friendly hospital, initiation of breastfeeding after delivery, rooming in hospitals, education for breastfeeding after delivery, numbers of days of hospital stay after delivery, package given during discharge and type of package given.

d. Obstetric factors.

Obstetric factors assessed were parity, numbers of children staying together, type of delivery and whether they had complication during pregnancy or delivery.

e. Infant's characteristics

Baby's birth weight and gender were included in the questionnaires to assess the infant's characteristics.

f. Family characteristics

Family characteristics included in the questionnaires were family structure, assistance after delivery, person to share knowledge on child's health or nutrition, partner or husband's support to breastfeed, social support to breastfeed and mother-in-law involvement in making decision to breastfeed.

g. Breastfeeding variables

There were four breastfeeding variables assessed in the questionnaires. The variables were: 1) breastfeeding history which were history of breastfed other child and history of breastfed all children; 2) breastfeeding knowledge assessing the benefits of breastfeeding, breastfeeding technique, breastfeeding expression and storage and breastfeeding problems; 3) attitude towards breastfeeding which were opinion on breastfeeding, intention to breastfeed, breastfeeding in public and encouragement to

others to breastfeed; and 4) breastfeeding education given during antenatal clinic, in hospital after delivery, postnatal, child health follow up, mass media, family, friends and reading material.

h. Social support

Social support assessed were social support from husband or spouse, family members, health personnel, friends and others.

i. Cultural practice and belief

Cultural practice and belief included in the questionnaires were water introduction to the baby, reason for water introduction, breast milk only is enough for baby less than six months, breastfeeding due to religion, food taken by mother affecting breastfeeding and the breastfed baby and type of mother's food affecting the breastfed baby.

j. Lactation problems

Lactation problems assessed were feeling emotionally upset, feeling tired and fatigue, sore nipple, breast engorgement and perception of breast milk insufficiency.

k. Perception of breastfeeding

Perception of breastfeeding assessed in the study were enjoy breastfeeding, bonding with baby, alters breast shape, sleeping disturbance, beneficial to baby and its reason, beneficial to mothers and its reason, and best milk for babies.

ii. Dependant variables

The dependent variables assessed the infant feeding practices by the participant in the study which were ever breastfeeding, still breastfeeding at six months, duration of breastfeeding in weeks if the mothers had stopped breastfeeding (in weeks), water introduction to baby and when it was introduced (baby's age in week), formula milk introduction and when it was introduced (baby's age in weeks), glucose drink/ juice/ other liquid given and time it was introduced (baby's age in weeks), solid food/ semi-

solid food (porridge/ cereals/ fruits) given and when it was introduced (baby's age in weeks).

Type of breastfeeding were categorized according to exclusive breastfeeding, predominant breastfeeding, complementary breastfeeding and not breastfeeding by the researcher according to whether the child was still breastfeeding or not and whether water or pre-lacteal feeding were given or not to the baby and the time it was introduced or given to the baby since birth. WHO questionnaires for breastfeeding type in 24-hours food recall were not used in the study as in some study it was found that it can overestimates the exclusive breastfeeding rates though assessing the feeding from birth will expose to recall bias (Aarts et al., 2000; Bland, Rollins, Solarsh, Van den Broeck, & Coovadia, 2003; Joy Noel-Weiss, 2014). The other classification breastfeeding type in the study was according to exclusive and non-exclusive breastfeeding (predominant breastfeeding, complementary breastfeeding and not breastfeeding).

Likert scale rating was used to assess knowledge on breastfeeding. Items on breastfeeding benefits, breastfeeding technique, expressed breast milk and storage and lactation problems were assessed. Each respondent was asked to rate each item on an agreement scale. In this study, they rate each item from one to five response scale - one for strongly disagree, two for disagree, three for not sure, four for agree and five for strongly agree.

The most common test of whether items are closely related enough is Cronbach's alpha (Garson, 2011). Cronbach's alpha is the most common estimate of internal consistency of items in a scale and it measures the extent to which item responses obtained at the same time correlate highly with each other (Garson, 2011). Initially, there were 11 items on breastfeeding knowledge were used, however two items were deleted as the Cronbach's alpha value were less than 0.70. According to Garson,

cut-off of 0.60 is common in exploratory research however alpha should be at least 0.70 or higher to identify an item in an adequate scale and many researchers require a cut-off of 0.80 for a good scale (Garson, 2011). For this study, the Cronbach's alpha on remaining items were 0.78 which was adequate scale to be used in the study.

The total breastfeeding knowledge items used in the study was nine. The true answer for each item was rated from one to five. It was then added together for all items and the total value of 36 to 45 was considered good knowledge while 35 and below was considered poor knowledge. Total of 36 and above was considered as good knowledge as correct answer was given for each item (either 4-agree and 5-strongly agree).

Likert like scale rating was also used to assess questions on husbands or partner's support on breastfeeding and problems with lactations. The scale used for item on husband's or partner's support were "always", "usually", "seldom", "does not care" and "never". There were four items on the problems and the scales used were "always", "usually", "seldom" and "never". The Cronbach's alpha was 0.88 which was considered acceptable to be used in the study.

The questionnaire was in English and Malay version as Bahasa Malaysia is the national language in Malaysia and the main medium of communication by the population in Kuala Langat District. A translator was provided for participant with language barrier during the interview session.

The interviewers were recruited from non-medical related background. This was done to reduce information bias as some of the mother might not give the true information on the infant feeding practice if they were interviewed by the health staffs or midwives. The interviewers were trained about the questionnaire's information and technique of interview by the researcher. The training session for the interviewers was conducted in two sessions before the study conducted. The questionnaire delivering

technique by the interviewer was rechecked again by the researcher before and during the conduct of the study.

Mothers who were eligible based on the inclusion and exclusion criteria were invited to participate in the study. When the mothers agreed to participate in the study, they were briefed on the purpose of the study and items in patient information sheet (Appendix b) by the interviewer. When the mothers agreed to participate (after being briefed using the patients' information sheet), they were asked to sign a consent form to be interviewed and be involved in the study (Appendix b). Face-to-face interview were conducted in Malay or in English language and it took about 45 minutes to one hour for each participants. Several measurements were taken to ensure no interview bias such as influencing or prompting mother's answer. The interviewer was informed during the training not to influence and prompt the mother to answer during the training session. A trial of an interview session was done during the training to familiarise the interviewers with the questionnaires as well as to supervise their interview technique. The researcher also supervised the interviewers during the conduct of the study.

3.2.8 Flow Chart

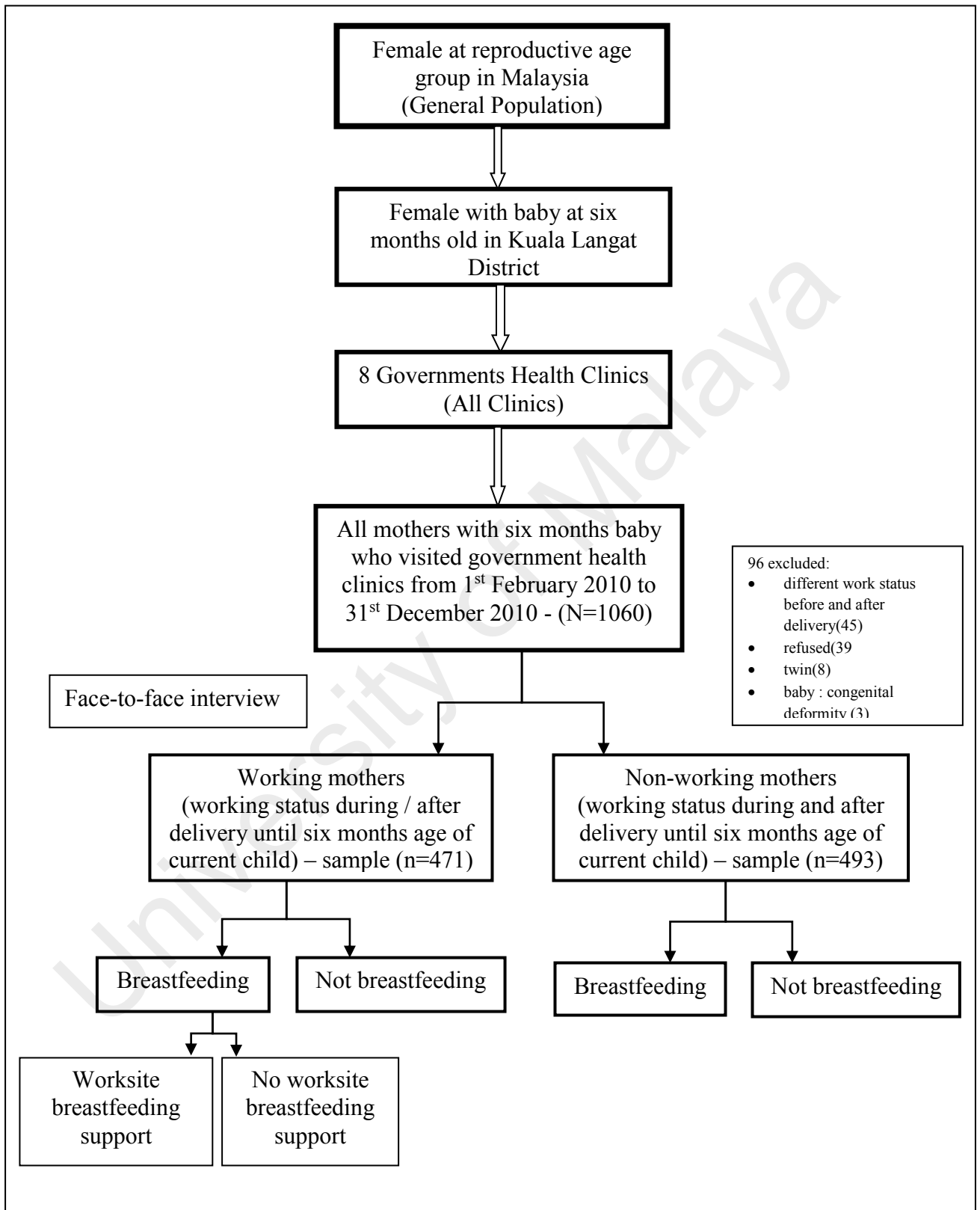


Figure 3.3: Flow Chart of participants involved

3.2.9 Operational definitions

Operational definitions used in the study are as listed below:

a. Working mother:

- According to WHO, working mother is mother with paid employment (WHO, 2003).
- The working status during and after the delivery of current child until six months of baby's age.

b. Non-working mother:

- Housewife/ unpaid workers
- The non-working status during delivery and after the delivery of current child until six months of baby's age.

c. Exclusive breastfeeding:

According to WHO, exclusive breastfeeding means that the infant receives breast milk (including expressed breast milk or breast milk from a wet nurse) and allows the infant to receive ORS, drops, syrups (vitamins, minerals, medicines), but nothing else (WHO, 2007).

d. Predominant breastfeeding:

Predominant breastfeeding means that the infant receives breast milk (including expressed breast milk or breast milk from a wet nurse) and allows the infant to receive certain liquids (water and water-based drinks, fruit juice, ritual fluids), ORS, drops, or syrups (vitamins, minerals, medicines), but nothing else. No non-human milks or food-based fluids are allowed (WHO, 2007).

e. Complementary feeding

Breast milk (including milk expressed or from a wet nurse) and any other fluid or food including non-human milk (WHO, 2007).

f. Ever breastfeeding

Children less than 12 months who were ever breastfed (Health, 2008).

g. Non-Exclusive Breastfeeding

Child who either predominantly breastfeeding, complementary breastfeeding or not breastfeeding (K. L. Tan, 2009a).

3.2.10 Data Entry and Data Analysis

The data were coded and entered into Statistical Package for Social Science (SPSS) version 15 statistical software. Double data entry was performed by the researcher. The data cleaning was also performed. Exploratory data analysis was performed to assess data accuracy and missing values. Frequency tables and histograms were used to identify univariate outliers. Participants were reached via phone calls to verify confusing statements and also to obtain some of missing data by the researcher.

The data was analyzed by using Statistical Package for Social Science (SPSS) version 15 statistical software. Descriptive statistic were computed to identify the percentage of participants, infant and husband characteristics including socio-demographic factors, employment factors, place of delivery, obstetric factors, family characteristics, social support, cultural belief, religiosity, knowledge, attitude and practice on breastfeeding as well as infant feeding practices. Variables were described as mean or median with standard deviation for continuous variables and frequency as well as percentage distribution for categorical variables. The distribution of infant feeding practices by independent variables was tested using the chi-square test.

Inferential statistics used in the study were independent t-test and chi-square. Independent t- test was used to analyze the continuous variable, while chi square was used to analyze the categorical variables, the *p*-value at 0.05 was set as significant level. Frequency tables and histograms were used to identify univariate outliers. For data that is not normally distributed, non-parametric methods were used.

The data on ever breastfeeding and still breastfeeding at six months of baby's age as well as the proportion of sample with worksite breastfeeding support and no worksite breastfeeding support were analyzed using chi-square test. The duration of breastfeeding among working and non-working mother was analyzed using the mean duration as well as the independent t-test. The duration of breastfeeding at six months (breastfeeding and not breastfeeding/ exclusive breastfeeding and non-exclusive) among working and non-working mother was also analyzed using chi-square test as the duration was categorized to certain age groups of the children. The findings with P-value less than 0.05 was considered significant. Odds ratio and 95% confidence interval were calculated for all the independent variables and breastfeeding duration at six months as well as exclusive breastfeeding at six months. The 95% confidence interval was used in the study to identify the precision of the results. Odds ratio were stated in the results which indicated the risk of exposure (working status) and duration of breastfeeding.

The primary outcome measures were breastfeeding practice and exclusive breastfeeding. Factors associated with practising breastfeeding and exclusive breastfeeding were identified using univariate and multivariate logistic regression. Univariate associations between various factors and breastfeeding practice and exclusive breastfeeding (adjusting for infant age at six months) were identified. The statistical test used was binary logistic regression and the level of significance was set at $P < 0.05$. The measurement of association between an independent variable and the outcome were odds ratio (OR) and 95% Confidence Interval (CI). All variables associated with still breastfeeding at six months and exclusive breastfeeding at six months in the univariate analyses were included in the initial multivariate model. In this study, the variables with p value less than 0.2 were subjected to multiple logistic regression analysis. Multiple logistic regression using backward Logistic Regression

(LR) (Bewick, Cheek, & Ball, 2005) was performed to all the significant independent variables. Multiple logistic regressions were used to construct the model to examine the independent association of various factors to breastfeeding practices and exclusive breastfeeding at six months while simultaneously controlling for potential confounders. Crude odds ratio and adjusted odds ratio and 95% confidence interval (95% CI) were reported. Walds P-value was calculated and a value of less than 0.05 was considered significant. Interaction was also performed to identify the interaction effects of the significant variables.

3.3 Part Two: Qualitative Study

The qualitative study was conducted following the results in part one of the study. From the quantitative study conducted earlier, breast milk expression was one of the work related significant variables among working mothers to continue breastfeeding at six months. The purposes of the qualitative study were to explore the experience of breast milk expression in workplace and to identify in depth the facilitating factors to sustain breast milk expression among working mothers.

3.3.1 Study Design

Qualitative study using grounded theory was used in the study. According to Glaser, grounded theory is an inductive methodology and it is a theory systematic generation from a systematic research. According to him, “grounded theory is also a set of rigorous research procedures leading to the development or emergence of conceptual categories. These conceptual categories are related to each other as a theoretical explanation of the action(s) that continually resolves the main concern of the participants in a substantive area” (Glaser, 2012). The approach used in the study was qualitative naturalistic inquiry approach which was derived from grounded theory. Qualitative naturalistic inquiry is “characterized by research in the natural setting,

purposive sampling, inductive analysis, a grounded theory approach, and a case study reporting mode, the tentative application of findings and special criteria of trustworthiness” (Bowen, 2008).

Naturalistic inquiry approach, in relation to grounded theory, is a general methodology for developing theory that is grounded in data systematically gathered and analyzed (Bowen, 2008). The objective of the methodology is to construct a theory that reflects the understanding of phenomena. The characteristic of grounded theory is theoretical saturation which relies on the process of constant comparison. The constant comparative method consists of four stages which are “comparing incidence applicable to each theme that emerge from data, integrating themes and their properties, delimiting the theory and writing the theory” (Bowen, 2008).

Theoretical sampling used in grounded theory supports the constant comparative analysis methods of analysis (Patton, 2002). It is “sampling on the basis of the emerging concepts with the aim to explore the dimensional range or varied conditions along with the properties of concept vary” (Patton, 2002). It is “the sampling on the basis of concepts that have proven theoretical relevance to the evolving theory” or in other words “sampling to the point of redundancy” (Bowen, 2008). The adequacy of sample is “evidence by saturation and replication” of information (Bowen, 2008). In this method, data collection continued until the point of data saturation which at a point when no new information was obtained. In this study, theoretical explanation on the experience of working mothers to practice breastfeeding particularly breast milk expression in workplace and the factors promoting the practice were explored.

3.3.2 Sampling Procedures

The participants were selected using purposive sampling methods from the working women recruited in the part one of the study. The sampling method was theoretical sampling. The inclusion criteria were working mothers, expressed breast

milk during working and the mothers had been breastfeeding exclusively or predominantly breastfeeding up to four months of baby's age.

Using purposive sampling methods, a phone call invitation to mothers who met the inclusion criteria was performed. During the phone call, mothers were informed on the purpose and methods of study before they agreed to participate in the study. The interview was conducted and audiotaped. The audiotaped interview was then transcribed verbatim. The researcher would identify the relevant text, coded the text, subcategorised and categorised the data. The categorised data was then merged for themes. The same process was also done by research assistant. The researcher and the research assistant would discuss and agree on the codes and themes identified from the interview. The same procedure was repeated for the subsequent interviews. The same coding and themes were documented while the new coding and themes identified from different interviews were recorded. The interviews were continued for the subsequent participants and similar process of data analysis was followed until data saturation was achieved and no new coding and themes were identified. In other words, no new information emerges with the addition of new cases. Data saturation was achieved by the 13th interview. However the interview was conducted up to 15th in which similar finding was found and no new coding or themes were found.

3.3.3 Data Collection Technique

In depth interview technique was used in this qualitative study. A semi structured interview approach using interview guides listed below was performed by the researcher (figure 3.4). The interview was performed either at the work place or in the health clinics according to the mothers' preferences. Most mothers prefer to be interviewed in the health clinics during their child follow-up appointment as it did not disturb their working hours. Four mothers were agreed to be interviewed in their workplace.

After appointment were made using phones calls, mothers were interviewed at the scheduled place as agreed by the mothers and the researcher. The interview was undertaken in a room, involving the researcher and participants only. No other person was involved during the interview. Mothers were briefed on the purpose of the study and given the information sheet. If the mothers agree to participate in the study, informed consent was obtained from the mothers. After the informed consent was obtained, the participants had to complete the demographic information sheet prior to the interview.

-
1. Opinion on breast milk
 2. Opinion on breast milk expression in workplace
 3. Experience of breast milk expression in workplace
 4. Methods on breast milk expression
 5. Problem faced while expressing breast milk in workplace
 6. Perception of (employer/ supervisor/ peer) in workplace
 7. Law or policy on breast feeding in workplace
 8. Problem faced to give expressed breast milk to baby
 9. Suggestion to employer to encourage working mothers to continue breastfeeding after start working
-

Figure 3.4: Interview guide

The interview was performed using the interview guide and it lasted between 45 minutes to 60 minutes and it was audio-taped throughout. The interview was conducted in Malay or English language. All of the mothers preferred to be interviewed in Malay language as it is the national language in the country. Some mothers mixed the language, using Malay and English during the interview. Participants were not paid

during the study. However, they were given a small token as an appreciation of involvement in the study.

The data collection through in-depth interview was continued until the point of data saturation. In other words, until a point that is when no new information was gathered (Glaser, 2012). The data collection through in-depth interview was conducted on the first participant and the session was audio taped and transcribed verbatim. The transcribed interview was then categorized for coding and themed by the researcher and another research assistant. The procedure was repeated for the subsequent participants until the point of data saturation. In other words, a point when no new information could be gathered. The data saturation was achieved at the 13th participant. In this study, the procedure continued up to the 15th participant in which there was no new information and data was collected from the interviews.

3.3.4 Analysis of qualitative data

Audiotapes of the interviews were transcribed verbatim by two persons who were the researcher and another university student (law student). The transcripts were returned to the participants to check if they agreed with the information given during the interview or if they want to make any comments or corrections. In addition, it was done for confirmation and verification of data and clarification of certain missing information.

The transcripts were coded and analyzed for themes using Nvivo 9. Texts which were relevant to the study objectives were identified, organized and categorized by the researcher. After the completion of the coding process, categories were clustered into themes. This process was also done by one of the public health students. Both researcher and the other public health student agreed with the coding and theme arises from the study.

3.4 Ethical consideration

The study protocol was proposed to the Ministry of Health of Malaysia for approval. The study was approved by the National Medical Research Registry of Ministry of Health of Malaysia with ID number 4434 on 27th January 2010. The study protocol was also approved by the Ethics Committee of University Malaya Medical Centre on 29th April 2009 with medical ethics committee reference number 715.21.

Other than that, informed consent form was given to the participants who agreed to participate in the study. The study was only conducted to the females who agreed to participate in the study and they agreed to give signature in the consent form (appendix c). Confidentiality of the data and the privacy of mothers were also respected at all times.

University of Malaya

CHAPTER 4: RESULTS

4.1 About the Chapter

This chapter will discuss the results found in part one of the study, which was the quantitative study and the findings in part two of the study, which was qualitative study. In part one, the results from the cross-sectional study on breastfeeding practice among working and non working mothers at 6-month of baby's age will be discussed. For the qualitative study, the results on the experience of working mothers to express breast milk in workplace and the facilitating factors will also be discussed later in this chapter.

4.2 Results of Quantitative Study

There were 1060 mothers who were eligible to be participants in the study during the study period. Among all the eligible mothers, 964 mothers were involved and participated in the study. A total of 96 mothers were excluded from the study due to different work status before delivery and at 6-month of baby's age (45 mothers), refused to be interviewed (39 mothers), mothers with twins delivery (8 mothers), baby with congenital anomalies (3 mothers) and mother with severe medical illness after delivery (one mother). The response rate was 90%.

4.2.1 Characteristic of participants

4.2.1.1 Sociodemographic characteristics of participants

As shown in Table 4.1, the mean age of the mothers was 29.46 years with standard deviation of 5.30. About half of the mothers were between the ages of 20.0 to 29.9 years which was 51.1%. Most mothers were Malays (75.7%), Muslim (76.1%) and had secondary education level (69.9%). A relatively greater proportion of mothers with household income of Malaysian Ringgit 1500 to Malaysian Ringgit 5000 (49.4%), had

household numbers of 5 and less (62.8%) and not working (51.1%). Majority of them were married which was 99.7%.

Table 4.1: Sociodemographic factors(n=964)

Characteristic of subjects	n	(%)
Mother's age:		
i. Mean -29.46(16.00-45.00)(SD 5.30)		
ii.<20	17	1.8
20.0-29.9	500	51.1
30.0-39.9	405	42
40.0 and more	42	4.4
Mother's ethnicity:		
Malay	730	75.7
Chinese	84	8.7
Indian	135	14
Others	15	1.6
Mother's religion		
Islam	737	76.5
Buddha	83	8.6
Hindu	118	12.2
Christian	17	1.8
Others	9	0.9
Mother's education level:		
Primary school and less	46	4.8
Secondary School	674	69.9
Diploma/Degree and higher	244	25.3
Monthly household income:		
less than RM 1500	453	47.0
RM1501- RM 5000	476	49.4
More than RM 5000	34	3.5
Household number		
5 and less	605	62.8
More than 5	359	37.2
Marital status		
Married	961	99.7
Widow	2	0.2
Divorcee	0	0
Single	1	0.1
Work status		
Working	471	48.9
Not Working	493	51.1

4.2.1.2 Employment characteristics of respondent

More than half mothers worked in a private sector (60.1%), working full time (88.3%), and working during office hours (57.7%) as shown in Table 4.2. A relatively larger proportion worked as service workers (32.7%) and clerical workers (28.0) and had been working in similar occupation for more than 5 years (45.0%). Majority of mothers had permanent working operation in one place (97.9%).

Table 4.2: Employment variables- Place and Job Characteristics (n=471)

Characteristic of subject	n	%
Place of working		
Government sector	165	30.0
Private sector	283	60.1
Self employed	23	4.9
Type of occupation		
Professional	41	8.7
Legislators, Senior Officials or Managers	4	0.8
Technicians or associate professionals	28	5.9
Clerical workers	132	28.0
Service workers or shop/market workers	154	32.7
Agricultural or Fishery workers	2	0.4
Industrial worker	83	17.6
Business	11	2.3
Self-employed	9	1.9
Others.....	7	1.5
Occupation grade(government)		
Professional	81	49.1
Support group 1	37	22.4
Support group 2	47	28.5
Period of working in the same occupation		
Less than 1 year	54	11.5
1-5 years	212	45.0
More than 5 years	205	43.5
Working status		
Full time	416	88.3
Part time	41	8.7
Self-employed	14	3
Operation of working		
Permanent (in one place)	461	97.9
Out station	10	2.1
Working hours		
Office hours (8 am to 5 pm)	272	57.7
Shift hours (morning/afternoon/ night/ others)	94	20.0
Half day	77	16.3
Flexible hours	28	5.9

As shown in Table 4.3, majority of mothers had maternity leave provided by the employer (98.1%), and the duration of maternity leave was between 6 weeks to 8 weeks (95.2%), had full paid maternity leave (89.4%) and returned to work at 2 months or less after delivery (81.3%) as shown in (Table 4.2). Regarding breastfeeding leave provided by employer, only 12.1% responded 'yes' they knew about the leave provided whereas majority of 84.3% responded 'no' and another 3.6% responded they did not know about the leave. From 12.1 % of mothers with breastfeeding leave, majority were under a non paid leave (84.2%) and only 19.1% of them took breastfeeding leave. Among mothers who took breastfeeding leave, the median duration taken was 8 weeks and mean duration 7.36 weeks with SD 6.47 weeks. About one third of the mothers were allowed time off to express breast milk or to breastfeed their child and only about 1 in 10 working mothers were provided with employee breastfeeding education and training given at the workplace.

Regarding the worksite breastfeeding support, only 11.5% of mothers were provided with employee breastfeeding education and training while 5.1% of mothers were provided childcare nursery by employer as shown in Table 4.4. From this finding, about 1.9% mothers left their child in the nursery provided by their employer. If the child was not in the nursery provided by the employer, most childcares were cared either by babysitters or by their mother/mother in law/sister/others (87.4%). About one third of mothers were allowed to take time off to express breast milk or to breastfeed their child, expressed breast milk during working hours and were provided a room or space to breastfeed or express their breast milk, while less than half of them were provided with refrigerator. About 25% of mothers have their own breast pump and only 3% had breast pump provided by the employer.

Table 4.3: Employment variables- Breastfeeding law and policy and return to work (n=471)

Characteristic of subject	n	%
Maternity leave provide by the employer:		
Yes	462	98.1
No	9	1.9
Duration of maternity leave		
Less than 6 weeks	11	2.4
6-8 weeks	440	95.2
More than 8 weeks	11	2.4
Type of maternity leave		
Non Pay	32	6.9
Half pay	17	3.7
Full pay	413	89.4
Breastfeeding leave		
Yes	57	12.1
No	397	84.3
Don't know	17	3.6
Type of Breastfeeding leave		
Non Pay	48	84.2
Half pay	3	5.3
Full pay	6	10.5
Taking Breastfeeding leave		
Yes	11	19.6
No	46	80.4
Duration of breastfeeding leave taken(n=11)		
Mean : 7.46weeks		
Median : 8 weeks		
SD : 6.47weeks		
Return to work		
2 month and less	383	81.3
3 to 5 month	82	17.4
6 month and more	6	1.3
Employee breastfeeding education and trainings given in workplace		
Yes	54	11.5
No	417	88.5
Time off given to express breast milk or to breastfeed child		
Yes	187	39.7
No	284	60.3

Table 4.4: Facilities provided by employer and Childcare (n=471)

Characteristic of subject	n	%
Nursery in/near workplace		
Yes	54	11.5
No	417	88.5
Nursery provided by employer		
Yes	24	5.1
No	447	94.9
Child in the nursery in workplace		
Yes	9	1.9
No	462	98.1
Place child where was leave during working if no nursery available in the workplace		
Day care nursery	35	7.6
Baby sitter	164	35.5
At home with house maid	18	3.9
At home/own care	5	1.1
Others(mother in law/mother/sister/others)	240	51.9
Employee breastfeeding education and trainings given in workplace		
Yes	54	11.5
No	417	88.5
Time off given to express breast milk or to breastfeed child		
Yes	187	39.7
No	284	60.3
Express breast milk during working hours		
Yes	171	37.6
No	300	62.4
Has own breast pump		
Yes	120	25.0
No	351	75.0
Breast pump provide by employer		
Yes	15	3.0
No	456	97.0
Room /space to express breast milk in workplace		
Yes	152	32.0
No	319	68.0
Availability of refrigerator in the workplace for storage of breast milk		
Yes	221	47.0
No	250	53.0

4.2.1.3 Place of delivery

Table 4.5 shows that majority of mothers delivered their baby in government hospitals (90.1%) stayed in the same room with their baby while in the hospitals (87.0%) and were given breastfeeding education after delivery (93.0%). Most mothers knew that they had delivered in a 'Baby Friendly Hospitals' while about one fifth did not know about 'Baby Friendly Hospitals'. Most mothers were given their babies to introduce breast milk within half an hour after birth (68.9%). The duration of hospital stay during delivery was two days and less (66.0%) and they were given a package before discharge (71.6%). About 1.3% of mothers were given formula milk in the package before discharge and majority were given baby diapers and baby wash.

4.2.1.4 Obstetric factors and infant characteristics

As shown in Table 4.6, about 35.9% were first time mother and more than half had 2 to 5 children who stayed together with the mothers (59.0%). Majority of babies were delivered through spontaneous vaginal delivery. (77.9%) and with the baby's birth weight between 2.5 kilograms and 3.5 kilograms (91.1%). There were slightly more female babies (52.1%) than male babies (47.9%). About one fifth of mothers had complications before or during delivery. Most of them had gestational diabetes and pregnancy induced hypertension.

Table 4.5: Place of Delivery (n=964)

Characteristic of subjects	n	(%)
Place of delivery		
Hospital delivery	921	95.5
Home delivery	3	0.3
Health Clinics/alternative birth centre	40	4.1
Type of hospital		
Private Hospital	95	9.9
Government Hospital	869	90.1
Baby Friendly Hospital		
Yes	693	71.9
No	86	8.9
Don't know	185	19.2
Time baby introduced to breast milk		
Never breastfed	14	1.5
within half an hour after birth	664	68.9
within 1 hour after birth	111	11.5
1-24 hours after birth	99	10.3
after 1 day	76	7.9
Same room with Baby		
Yes	839	87.0
No	125	13.0
Breast Feeding education given after delivery		
Yes	897	93.0
No	67	7.0
Duration staying in hospital after delivery		
2 days and less	636	66.0
3-7 days	293	30.4
More than 7 days	35	3.6
Package given before discharged from hospital		
Yes	690	71.6
No	274	28.4
Type of package given		
Diapers	288	29.9
Formula milk	13	1.3
Baby shampoo	214	22.2
Others	407	42.2

Table 4.6: Obstetric factors and infant Characteristics(n=964)

Characteristic of subjects	n	(%)
Parity		
1	346	35.9
2-5	567	58.8
More than 5	51	5.3
Number of children stay together		
1	347	36.6
2-5	569	59.0
More than 5	48	5.0
Type of last delivery		
Vaginal delivery	751	77.9
Assisted vaginal delivery.	45	4.7
Surgery(Lower Segment Caesarean Section)	168	17.4
Sex of baby		
Male	462	47.9
Female	502	52.1
Baby's weight		
less than 2.5 kg	84	8.7
2.5 -3.5 kg	782	91.1
more than 3.5 kg	98	10.2
Complication during last pregnancy or during last delivery		
Yes	224	23.2
No	740	76.8
Type of complication		
Pregnancy induced hypertension	63	28.5
gestational diabetes mellitus	113	51.1
postpartum bleeding	2	0.9
retained placenta	7	3.2
Others	36	16.3

4.2.1.5 Family Characteristics

Table 4.7 shows that almost two thirds of the family structured of mothers involved in the study were from nuclear families (74.6%). Majority of mothers had assistance on domestic workload (94.2%) and more than half were assisted by either husband or their mothers. Majority of mothers shared their knowledge on child health or nutrition from the health staff (97.3%) and almost half of them shared with their mothers (47.1%).

Table 4.7: Family Characteristics(n=964)

Characteristic of subjects	n	(%)
Family Structure		
nuclear family	719	74.6
extended family	245	25.4
Assistance on domestic workload		
Yes	908	94.2
No	56	5.8
Person who assist on domestic workload		
husband	589	61.1
mother	611	63.4
housemaid	48	5.0
others	131	18.6
Person to share knowledge on child health or nutrition		
husband	191	19.8
mother	454	47.1
friends	296	30.7
health staffs	938	97.3
mother in law	292	30.3
mass media	254	26.3
Reading material	349	36.2
Others	9	0.9

4.2.1.6 Social support

About two third of mothers were always given encouragement and moral support to breastfeed their babies by their husband or partner (75.3%) while about 7% did not received care or support. Most of the social supports to breastfeed were given by their husband and family members while about half were from the health personnel as shown in Table 4.8. More than half of the family support came from mothers and about 42% were supported by mother in laws. About one third of participants informed that their in laws were involved in decision related to breastfeeding with the majority encouraging breastfeeding (95.4%). Only about one fifth encouraged formula milk (28.2%). More than 90% of mothers were given breastfeeding counselling and training by the health staff during antenatal check up, after delivery, during post natal visits and child health clinics visits.

Table 4.8: Social support(n=964)

Characteristics of subjects	n	%
husband support		
Always	725	75.3
Frequent	96	10.0
Seldom	77	8.0
does not care	49	5.1
Never	16	1.7
Social support to breastfeed child		
husband/spouse	774	80.3
family members	683	70.9
health personnel	553	57.4
Friends	206	21.4
Others.....	6	0.6
Family members includes		
Mother	629	65.2
Mother in law	405	42.0
Siblings	239	24.8
Others	14	1.5
Mother in law involve in decision of breastfeeding		
No	638	66.2
Yes	326	33.8
Mother in law encourage breastfeeding		
No	14	4.6
Yes	312	95.4
Mother in law encourage formula milk		
No	234	71.8
Yes	92	28.2
Breastfeeding counselling and training given by health staff during antenatal check up		
No	51	5.3
Yes	913	94.7
Breastfeeding counselling and training given by health staff during delivery		
No	60	6.2
Yes	904	93.8
Breastfeeding counselling and training given by health staff during postnatal visit		
No	61	6.3
Yes	903	93.7

Table 4.8: Social support(n=964)(Continue)

Characteristic of subject	n	%
Breastfeeding counselling and training given by health staff during child health clinic for baby immunization		
No	59	6.1
Yes	905	93.5

4.2.1.7 Past history of breastfeeding

Majority of multiparous mothers breastfed their other child (96.6%) while about 95.8% breastfed all of their child as shown in Table 4.9

Table 4.9: Past history of Breastfeeding (n=611)

Characteristic of subject	n	%
Breastfed other child		
No	21	3.4
Yes	597	96.6
Breastfed all children		
no	26	4.2
yes	592	95.8

4.2.1.8 Breastfeeding knowledge

As shown in Table 4.10, about one third of mothers answered all questions correctly on the benefits of breast milk while about half of them answered all questions correctly on the breastfeeding technique, expressing and storage of breast milk and lactation problem. About 37.8% of the mothers had good knowledge on breastfeeding.

Table 4.10: Breastfeeding Knowledge(n=964)

Characteristic of subjects	N	%
benefit of breast milk or colostrum		
0 correct answer	11	1.1
1 correct answer	87	9.0
2 correct answer	584	60.6
3 correct answer	282	29.3
Breastfeeding techniques		
0 correct answer	23	2.4
1 correct answer	374	38.8
2 correct answer	567	58.8
Expressing and storage method of breast milk		
0 correct answer	132	13.7
1 correct answer	350	36.3
2 correct answer	482	50.0
Lactation problems		
0 correct answer	186	19.3
1 correct answer	243	25.2
2 correct answer	535	55.5
Level of Knowledge		
poor less than 36	602	62.4
good 36- 45	362	37.6

4.2.1.9 Breastfeeding attitude

Almost all mothers had the intention to breastfeed before pregnancy or before delivery of current child (98.2%), with a slight reduction after delivery of the current child (98.0%). About 83.8% of mothers had intention to continue breastfeeding as long as possible. For working mothers, 89.2% had intention to continue breastfeeding after working and about 78.1% intended to continue breastfeeding as long as possible.

As shown in table 4.11, majority of mothers breastfed due to their own choice (96.7%) while about half due to advice by the doctor or nurse (48.1%). About four fifth of mothers would encourage others to breastfeed while only about one third of them were comfortable to breastfeed in public.

Table 4.11 : Breastfeeding attitudes(n=964)

Characteristic of subjects	n	%
Intention to breastfeed before or during the pregnancy or before delivery of current child		
No	17	1.8
Yes	947	98.2
Intention to breastfeed after delivery current child		
No	19	2.0
Yes	945	98.0
Intend to continue breastfeeding after working		
No	51	10.8
Yes	420	89.2
Intend to continue breastfeeding after working		
Less than 2 months	54	11.5
2-6 months	49	10.4
As long as possible	36	78.1
Intend to continue breastfeeding (all mothers)		
Less than 2 months	48	5.5
2-6 months	94	10.7
As long as possible	734	83.8
Reason for breastfeeding		
<i>Own choice</i>		
No	32	3.3
yes	932	96.7
<i>Doctor and nurse advice</i>		
No	498	51.7
Yes	466	48.3
<i>Husband advice</i>		
No	568	58.9
Yes	396	41.1
<i>Reason for others</i>		
No	930	96.5
Yes	34	3.5
Encourage others to breastfeed		
no	178	18.5
yes	786	81.5
Comfortable to breastfeed at public area		
no	626	64.9
yes	338	35.1

4.2.1.10 Perception on breastfeeding

Majority of mothers enjoyed to breastfeed their babies (90.9%) while almost all mothers felt that breastfeeding increased their bonding with their babies (97.8%) as shown in table 4.12. About one third of mothers felt that breastfeeding would alter their breast shape (38.9%) while about one tenth of them felt that it disturbed their sleep.

Almost all mothers responded that breastfeeding was beneficial to babies (99.8%) and mothers (99.5%). The mothers reasoned that breastfeeding was beneficial to babies as it provided complete nutrition to the babies (99.2%), increase the bonding between mothers and babies (99.5%), increase the babies' immunity (99.5%), prevent babies from infection (99.5%) and others. The reason breastfeeding was beneficial to mothers were it was beneficial as family planning method (90.4%), reduced risk of breast cancer (94.5%) and able to reduce mother's weight as before pregnancy (94.5%). Almost all mothers (99.9%) responded that breast milk was the best milk for their babies while only 0.1% responded that cow's milk was the best milk for their babies.

Table 4.12: Breastfeeding perception(n=964)

Characteristic Of Subjects	n	%
Enjoyable		
No	88	9.1
Yes	876	90.9
Increase Bonding With The Baby		
No	26	2.7
Yes	938	97.3
Alters Breast Shape		
No	589	61.1
Yes	375	38.9
Disturbs Sleep		
No	872	90.5
Yes	92	9.5
Others		
No	953	98.9
Yes	11	1.1
Breastfeeding Beneficial To The Baby		
No	2	0.2
Yes	962	99.8
Reason Why Breastfeeding Good For The Baby		
Complete Nutrition For Baby		
No	8	0.8
Yes	956	99.2
Increase Bonding Between Baby And Mother		
No	5	0.5
Yes	959	99.5
Increase The Immunity Of The Baby		
No	43	4.5
Yes	921	95.5
Prevention From Infection		
No	43	4.5
Yes	921	95.5
Other Reason		
No	953	98.9
Yes	11	1.1
Breastfeeding Beneficial To Mother		
No	5	0.5
Yes	959	99.5
Reason Why Breastfeeding Good For The Mother		
Beneficial As Family Planning		
No	89	9.2
Yes	871	90.8
Reduce Risk Of Breast Cancer		
No	53	5.5
Yes	911	94.5
Able To Reduce The Mother's Weight As Before Pregnancy		
No	53	5.5
Yes	911	94.5

Table 4.12: Breastfeeding perception(n=964)(Continue)

Characteristic of subjects	N	%
Best milk for baby		
Breast milk	963	99.9
cow's milk	1	0.1
soy milk	0	0.0

4.2.1.11 Culture and belief

Table 4.13 shows that about two third of mothers gave water to their babies due to culture (65.8%). About half of them gave reasons for introducing water to baby so as to help the baby's digestion, to quench thirst and to clean the baby's mouth while other reasons were to reduce baby's body temperature (29.6%), not enough breast milk (27.7%), health reasons (25.9%), baby was not well or having fever (20.2%) and other reasons (3.6%).

About two third of mothers felt breast milk alone was enough for their baby's nutrition at the age of 6 months and below. More than half of mothers perceived that their food intake would not influence the breastfed babies. Larger proportion of mothers gave examples of 'cold' food or drinks (38.9%) or 'hot food' (24.8%) that would influence their babies. More than half of them felt that their food intake can cause flatulence to their babies.

Majority of the mothers (94.7%) responded that religion encourage breastfeeding, while only one third of them breastfed due to religion.

Table 4.13: Cultural and Belief(n=964)

Characteristic of subjects	n	%
Culture to give water		
No	330	34.2
Yes	634	65.8
Reason introduce water to baby		
Not enough breast milk		
No	697	72.3
Yes	267	27.7
For digestion		
No	458	47.5
Yes	506	52.5
Baby is thirsty		
No	565	58.6
Yes	399	41.4
To clean baby's mouth		
No	480	49.8
Yes	484	50.2
Baby is not well /having fever		
No	769	79.8
Yes	195	20.2
Health reasons		
No	714	74.1
Yes	250	25.9
To reduce baby's body temperature		
No	679	70.4
Yes	285	29.6
Other reasons,		
No	929	96.4
Yes	35	3.6
Giving only breast milk for baby less than 6 months		
Will give enough nutrition to the baby		
No	341	35.4
Yes	623	64.6
Food intake by mother during breastfeeding		
Will influence the breastfed baby		
No	529	54.9
Yes	435	45.1
Type of food intake by mother that will influence		
Breastfed baby		
Cold food or drink	157	38.9
Food with air	80	19.8
Fruits-durian	8	2.0
Hot food	100	24.8
Carbohydrate, protein and mineral	29	7.2
Others	30	7.4

Table 4.13: Cultural and Belief(n=964)(Continue)

Characteristic of subjects	n	%
Effect to the baby		
Baby irritated/uncomfortable	4	1.0
Flatulence	214	54.3
Cold and cough	59	15.0
Healthy baby	4	1.0
More breast milk produced	2	0.5
Others	111	28.2
Religion encourage breastfeeding		
No	51	5.3
Yes	913	94.7
Breastfeeding due to religion		
No	673	69.8
Yes	291	30.2

4.2.1.12 Lactation problems

Table 4.14 shows that more than 20% of mothers always or usually experienced inadequate breast milk. A smaller proportion of mothers always or usually experienced breast engorgement (6.6%), nipple pain (5.9%), feeling tired and exhausted (4.3%) and having emotional disturbances (1.5%) while breastfeeding their babies.

Table 4.14: Lactation problems(n=964)

Characteristic of subjects	n	%
Feeling emotional disturbances		
Always	3	0.3
Usually	12	1.2
Seldom	89	9.2
Never	860	89.2
Feeling tired and exhausted		
Always	18	1.9
Usually	23	2.4
Seldom	207	21.5
Never	716	74.3
Nipple pain		
Always	31	3.2
Usually	26	2.7
Seldom	275	28.5
Never	632	65.6
Breast Engorgement		
Always	33	3.4
Usually	31	3.2
Seldom	263	27.3
Never	637	66.1
Feeling not enough breast milk		
Always	139	14.4
Usually	81	8.4
Seldom	235	24.4
Never	509	52.8
Other reason		
No	956	99.2
Yes	8	0.8

4.2.1.13 Infant feeding practices

As show in table 4.15, majority of mothers breastfeed their babies (99.2%), however it decreased to 61.9% at 6 months of baby's age. The mean duration of breastfeeding among all mothers was 19.1 weeks (SD=7.3 weeks). The mean age of which water was introduced was 12.2 weeks (SD=8.00 weeks). The earliest age of water introduction was just after birth (0.2%). About 15.4% of mothers had introduced water during the first week of life. Mean duration of formula milk was introduced at 10.07 weeks with standard deviation of 6.05 weeks (SD= 8 weeks). The earliest age of which formula milk was introduced was just after birth (0.3%) and about 8.0% of mothers had

introduced formula milk during the first week of baby's age. The mean age of which the baby was introduced with semi solid food was 22.84 weeks (SD 3.14 weeks) with the earliest introduction at 2 weeks of baby's age. The percentage of babies given semisolid food below age four months was only 2.6%.

Table 4.15: Description of profile of respondents (Dependant variables)

Characteristic of subject	n	(%)
1. Ever breastfeed current child		
Yes	956	99.2
No	8	0.8
2. Breastfeeding at 6 month		
Yes	597	61.9
No	367	38.1
3. Duration of breastfeeding		
Mean :19.1(SD 7.3)weeks		
4. Baby's age water introduce		
Mean : 12.19(SD 8.00) weeks		
Median : 12.00 weeks		
Minimum-just after birth		
% of water introduced at one week : 15.4%		
5. Baby's age formula milk introduced		
Mean : 10.07(SD6.05)weeks		
Median : 8.00 weeks		
Minimum : just after birth		
% of formula milk introduced at one week : 8.0%		
6. Baby's age semisolid/solid food given		
Mean : 22.84(SD 3.14) weeks		
Median :24.00 weeks		
Minimum : 2 weeks		
% of semisolid food given below four month : 2.6%		

At 6-month of baby's age, 90.9% of mothers had introduced water to the baby and more than two third of mothers had introduced formula milk (73.8%) and semisolid food (72.2%) to their babies while only about 10% had given glucose juice or other juices and about 2.3% had given other foods as shown in Table 4.16.

The percentage of exclusive breastfeeding was 67.7% at 1 month, and it decreased from 43.9% at 2 months, 21.3% at 4 months. There was marked decreased at 6 months of baby's age (4.9%)(Table 4). The percentage of predominant breastfeeding also reduced from 15.4% at 1 month, 15.0% at 2 months, 13.2% at 4 months and 8.1%

at 6 months. In contrast, complementary breastfeeding had increased from 10.9% at 1 month, 25.3% at 2 months, 35.2% at 4 months and 49.0% at 6 months. Similarly, the percentage of not breastfeeding also increased from 6.0% at 1 month, 15.8% at 2 months, 30.4% at 4 months and 38.1% at 6 months of baby's age. The percentage of any breastfeeding was 94.0% at 1 month, 84.2% at 2 months and 69.6% and 61.9% at 4 and 6 months respectively.

Table 4.16: Infant feeding practices at 6 months of baby's age

	n	%
Water introduction at 6 month		
No	88	9.1
Yes	876	90.9
Formula milk at 6 month		
No	253	26.2
Yes	711	73.8
Glucose or juice or others		
No	860	89.2
Yes	104	10.8
Semisolid food		
No	268	27.8
Yes	696	72.2
Other food		
No	942	97.7
Yes	22	2.3

Table 4.17: Percentage of breastfeeding type according to baby's age.

Breastfeeding type	Not breastfeeding	Exclusive breastfeeding	Predominant breastfeeding	Complementary breastfeeding
Baby's age				
1 month	58(6.0%)	653(67.7 %)	148(15.4%)	105(10.9 %)
2 months	152(15.8%)	424(43.9%)	145(15.0%)	243(25.3%)
4 months	293(30.4%)	206(21.3%)	127(13.2%)	338(35.2%)
6 months	366(38.1%)	48 (4.9 %)	79(8.1%)	471(49.0%)

4.2.2 Univariate analysis of factors affecting breastfeeding duration at 6 months among all mothers in the study (n=964)

Listed in table 4.18, were the significant independent variables from the univariate analysis. The significant value taken when the analysis showed p value was less than 0.05. Table 15 shows that race was associated with breastfeeding duration at 6 months on which Malay has the crude odds 13.82 to continue breastfeeding at 6 months compared to Chinese (95%CI=7.02-24.1) while Indian has the crude odds 4.04 (95%CI=2.04-8.00) compared to Chinese to continue breastfeeding at 6 months. The other factors which showed significant positive association to continue breastfeeding at 6 months from univariate analysis were household numbers more than 5 compared to less, not working compared to working, time introduced to baby within half an hour and an hour to never breastfeed, package given before discharged from hospital, mothers who had complication during pregnancy or delivery, husband support (always to never), social support from family members, mother in law encouraged breastfeeding, history of breastfeeding other child, good knowledge compared to poor and intend to continue breastfeeding as long as possible compared to less than 2 months.

The other positive associations from univariate analysis were; felt comfortable to breastfeed in public, perception of changing breast shape, giving water to reduce baby's temperature, mothers food intake affected breastfeeding baby, religion encouraged breastfeeding, breastfeeding due to religion, never felt not enough breast milk compared to always had enough breast milk and breastfeeding beneficial to mothers as it reduced weight.

Table 4.18: Univariate analysis showing significant independent variables (general factors) affecting breastfeeding duration at 6 months of baby's age (n=964)

Independent variables	Total	Not Breastfed n (%)	Breastfed n (%)	P value	OR	95% CI lower	95% CI upper
Race							
Chinese	84	71(84.5)	13(15.5)	1.000			
Malay	730	217(29.7)	513(70.3)	0.001**	13.82	7.02	24.13
Indian	134	77(57.5)	57(42.5)	0.001**	4.04	2.04	8.00
Others	16	2(12.5)	14(87.5)	0.153	2.96	0.67	13.14
Household numbers							
5 and less	605	354(42.0)	351(58.0)	1.000			
More than 5	359	113(31.5)	246(68.5)	0.002*	1.61	1.19	2.19
Work status							
Working	472	207(43.9)	264(56.1)	1.000			
Not Working	493	160(32.5)	333(67.5)	0.001**	1.63	1.26	2.12
Time baby introduced to breast milk							
-Never breastfed	14	11(78.6)	3(21.4)	1.000			
-Within half an hour after birth	664	238(35.8)	426(64.2)	0.004*	6.93	1.88	25.62
-Within 1 hour after birth	111	43(38.7)	68(61.3)	0.008*	6.26	1.62	24.19
-1-24 hours after birth	99	50(50.5)	49(49.5)	0.056	3.69	0.97	14.08
-After 1 day	76	25(32.9)	51(67.1)	0.001*	8.02	2.04	31.58
Package given before discharged hospital							
No	274	122(44.5)	152(55.5)	1.000			
Yes	690	245(35.5)	445(65.5)	0.013*	1.44	1.62	24.19
Complication during last Pregnancy or during delivery							
No	740	301(40.7)	439(59.3)	1.000			
Yes	224	66(29.5)	158(70.5)	0.001**	1.23	1.26	2.45
Husband Support							
Always	725	219(30.2)	507(69.8)	0.001**	6.93	2.21	21.73
Frequent	96	49(51.0)	47(49.0)	0.084	2.88	0.87	9.56
Seldom	77	53(68.8)	24(31.2)	0.625	1.36	0.40	4.65
Does not care	49	33(67.3)	16(32.7)	0.566	1.45	0.40	5.63
Never	16	12(75.0)	4(25.0)	1.000			
Social support by family members							
No	281	124(44.1)	157(55.9)	1.000			
Yes	683	243(35.6)	440(64.4)	0.030*	1.74	1.06	2.86

**equal or less than 0.001

*less than 0.05

Table 4.18: Univariate analysis showing significant independent variables (general factors) affecting breastfeeding duration at 6 months of baby's age-(n=964)(continue)

Independent variables	Total	Not Breastfed n (%)	Breastfed n (%)	P value	OR	95% CI lower	95% CI upper
Mother in law encouraged breastfeeding (N-327)							
No	15	10(66.7)	5(33.3)	1.000			
Yes	312	118(37.8)	194(62.2)	0.047*	3.16	1.01	9.86
History of breastfeeding other child (N-618)							
No	21	13(61.9)	8(28.1)	1.000			
Yes	597	195(32.7)	402(67.3)	0.047*	9.69	1.028	91.42
Level of knowledge							
Poor	602	270(44.9)	332(55.1)	1.000			
Good	362	97(26.8)	265(73.2)	0.001**	2.21	1.66	2.98
Intend to continue breastfeeding							
Less than 2 month	77	71(92.2)	6(7.8)	1.000			
2 to 6 month	126	99(78.6)	27(21.4)	0.014*	3.23	1.26	8.23
As long as possible	761	197(25.9)	564(74.1)	0.001**	17.26	7.61	39.12
Comfortable to breastfeed in public							
No	626	268(42.8)	358(57.2)	1.000			
Yes	338	99(29.3)	239(70.7)	0.001**	1.70	1.28	2.26
Perception of changing breast shape							
No	589	246(41.8)	343(58.2)	1.000			
Yes	375	121(32.3)	254(67.7)	0.003*	1.51	1.15	1.98
Giving water to reduce baby's body temperature							
No	679	236(34.8)	443(63.2)	1.000			
Yes	285	131(46.0)	154(54.0)	0.001**	1.60	1.20	2.11
Mothers food intake affect breastfed baby							
No	529	228(43.1)	301(56.9)	1.000			
Yes	435	139(32.0)	296(68.0)	0.001**	1.67	1.28	2.18

**equal or less than 0.001

*less than 0.05

Table 4.18: Univariate analysis showing significant independent variables (general factors) affecting breastfeeding duration at 6 months of baby's age-(n=964)(continue)

Independent variables	Total	Not Breastfed n (%)	Breastfed n (%)	P value	OR	95% CI lower	95% CI upper
Religion encouraged breastfeeding							
No	51	32(62.7)	19(37.3)	1.000			
Yes	913	335(36.7)	578(53.3)	0.001**	2.96	1.59	5.54
Breastfeeding due to religion							
No	673	281(41.8)	392(58.2)	1.000			
Yes	291	86(29.6)	205(70.4)	0.002	1.71	1.27	2.29
Feeling Not Enough Breast Milk							
Always	100	100(71.9)	39(28.1)	1.000			
Usually	81	57(70.4)	24(29.6)	0.804	1.08	0.59	1.97
Seldom	235	87(67.0)	148(33.0)	0.001**	4.36	2.77	6.87
Never	509	123(24.2)	386(75.8)	0.001**	8.05	5.28	12.27
Breastfeeding beneficial to mothers to reduce weight							
No	158	75(47.5)	83(52.5)	1.000			
Yes	806	292(36.2)	514(63.8)	0.031*	1.5	1.04	2.01

**equal or less than 0.001

*less than 0.05

4.2.3 Multiple logistic regressions of factors affecting breastfeeding duration at 6 months among all mothers in the study

A multiple logistic regression analysis was done to control for confounding effects. All the variables with significant level less than 0.2 from univariate analysis were included in the early model. Table 4.19 shows the final model for breastfeeding at 6 months based on the 'Backward Log-Likelihood Ratio' method. Interaction test was performed among the variables in the final model which did not show any interaction.

Table 4.19: Multiple Logistic Regression of factors affecting any breastfeeding duration at 6 months using Backward Logistic Regression (LR) (n=964)

Characteristic of subjects	B	S.E.	Wald	df	Sig	Adjusted OR	95%CI Upper	95% Lower
Race								
Chinese						1.00		
Malay	-1.94	0.35	30.69	1.00	0.001**	7.14	3.14	14.28
Indian	-0.85	0.23	13.91	1.00	0.001**	2.32	1.49	3.70
Others	0.57	0.71	0.66	1.00	0.42	1.77	0.44	7.09
Work status								
Non working	0.51	0.16	9.72	1.00	0.001**	1.66	1.21	2.28
Working						1.00		
Complication during pregnancy Or delivery								
No						1.00		
Yes	0.43	0.20	4.47	1.00	0.03*	1.54	1.03	2.30
Level of knowledge								
Poor						1.00		
Good	0.57	0.19	9.38	1.00	0.001**	1.77	1.23	2.56
Intend to continue Breastfeeding								
Less than 2 months						1.00		
2-6 months	0.31	0.53	0.33	1.00	0.56	1.36	0.48	3.87
As long as possible	2.46	0.46	28.90	1.00	0.001**	11.68	4.77	28.62
Breastfeeding due to religion								
No						1.00		
Yes	0.43	0.21	4.29	1.00	0.04*	1.53	1.02	2.29
Feeling not enough Breast milk								
Always			73.46	3.00		1.00		
Usually	-0.53	0.36	2.07	1.00	0.15	0.59	0.29	1.21
Seldom	1.17	0.29	16.23	1.00	0.001**	3.21	1.82	5.67
Never	1.65	0.27	36.84	1.00	0.001**	5.21	3.06	8.89

**equal or less than 0.001

*less than 0.05

The results were similar with the finding in the univariate analysis. The adjusted odds ratio of continuing breastfeeding at 6 months among Malays was higher 7.14 compared to Chinese (95%CI=3.14,14.28) while continuing breastfeeding at 6 months among Indians was higher 2.32 compared to Chinese (95%CI=1.49,3.70). However, the

breastfeeding practice among Malays and other races did not show any significant changes. From the study, non working mothers had the odds of 1.66 higher to continue breastfeeding at 6 months than working mothers (95%CI=1.21,2.28).

The other factors which showed the positive association to continue breastfeeding at 6 months after adjusting for confounders were good knowledge, had intention to continue breastfeeding as long as possible compared to less than 2 months, breastfeeding due to religion and never felt not enough breast milk compared to always felt not enough breast milk and mothers with complications during pregnancy or delivery. Mothers with good knowledge have the odds of 1.77 higher to continue breastfeeding at 6 month than mothers with poor knowledge (95%CI=1.23,2.56). Mothers who had intention to breastfeed as long as possible have the odds of 11.68 higher to continue breastfeeding at 6 months than mothers who had intention to breastfeed less than 2 month (95%CI=4.77,28.62). The wide confidence interval was due to small numbers of mothers who intended to continue breastfeeding less than 2 months (6 mothers). The other factor was mothers who breastfed due to religion had the odds 1.53 higher to breastfeed at 6 months than mothers who breastfed not due to religion (95%CI=1.02,2.29). Lastly, mothers who had never felt not enough breast milk had the odds 5.21 higher than mothers who always felt not enough breast milk (95%CI=3.06-,8.89). A ROC Curve was performed on the multivariate final model. The model had an area under the curve of 0.709 (95% CI=0.676, 0.742), $p < 0.001$.

4.2.4 Univariate analysis of factors affecting exclusive breastfeeding at 6 months

Table 4.20 shows factors associated with exclusive breastfeeding at 6 months from univariate analysis. Non working women had the odds of 4.41 times higher than working women to exclusively breastfed at 6 months (95% CI=2.11,9.21). The other positive association from univariate analysis were mothers who had same room with baby compared to separate rooms with baby, unadjusted OR=4.06 (94%CI=1.07,15.31), mothers who had family support from their mothers compared to not supported by their mothers unadjusted odds ratio=2.39(95%CI=1.15,5.00) and mothers with good knowledge on breastfeeding compared to poor knowledge, unadjusted OR= 1.87 (95%CI= 1.04, 3.34).

Other than that, mothers who did not give water due to culture compared to mothers who give water due to culture, unadjusted OR=4.59(95%CI=2.45,8.57), not giving water due to not enough breast milk compared to giving water , unadjusted OR = 5.40(95%CI=1.66,17.63), not giving water to clean baby's mouth compared to giving water, unadjusted OR= 1.95(95%CI=1.03,3.69), not giving water to reduce baby's body temperature compared to giving water, unadjusted OR= 3.98(95%CI=1.40,11.29), mothers who felt that breast milk alone was sufficient for baby's up to 6 month compared to no, unadjusted OR=2.18(95%CI=1.06,4.49) and mothers who never felt not enough breast milk compared to mothers who always felt not enough breast milk unadjusted OR= 5.68(95%CI=1.36,23.84) were all positively associated with exclusive breastfeeding at 6 months from univariate analysis.

Table 4.20: Factors associated with exclusive breastfeeding at 6 months from univariate analysis (significant factors)

	Non exclusive n (%)	Exclusive n (%)	P value	Crude OR	95%CI	
					upper	lower
Work status						
No	454(92.1)	39(7.9)	0.001**	4.41	2.11	9.21
Yes	462(98.1)	9(1.7)	1.000			
Same room with baby						
No	122(97.6)	3(2.6)	1.000			
Yes	794(94.6)	45(5.4)	0.039*	4.06	1.07	15.31
Family support by mothers						
No	326(97.3)	9(2.7)	1.000			
Yes	590(93.8)	39(6.2)	0.020*	2.39	1.15	5.00
Level of knowledge						
poor	579(96.2)	23(3.8)	1.000			
good	337(93.1)	25(6.9)	0.035*	1.87	1.04	3.34
Culture of giving water						
No	297(90.0)	33(10.0)	0.001**	4.59	2.45	8.57
Yes	619(97.6)	15(2.4)	1.000			
Giving water due to not enough breast milk						
No	652(93.5)	45(6.5)	0.005*	5.40	1.66	17.63
Yes	264(98.9)	3(1.1)	1.000			
Giving water due to clean baby's mouth						
No	447(93.1)	33(6.9)	0.040*	1.95	1.03	3.69
Yes	469(96.9)	15(3.1)	1.000			
Giving water to reduce baby's body temperature						
No	635(93.5)	44(6.5)	0.009*	3.98	1.40	11.29
Yes	281(98.6)	4(1.4)	1.000			
Breast milk only is enough for baby up to 6 month						
No	447(93.1)	33(6.9)	1.000			
Yes	469(96.9)	15(3.1)	0.033*	2.18	1.06	4.49
Feeling not enough breast milk						
always	137(98.6)	2(1.4)	1.000			
usually	80(98.1)	1(1.2)	0.900	0.86	0.08	9.59
seldom	229(97.4)	6(2.6)	0.478	1.79	0.36	9.02
never	470(92.3)	39(7.7)	0.018*	5.68	1.36	23.84

**equal or less than 0.001

*less than 0.05

4.2.5 Multiple logistic regression analysis of factors affecting exclusive breastfeeding at 6 months

All the associated factors from univariate analysis as well as variables with significant level less than 0.2 were included in the multiple logistic regression analysis using backward LR methods. This was done to control the confounders. Table 4.21 shows the final model for exclusive breastfeeding at 6 months based on the 'Backward Log-Likelihood Ratio' method. Interaction test was performed among the variables in the final model and it did not show any interaction.

The final model showed that non working women had the odds of 4.73 to exclusively breastfeed at 6 months compared to working women (95% CI= 2.21,10.11). Other than that women who was given support by mothers had the odds of 2.52 higher to exclusively breastfeed at 6 months compared to not given support by mothers (95%CI=1.16,5.47). Mothers with the culture of not giving water had the odds of 4.35 higher to exclusively breastfeed at 6 months compared to women who give water due to culture (95% CI=2.22, 8.51). Other positive associated factors of exclusive breastfeeding at 6 month were mothers who did not give water due to not enough breast milk compared to mothers who gave water to baby, adjusted OR 3.43 (95%CI=1.02, 11.56) and mothers who never felt not enough breast milk compared to mothers who always felt not enough breast milk, adjusted OR 4.58(95%CI =1.05, 20.04).

A ROC Curve was performed on the multivariate final model. The model had an area under the curve of 0.871 (95% CI 0.819, 0.923), $p < 0.001$.

Table 4.21: Multiple logistic regression of factors affecting exclusive breastfeeding at 6 months

Characteristic of subjects	B	S.E.	Wald	df	P value	Adjusted OR	95%Ci Lower	95%C Upper
Work status								
No	1.554	0.388	16.042	1	0.001**	4.73	2.21	10.11
Yes					1.000			
Family support by mothers								
No					1.000			
Yes	0.926	0.395	5.503	1	0.019*	2.52	1.16	5.47
Culture of giving water								
No	1.469	0.343	18.365	1	0.001**	4.35	2.22	8.51
Yes					1.000			
Giving water due to not enough breast milk								
No	1.234	0.619	3.968	1	0.046*	3.43	1.02	11.56
Yes					1.000			
Feeling not enough breast milk								
always					1.000			
usually	0.013	1.260	0.000	1	0.992	1.01	0.09	11.97
seldom	0.568	0.846	0.452	1	0.502	1.77	0.34	9.26
never	1.522	0.753	4.081	1	0.043*	4.58	1.05	20.04

**equal or less than 0.001

*less than 0.05

4.2.6 Breastfeeding Practice among Working and Non working Mothers

The prevalence of ever breastfeeding among non working mothers was 99.2% while the prevalence of ever breastfeeding among working mothers was 99.1% which did not show much differences between the two group. The p value was 0.948 (OR= 0.95,(95%CI=0.24,3.44)) showed that it was not significant. The prevalence of breastfeeding at 6 months among non working mothers was 67.5% which was higher compared to working mothers, 56.0%. The p value was <0.001 and the adjusted OR was 1.66 higher among non working mothers to continue breastfeeding at 6 months than working mothers (95%CI= 1.21,2.28) as shown in Figure 4.1.

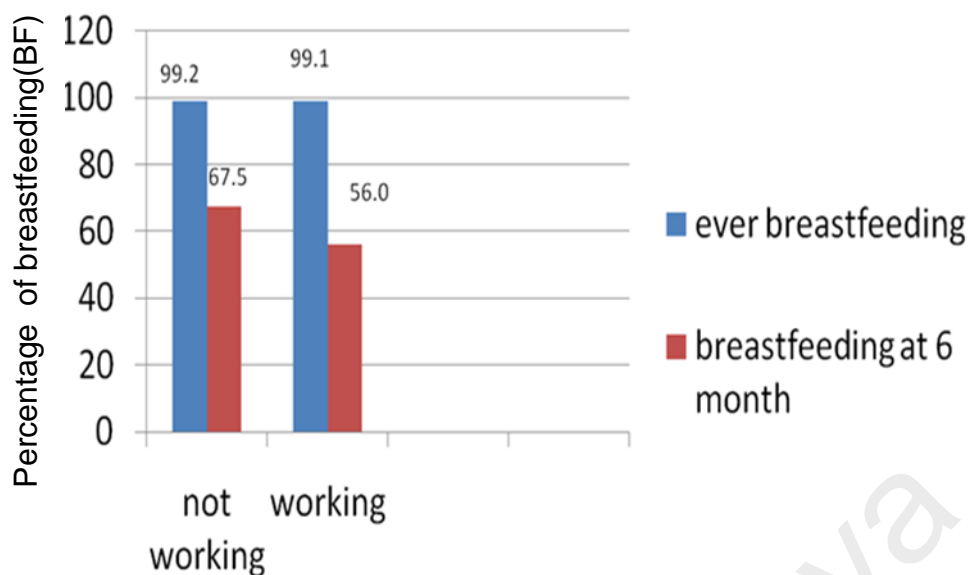


Figure 4.1: Prevalence of Ever Breastfeeding and Breastfeeding At 6 Months According To Employment Status

4.2.6.1 Breastfeeding type according to working status

The prevalence of exclusive breastfeeding at 6 months was lower among working mothers (1.7%) compared to non working mothers (7.9 %) and predominant breastfeeding was 2.9% to 12.9% respectively (figure 4.2). In contrast, the prevalence of complementary breastfeeding (50.5%) and not breastfeeding (47.4%) was higher at 6 month among working mothers. For non working mothers the complementary breastfeeding was 44.8% while 31.6% of them did not breastfed.

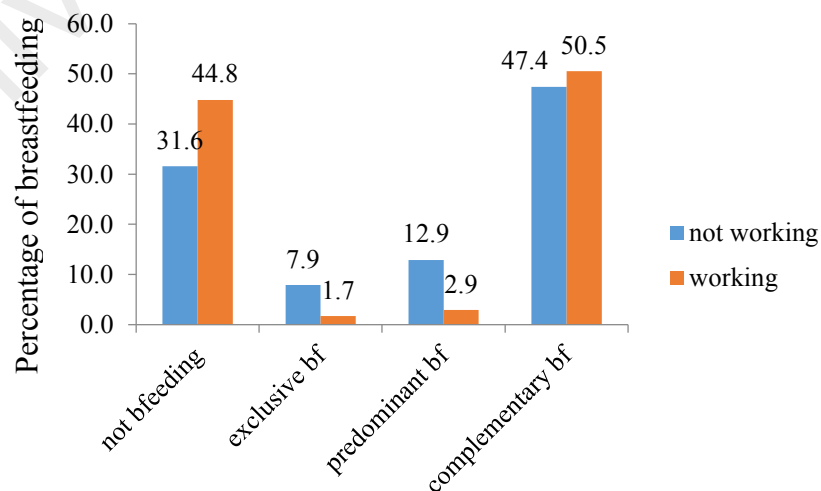


Figure 4.2: Proportion of Breastfeeding Type At 6 Months According To Employment Status

Table 4.2 shows that the prevalence of exclusive breastfeeding was reduced about half from 63.2% to 32.1% at 1 month and 2 months of baby's age among working mothers. The prevalence was decreased markedly at 4 months and 6 months of baby's age which was 9.3% and 1.7%, respectively among working mothers. The prevalence of exclusive breastfeeding was also reduced among non working mothers from 1, 2, 4 and 6 months of baby's age which was 72.0%, 55.2%, 32.6% and 7.9% respectively. However, the reduction was not as drastic as the prevalence of exclusive breastfeeding among working mothers. The p-value of exclusive breastfeeding at 1 to 6 months was significant as it was ranged from <0.001 to 0.004. The odds of exclusive breastfeeding was increasing and higher among non working mothers compared to working mothers from 1, 2, 4 and 6 months which were 1.49(95%CI=1.13,1.96), 2.63(95%CI=2.00,3.39), 4.76(95%CI=3.33,6.66) and 4.4(95%CI=2.11,9.09) respectively.

Table 4.22: Prevalence of exclusive breastfeeding among working and non working mother by infant age

Infant age	exclusive breastfeeding		P value	OR(95%CI)
	N (%) Work	N (%) Not work		
One month	298(63.2)	355(72.0)	0.004	1.49(1.13,1.96)
Two months	151(32.1)	271(55.2)	<0.001	2.63(2.00,3.39)
Four months	44(9.3)	161(32.6)	<0.001	4.76(3.33,6.66)
Six months	9(1.7)	39(7.9)	<0.001	4.40(2.11,9.09)

Figure 4.3 shows that that the proportion of predominant breastfeeding at one month was higher among working mothers compared to non working mothers at one month. The proportion among working mothers was reduced from 1 month to 6 months. However, the pattern slightly contrast among non working mothers in which, the proportion was increasing from 1 month to 4 months and decreasing from 4 months to 6 months of baby's age.

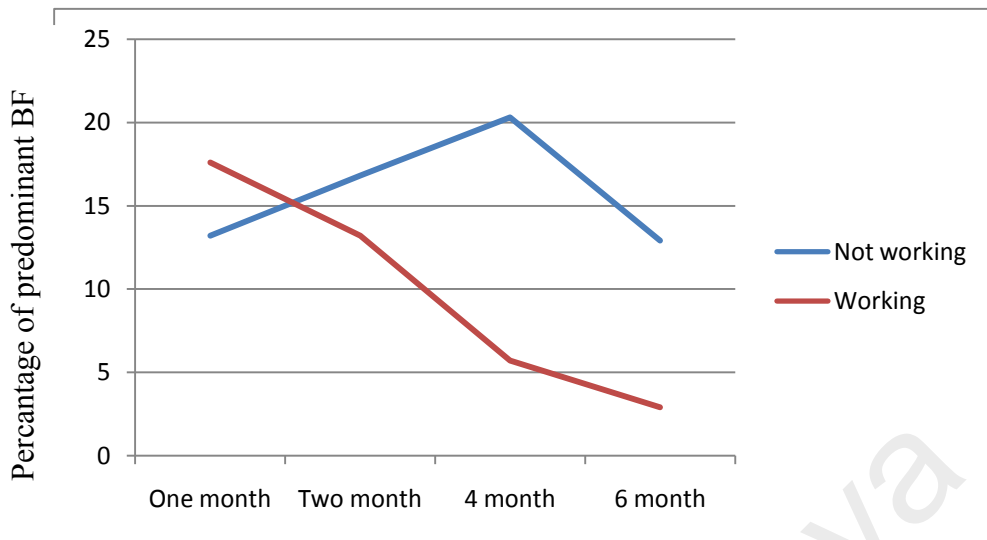


Figure 4.3: Proportion of predominant breastfeeding among working and non working mothers at 1, 2, 4 and 6 months of baby's age

Figure 4.4 shows the trend of complementary feeding among working and non working mothers from 1 month to 6 months. The trend of complementary breastfeeding was increasing in both working and non working mothers. The trend among working mothers showed that complementary feeding had increased markedly from 1 to 4 months and was slightly increased from 4 months to 6 months of baby's age. In contrast, the complementary breastfeeding among non working mothers was slightly increased from 1 month to 4 months and markedly increased at six months of baby's age.

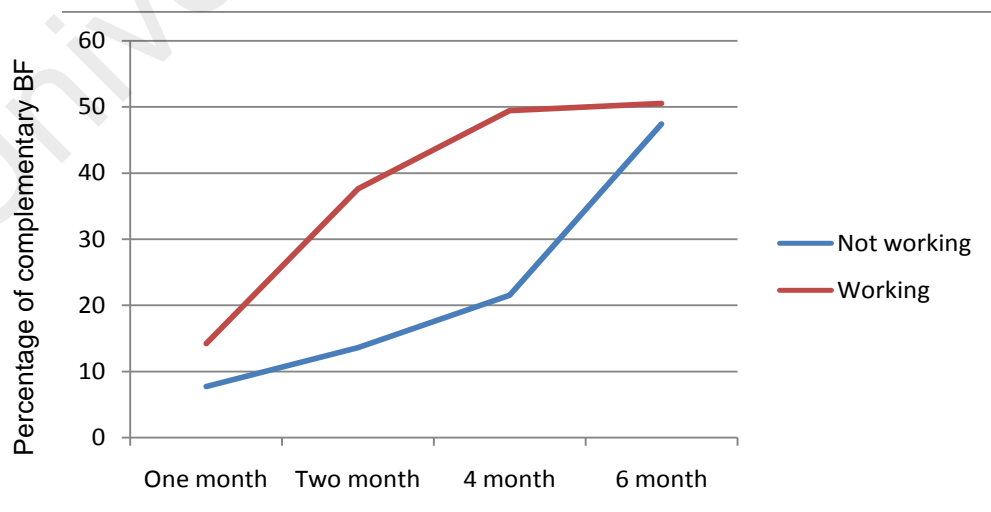


Figure 4.4: Proportion of complementary breastfeeding among working and non working mothers at 1, 2, 4 and 6 months of baby's age

The proportion of not breastfeeding was higher among non working mothers compared to working mothers at 1 month as shown in figure 4.5. Nevertheless the proportion among working mothers was markedly increased from 1 to 6 months and was higher at 2, 4 and 6 months compared to non working mothers.

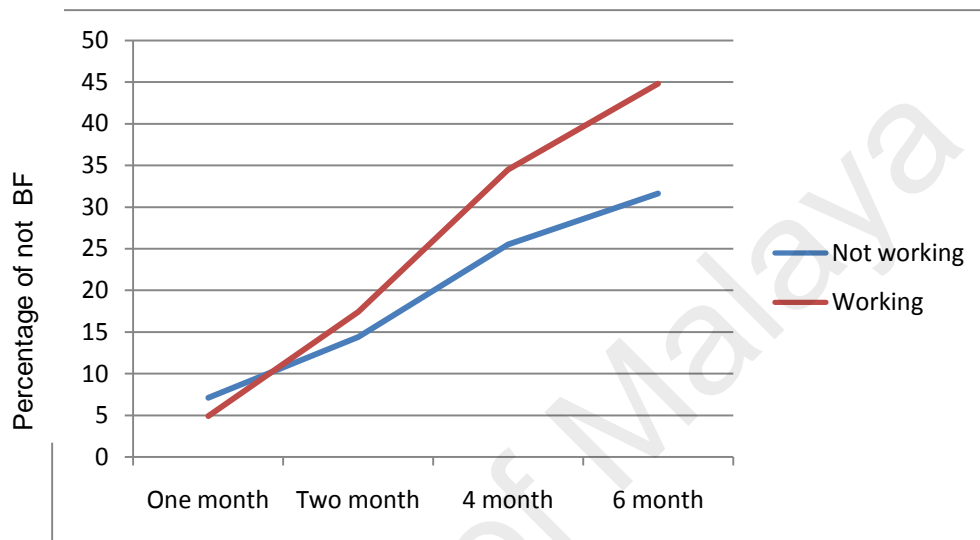


Figure 4.5: Proportion of not breastfeeding among working and non working mothers at 1, 2, 4 and 6 months of baby's age

4.2.6.2 Univariate analysis of employment factors affecting any breastfeeding duration at 6 months among working mothers

Table 4.23 showed place of work and job characteristics factors affecting breastfeeding duration at 6 months from univariate analysis. It showed that, mothers who worked in government sector had 3.23 odds higher than mothers who worked in private sector to continue breastfeeding at 6 months (95% CI=2.14,4.90). There were no significant differences between mothers who worked in private sector and self employed mothers to continue breastfeeding at 6 month. Univariate analysis showed that clerical worker has the odds of 6.13 higher than professional worker to continue breastfeeding at 6 months (95%CI=1.03,36.45).

The other positive associations to continue breastfeeding at 6 months were mothers who worked in similar occupation more than 5 years compared to working less

than 1 year, OR=2.32(95% CI=1.26,4.28), self employed mothers compared to mothers who worked full time, OR= 4.83(95% CI= 1.12,20.76), mothers who worked half day compared to office hours, OR=1.92(95%CI=1.05, 3.51) and mothers who worked office hours compared to flexible hours, OR=3.12(95%CI=1.09,46.44). The wide confidence interval was due to small numbers of mothers who breastfed their babies (according to certain employment factors) as shown in Table 4.23.

Table 4.24 shows the results obtained from univariate analysis, the breastfeeding policy factors associated with breastfeeding at 6 months were time off given to express breast milk compared to not given time off to express breast milk by the employer, OR= 2.69(95%CI=1.81,4.02) and duration of maternity leave more than 8 weeks compared to less than 6 weeks, crude OR was 7.11 (95%CI=1.09,46.44). The wide confidence interval was due to the small numbers of mothers breastfed their babies (Table 4.24). During the period of the data collection, the government policy for maternity leave was 60 days or 8 weeks. However, this study did not show any association between returning to work and breastfeeding duration for 6 months.

Table 4.23: Univariate analysis employment factors affecting any breastfeeding duration at 6 months of baby's age (place and job characteristics) (n=471)

Characteristic of subjects	Not breast feeding n (%)	Breast feeding n (%)	P value	Crude OR	95% CI lower	95% CI upper
Place of work						
Private sector	151(53.4)	132(46.6)		1.00		
Government	45(27.3)	120(72.7)	<0.001	3.23	2.13	4.90
Self employed	11(47.8)	12(52.2)	0.30	1.57	0.68	3.70
Type of occupation						
-Professional	13(31.7)	28(68.3)	0.07	1.00		
- Legislators, Senior Officials or Managers	1(25.0)	3(75.0)	0.21	2.87	0.56	14.73
-Technicians or associate professionals	5(17.9)	23(82.1)	0.32	4.00	0.27	60.32
-Clerical workers	59(44.7)	73(55.3)	0.046*	6.13	1.03	36.45
-Service workers	68(44.2)	86(55.8)	0.52	1.65	0.36	7.66
-Agricultural or Fishery workers	1(50.0)	1(50.0)	0.50	1.69	0.37	7.79
-Industrial worker	47(56.6)	36(43.4)	0.86	1.33	0.06	31.12
-Business	4(36.4)	7(63.6)	0.98	1.02	0.21	4.85
-Self-employed	4(44.4)	5(55.6)	0.39	2.33	0.34	16.18
-Other	4(57.1)	3(42.9)	0.62	1.67	0.23	12.22
Occupation grade (government)						
Professional	17(36.2)	30(63.8)	0.20	1.00		
Support group 1	7(18.9)	30(81.1)	0.41	1.50	0.57	3.92
Support group 2	21(25.9)	60(74.1)	0.22	0.62	0.28	1.34
Period of working in the same occupation						
<1 year	32(59.3)	22(40.7)	0.02	1.00		
1-5 years	96(45.3)	116(54.7)	0.07	1.76	0.96	3.22
> 5 years	79(38.5)	126(61.5)	0.01*	2.32	1.26	4.28
Working status						
Full time	188(45.2)	228(54.8)	0.10	1.00		
Part time	15(36.6)	26(63.4)	0.94	0.97	0.46	2.06
Self-employed	4(28.6)	9(71.4)	0.03*	4.83	1.12	20.76
Operation of working						
Permanent	202(43.8)	259(56.2)		1.00		
Out station	5(50.0)	5(50.0)	0.61	0.71	0.19	2.69
Working hours						
Office hours	114(41.9)	158(58.1)	0.001	1.00		
Shift hours	56(59.6)	38(40.4)	<0.001	0.48	0.30	0.78
Half day	21(27.3)	56(72.7)	0.03*	1.92	1.05	3.51
Flexible hours	16(57.1)	12(42.9)	0.02*	0.32	0.12	0.86

**equal or less than 0.001

*less than 0.05

Table 4.24: Univariate analysis employment factors any affecting breastfeeding duration at 6 months of baby's age (breastfeeding policy and return to work) (n=471)

Characteristic of subjects	Not breast feeding n (%)	Breast feeding n (%)	P value	Crude OR	95% CI lower	95% CI upper
Maternity leave provide by the employer:						
No	2(22.7)	7(77.8)		1.00		
Yes	205(44.4)	257(55.6)	0.20	0.36	0.07	1.74
Duration of maternity leave						
Less than 6 weeks	8(72.7)	3(27.3)	0.109	1.00		
6-8 weeks	194(44.1)	246(55.9)	0.075	3.38	0.89	12.92
More than 8 weeks	3(27.3)	8(72.7)	0.040*	7.11	1.09	46.44
Type of maternity leave						
Non Pay	17(53.1)	15(46.9)	0.566	1.00		
Half pay	8(47.1)	9(52.9)	0.686	1.28	0.39	4.14
Full pay	180(43.6)	233(56.4)	0.298	1.47	0.71	3.02
Breastfeeding leave						
Yes	20(35.1)	37(64.9)	0.157	1.52	0.85	2.71
No	179(45.1)	218(54.9)	1.000			
Don't know	8(47.1)	9(52.9)	0.873	0.92	0.35	2.44
Type of Breastfeeding leave						
Non Pay	15(31.3)	33(68.7)	0.365	1.00		
Half pay	2(66.7)	1(33.3)	0.241	0.23	0.02	2.71
Full pay	3(50.0)	3(50.0)	0.367	0.45	0.08	2.52
Taking Breastfeeding leave						
Yes	5(45.5)	6(54.5)	0.347	0.53	0.14	2.01
No	14(30.4)	32(69.6)		1.00		
Return to work						
2 month and less	166(43.3)	217(56.7)		1.00		
3 to 5 month	39(47.6)	43(52.4)	0.481	0.84	0.52	1.36
6 month and more	2(33.3)	4(66.7)	0.614	1.55	0.28	8.61
Breastfeeding education and trainings given in workplace						
Yes	25(46.3)	53(53.7)	0.456	0.80	0.44	1.44
No	182(43.6)	235(56.4)		1.00		
Time off given to express breast milk or to breastfeed child						
Yes	57(30.5)	130(69.5)	<0.001**	2.69	1.81	4.02
No	150(52.8)	134(47.2)		1.00		

**equal or less than 0.001

*less than 0.05

As shown in table 4.25, childcare factors associated with breastfeeding at 6 months were baby's care in day care nursery compared to baby sitter, OR=2.77(95%CI=1.13, 6.66) and baby's care in day care nursery compared to others, OR=3.85(95%CI =1.61,9.09). Breastfeeding facilities provided by employer factors that associated with breastfeeding at 6 months from univariate analysis were expressed breast milk during working hours compared to did not express breast milk during working hours, unadjusted OR=5.22(95%CI=3.36,8.06), mothers who have own breast pump unadjusted OR=4.28(95%CI=2.63,6.96), availability of room/place to express breast milk compared to room/place not available, unadjusted OR=3.95(2.55,6.12) and availability of refrigerator for breast milk storage compared to not available, unadjusted OR=2.87(95% CI=1.96,4.21) .

University of Malaya

Table 4.25: Univariate analysis employment factors affecting any breastfeeding duration at 6 months of baby's age (facilities provided by employer and childcare) (n=471)

Characteristic of subjects	Not breast feeding n (%)	Breast feeding n (%)	P value	Crude OR	95% CI lower	95% CI upper
Nursery in/near workplace						
Yes	27(50.0)	57(50.0)	0.334	0.76	0.43	1.33
No	180(43.2)	287(56.8)		1.00		
Nursery provided by employer						
Yes	13(54.2)	11(45.8)	0.304	0.65	0.28	1.48
No	194(43.4)	253(56.6)		1.00		
Child in the nursery in workplace						
Yes	5(55.6)	4(44.4)	0.483	0.62	0.16	2.34
No	202(43.7)	260(56.3)		1.00		
Place child where was leave during working if no nursery available in the workplace						
Day care nursery	7(20.0)	28(80.0)	0.030	1.00		
Baby sitter	67(40.9)	97(59.1)	0.024*	0.36	0.15	0.88
At home with house maid	8(44.4)	10(55.6)	0.067	0.31	0.09	1.09
At home/own care	3(60.0)	2(40.0)	0.075	0.17	0.02	1.20
Others(mother in law/mother/sister/others)	117(48.8)	123(51.2)	0.002*	0.26	0.11	0.62
Express breast milk during working hours						
Yes	35(20.5)	136(79.5)	<0.001**	5.22	3.38	8.08
No	172(57.3)	128(42.7)		1.00		
Has own breast pump						
Yes	25(20.5)	97(79.5)	<0.001**	4.28	2.63	6.96
No	183(52.4)	166(47.6)		1.00		
Breast pump provide by employer						
Yes	4(26.7)	11(73.3)	0.182	2.20	0.69	7.02
No	201(44.5)	251(55.5)		1.00		
Room /space to express breast milk in workplace						
Yes	35(23.0)	117(77.0)	<0.001**	3.95	2.55	6.12
No.	170(54.1)	144(45.9)		1.00		
Availability of refrigerator in the workplace for storage of breast milk						
Yes	68(30.8)	153(69.2)	<0.001**	2.87	1.96	4.21
No	138(56.1)	108(43.9)		1.00		

**equal or less than 0.001

*less than 0.05

Table 4.26 shows that from univariate analysis, women with husbands working in government sector were more likely to breastfeed at 6 months compared to women with husbands working in private sector, unadjusted OR=1.97(95%CI=1.15, 3.36).

Table 4.26: Univariate analysis employment factors affecting breastfeeding duration at 6 months of baby's age (Father's employment factors) (n=471)

Characteristic of subjects	Not breast feeding n(%)	Breast feeding n(%)	P value	Crude OR	95% CI lower	95% CI upper
Paternity leave						
Yes	169(44.1)	214(55.9)	0.872	0.96	0.60	1.54
No	38(43.2)	50(56.8)		1.00		
Duration of paternity leave						
3 days and less	96(50.5)	94(49.5)		1.00		
4-7 days	61(36.3)	107(63.7)	0.007	1.79	1.17	2.74
more than 7 days	6(40.0)	9(60.0)	0.435	1.53	0.52	4.47
Husband Occupation						
professional	8(38.1)	13(61.9)		1.00		
Legislators, Senior Officials or Managers	2(40.0)	3(60.9)	0.874	0.81	0.06	10.48
Technicians or associate professionals	24(35.8)	43(64.2)	0.851	0.75	0.04	14.97
Clerical workers	20(46.2)	27(53.8)	0.930	0.90	0.08	10.40
Service workers or shop/market workers	52(47.7)	57(52.3)	0.755	0.68	0.06	7.97
Agricultural or Fishery workers	1(100.0)	0(0.0)	1.000	0.00	0.00	.
Industrial worker	62(52.1)	57(47.9)	0.628	0.55	0.05	6.22
Business	9(45.5)	11(54.5)	0.530	0.46	0.04	5.21
Self-employed	24(38.7)	38(61.3)	0.706	0.61	0.05	7.88
others	4(23.5)	13(76.5)	0.852	0.79	0.07	9.21
unemployed	1(33.3)	2(66.6)	0.719	1.63	0.11	22.98
Husband Workplace						
privates sector	160(46.9)	181(53.1)		1.00		
Government sector	23(31.5)	50(68.5)	0.014*	1.97	1.149	3.368
self employed	22(43.1)	29(66.9)	0.560	0.60	0.659	2.160

**equal or less than 0.001

*less than 0.05

4.2.6.3 Multiple Logistic Regression of employment factors affecting breastfeeding duration at 6 months among working mothers

A multivariate logistic regression analysis was done to control for confounding effects. All the variables with significant value less than 0.2 from the univariate analysis were included in the early model .Table 4.27 shows the final model for employment factors associated with breastfeeding duration at 6 months based on the 'Backward Log-Likelihood Ratio' method. Interaction test was performed among the variables in the final model and it did not show any interaction.

The final model shows that mothers who worked in government sector has the odds of 1.81 higher than mothers who worked in private sector to continue breastfeeding at 6 months (95%CI=1.06,3.12). Mothers who worked more than 5 years had the odds of 2.50 higher than mothers who worked less than one year in the similar occupation (95%CI=1.16,5.41). The other variables which were significant in the final model were mothers who worked half day which had odds of 2.24 higher to breastfeed at 6 month compared to mothers who worked during office hours (95%CI=1.14,4.43). Mothers who expressed breast milk during working hours had the odds of 4.27 higher to breastfeed at 6 months compared to mothers who did not express breast milk in workplace (95%CI=2.48,7.32). The availability of refrigerator to store breast milk in workplace had the odds of 2.13 to continue breastfeeding at 6 months than mothers who were not provided with refrigerator in workplace (95%CI=1.22,3.71). A ROC Curve was performed on the multivariate final model. The model had an area under the curve of 0.763(95% CI: 0.720, 0.806), $p < 0.001$.

Table 4.27: Multiple Logistic Regression of factors affecting breastfeeding duration at 6 months using Backward LR

Characteristic of subjects	B	S.E.	Wald	df	Sig	Adjusted OR	95%CI Lower	95%CI Upper
Place of working								
Private sector			4.88	2	0.09	1.00		
Government sector	0.48	0.29	2.70	1	0.03*	1.81	1.06	3.20
Self employed	-0.23	0.72	0.10	1	0.75	0.80	0.19	3.26
Period of working in the same occupation								
Less than 1 year			6.83	2	0.03	1.00		
1-5 years	0.48	0.39	1.50	1	0.22	1.62	0.75	3.49
More than 5 years	0.92	0.39	5.42	1	0.02*	2.50	1.16	5.41
Working hours								
office hours (8 am to 5 pm)			12.58	3	0.01	1.00		
shift hours (morning/afternoon/night/ others)	-0.42	0.29	2.04	1	0.15	0.66	0.37	1.17
half day	0.81	0.35	5.45	1	0.02*	2.24	1.14	4.43
flexible hours	-1.02	0.57	3.25	1	0.07	0.36	0.12	1.09
Express breast milk during working hours								
No						1.00		
Yes	1.45	0.28	27.69	1	<0.001**	4.27	2.48	7.32
Room /space to express breast milk in workplace								
No						1.00		
Yes	0.75	0.28	7.14	1	0.01*	2.13	1.22	3.71

**equal or less than 0.001

*less than 0.05

4.2.6.4 Univariate analysis of employment factors affecting exclusive breastfeeding at 4 months among working mothers

Univariate analysis and multiple logistic regression of employment factors affecting exclusive breastfeeding at 6 months was not performed due to very small numbers of employed mothers who continued to breastfeed exclusively at 6 months (only 9 mothers). Due to that, binary logistic regression was performed on the employment factors associated with exclusive breastfeeding at 4 months. Table 21.1 shows the binary logistic regression analysis of place of work and job characteristic factors associated with exclusive breastfeeding at 4 months. It showed similar findings with factors maintaining breastfeeding at 6 months, mothers who worked in government sector had the odds of 2.27 higher than mothers who worked in private sector (95%CI=1.19,4.34) to exclusively breastfeed at 4 months. However, there were

no significant changes between mothers who worked in government sector and self employed mothers to exclusively breastfeed at 4 months. In this study, the type of occupation and working hours were not associated with exclusive breastfeeding duration at 4 months of baby's age.

Table 4.28: Univariate analysis of place of work and job characteristics factors affecting exclusive breastfeeding at 4 months of baby's age among working mothers

Characteristic of subjects	Not exclusive n(%)	Exclusive n(%)	P value	Crude OR	95%CI upper	95%CI lower
Place of working						
Private sector	264(93.3)	19(6.7)	1.000			
Government sector	142(86.1)	23(13.9)	0.013*	2.27	1.19	3.34
Self employed	21(91.3)	2(8.7)	0.492	0.59	0.13	2.68
Type of occupation						
-Professional	37(90.2)	4(9.8)	1.000			
-Legislators, Senior Officials or Managers	3(75.0)	1(25.0)	0.375	3.08	0.26	37.08
-Technicians or associate professionals	24(85.7)	4(14.3)	0.566	1.54	0.35	6.76
-Clerical workers	118(89.4)	14(10.6)	0.876	1.10	0.34	3.54
-Service workers or shop/market workers	137(89.0)	17(11.0)	0.814	1.15	0.36	3.62
-Agricultural or Fishery workers	1(50.0)	1(50.0)	0.140	9.25	0.48	178.07
- Industrial worker	81(97.6)	2(2.4)	0.097	0.23	0.04	1.30
-Business	10(90.9)	1(9.1)	0.947	0.93	0.09	9.23
- Self-employed	9(100.0)	0(0.0)	0.999	0.00	0.00	.
-Others.....	6(85.7)	1(14.3)	0.719	1.54	0.15	16.25
Occupation grade(government)						
Professional	40(85.1)	7(14.8)	1.000			
Support group 1	69(85.1)	12(14.9)	0.990	0.99	0.36	2.73
Support group 2	33(89.1)	4(10.8)	0.583	0.69	0.19	2.57
Period of working in the same occupation						
Less than 1 year	50(92.5)	4(7.4)	1.000			
1-5 years	192(90.5)	20(9.4)	0.719	1.23	0.40	3.79
More than 5 years	185(90.2)	20(9.7)	0.621	1.33	0.43	4.10
Working status						
Full time	378(90.8)	38(9.1)	1.000			
Part time	37(90.2)	4(9.8)	0.650	0.64	0.09	4.38
Self-employed	12(85.7)	2(14.3)	0.693	0.64	0.07	5.73
Operation of working						
Permanent (in one place)	419(90.8)	42(9.1)	1.000			
Out station	8(80.0)	2(20.0)	0.382	0.47	0.09	2.55
Working hours						
-office hours (8 am to 5 pm)	244(89.7)	28(10.3)	1.000			
-shift hours (morning/afternoon/ night/ others)	89(94.6)	5(5.3)	0.739	1.31	0.27	6.26
-half day	69(89.6)	8(10.4)	0.636	0.65	0.11	3.83
-flexible hours	25(89.2)	3(10.7)	0.741	1.34	0.24	7.43

**equal or less than 0.001

*less than 0.05

For breastfeeding policy and return to work factors, from binary logistic regression analysis, the positive associations of exclusive breastfeeding at 4 months were working mothers who had breastfeeding leave compared to not having breastfeeding leave, OR= 3.15 (95%CI=1.51,6.56) and mothers who were given time off to express breast milk/breastfeeding compared to not given time off, OR=2.95 (95%CI= 1.55,6.62) as shown in Table 4.29.

Table 4.30 shows that from binary logistic regression analysis, breastfeeding facilities provided by employers and childcare factors associated with exclusive breastfeeding at 4 months of baby's age were mothers who expressed breast milk while working compared to women who did not express, OR=8.32(95%CI=3.89,17.80), type of expression using breast pump compared to manual expression, OR=4.30(9%CI=1.57,11.74), mothers who own breast pump compared who did not own breast pump, OR= 5.73(95%CI=3.05,10.78), employers provided breast pump compared to employers who did not provide breast pump, OR=3.75(95%CI=1.14,12.31), mothers who were provided place or space to express breast milk in workplace, OR=3.06(95%CI=1.62,5.75) and mothers who had availability of refrigerator to store expressed breast milk compared to none provided in workplace ,OR=4.14(95%CI=1.99,8.62).

Table 4.29: Univariate analysis of breastfeeding policy and return to work factors affecting exclusive breastfeeding at 4 months of baby's age among working mothers

Characteristic of subjects	Not exclusive n(%)	Exclusive n(%)	P value	Crude OR	95%CI upper	95%CI lower
Maternity leave provide by the employer:						
No	9(100)	0(0)	1.000			
Yes	418(90.4)	44(9.5)	0.999	54.37	0.00	
Duration of maternity leave						
Less than 6 weeks	11(100.0)	0(0.0)	1.000			
6-8 weeks	398(90.4)	42(9.6)	0.999	46.23	0.00	
More than 8 weeks	9(81.1)	2(18.9)	0.999	91.54	0.00	
Type of maternity leave						
Non Pay	27(84.3)	5(15.6)	1.000			
Half pay	15(88.2)	2(11.8)	0.714	0.72	0.12	4.17
Full pay	376(91.0)	37(8.9)	0.221	0.53	0.19	1.46
Breastfeeding leave						
No	366(92.2)	31(7.8)	1.000			
Yes	45(78.9)	12(21.1)	0.002	3.15	1.51	6.56
Don't know	16(94.1)	1(5.9)	0.772	0.74	0.09	5.75
Type of Breastfeeding leave						
Non Pay	37(77.0)	11(22.9)	1.000			
Half pay	2(66.7)	1(33.3)	0.760	1.50	0.11	20.30
Full pay	6(100)	0	0.999	0.00	0.00	.
Duration of breastfeeding leave						
Less than 2 month	22(78.5)	6(21.4)	1.000			
2 month to 6 month	16(94.1)	1(5.8)	0.192	0.23	0.03	2.09
More than 6 month	7(58.3)	5(41.6)	0.196	2.62	0.61	11.28
Taking Breastfeeding leave						
No	34(73.9)	12(26.1)	1.000			
Yes	11(100)	0	0.999	0.00	0.00	.
Return to work						
2 month and less	343(89.5)	40(10.5)	1.000			
3 to 5 month	78(95.1)	4(4.9)	0.128	0.44	0.15	1.27
6 month and more	6(100.0)	0(0.0)	0.999	0.00	0.00	
Employee breastfeeding education and trainings given in workplace						
No	381(91.3)	36(8.6)	1.000			
Yes	46(85.2)	8(14.8)	0.437	1.41	0.59	3.38
Time off given to express breast milk or to breastfeed child						
No	268(94.3)	16(5.7)	1.000			
Yes	159(85.0)	28(15.0)	0.001**	2.95	1.55	5.62

**equal or less than 0.001

*less than 0.05

Table 4.30: Univariate analysis of breastfeeding facilities provided by employer and childcare factors affecting exclusive breastfeeding at 4 months of baby's age among working mothers

Characteristic of subjects	Not exclusive N(%)	Exclusive N(%)	P value	Crude OR	95%CI upper	95%CI lower
Nursery in/near workplace						
No	377(90.4)	40(9.6)	1.000			
Yes	50(92.5)	4(7.5)	0.267	0.44	0.10	1.88
nursery provided by employer						
no	406(90.8)	41(9.2)	1.000			
Yes	21(87.5)	3(12.5)	0.093	6.14	0.74	51.00
Child in the nursery in workplace						
no	420(90.9)	42(9.1)	1.000			
Yes	7(77.8)	2(22.8)	0.199	2.86	0.58	14.20
Place child where was leave during working if no nursery available in the workplace						
Day care nursery	30(85.7)	5(14.3)	1.000			
Baby sitter	152(92.7)	12(7.3)	0.189	0.47	0.16	1.44
At home with house maid	18(100)	0(0)	0.998	0.00	0.00	.
At home/own care	5(100)	0(0)	0.999	0.00	0.00	.
Others(mother in law/mother/sister/others)	215(89.5)	25(10.5)	0.495	0.70	0.25	1.96
Express breast milk during working hours						
No	291(97.0)	9(3.0)	1.000			
Yes	136(79.5)	35(20.5)	0.001**	8.32	3.89	17.80
Type of breast milk expression						
Hand/manual expression	58(92.1)	5(7.9)	1.000			
Using breast pump	81(72.9)	30(27.1)	0.000**	4.30	1.57	11.74
Has own breast pump						
No	331(94.8)	18(5.2)	1.000			
Yes	93(76.2)	29(23.7)	0.004*	5.73	3.05	10.78
Breast pump provide by employer						
No	412(91.2)	40(8.8)	1.000			
Yes	11(73.3)	4(26.6)	0.000**	3.75	1.14	12.31
Room /space to express breast milk in workplace						
No	295(93.9)	19(6.1)	1.000			
Yes	127(83.5)	25(16.)	0.030*	3.06	1.62	5.75
Availability of refrigerator in the workplace for storage of breast milk						
No	236(95.9)	10(4.1)	1.000			
Yes	188(85.1)	33(14.9)	0.001**	4.14	1.99	8.62

**equal or less than 0.001

*less than 0.05

Table 4.31 shows none of husband employment factors was associated with exclusive breastfeeding at 4 months of baby's age in this study.

Table 4.31: Univariate analysis of husband employment factors affecting exclusive breastfeeding at 4 months of baby’s age among working mothers

	Not exclusive N(%)	Exclusive N(%)	P value	OR	95% CI upper	lower
Paternity leave						
No	75(85.2)	13(14.7)	1.000			
Yes	352(91.9)	31(8.09)	0.056	0.51	0.25	1.02
Duration of paternity leave						
3 days and less	174(91.5)	16(8.4)	1.000			
4-7 days	156(92.8)	12(7.2)	0.653	0.84	0.38	1.82
more than 7 days	13(86.6)	2(13.3)	0.522	1.67	0.35	8.08
Husband Occupation						
professional	20(95.2)	1(4.8)	1.000			
Legislators, Senior Officials or Managers	4(80.0)	1(20.0)	0.289	5.00	0.26	97.70
Technicians or associate professionals	59(88.0)	8(12.0)	0.361	2.71	0.32	23.05
Clerical workers	41(87.2)	8(11.9)	0.335	2.93	0.33	25.98
Service workers or shop/market workers	99(90.8)	10(9.2)	0.514	2.02	0.24	16.68
Agricultural or Fishery workers	1(100.0)	0(0)	1.000	0.00	0.00	.
Industrial worker	112(94.1)	7(5.8)	0.839	1.25	0.15	10.72
Business	19(95.0)	1(5.0)	0.972	1.05	0.06	18.05
Self-employed	55(88.7)	7(11.2)	0.396	2.55	0.29	22.00
others	15(88.2)	2(11.8)	0.440	2.67	0.22	32.23
unemployed	2(66.7)	1(33.3)	0.149	10.00	0.44	228.7 0
Husband Workplace						
Government sector	64(87.6)	9(12.4)	0.258			
privates sector	314(92.1)	27(7.9)	0.229	0.61	0.27	1.36
self employed	44(86.2)	7(13.8)	0.819	1.13	0.39	3.26

4.2.6.5 Multiple logistic regressions of employment factors associated with exclusive breastfeeding at 4 months among working mothers

A multivariate logistic regression analysis was done to control for confounding effects. All the variables with significant value less than 0.2 from univariate analysis were included in the early model. Table 4.32 shows the final model of employment factors associated with exclusive breastfeeding duration at 4 months based on the

‘Backward Log-Likelihood Ratio’ method. Interaction test was performed among the variables in the final model and did not show any interaction

The final model shows that mothers who expressed breast milk during working hours had the odds of 3.41 higher than mothers who did not express breast milk in workplace to exclusively breastfeed at 4 months (95% CI=1.08,10.82) and working mothers who own breast pump had the odds of 3.23 higher than working mothers who did not own breast pump to continue exclusive breastfeeding at 4 months (95%CI=1.15, 9.03). A ROC Curve was performed on the multivariate final model. The model had an area under the curve of 0.766 (95%CI: 0.690, 0.842), $p<0.001$.

Table 4.32: Multiple logistic Regressions of employment factors associated with exclusive breastfeeding at 4 months

Characteristic of subjects	B	S.E.	Wald	df	Sig	Adjusted OR	95%CI Lower	95%CI Upper
Express breast milk during working hours								
No					1.000			
Yes	1.227	0.589	4.347	1.000	0.037	3.41	1.08	10.82
Has own breast pump								
No					1.000			
Yes	1.171	0.525	4.970	1.000	0.026	3.23	1.15	9.03

4.3 Results of Qualitative Study

Participants in the study were working mothers who involved in the earlier cross sectional study done who expressed breast milk while working and able to predominantly or exclusively breastfeeding up to four months of bay’s age. A total of 15 mothers involved in the study who were sampled using theoretical sampling.

4.3.1 Participants Characteristics

The participants characteristics of the mothers involved in the study are as shown in Table 4.33.

Table 4.33: Characteristics of participants involved in qualitative study

Characteristics	n
Age	Between 23 to 34 years old (mean : 29 years old)
Baby's age	Between 9 month to 16 month (mean : 12 month)
Race	
Malay	13
Chinese	2
Religion	
Islam	14
Buddha	1
Education level	
Secondary School (Form 1-5/6)	7
Degree/Diploma:	8
Household income	
RM1001-RM 2000	6
RM 2001-RM3000	3
RM3001-RM5000	5
More than RM 5000	1
Parity	
Single	10
2-5	5
Married	15
Place of work	
Government sector	10
Private sector	5
Type of work	
-Professional	3
- Legislators, Senior Officials or Managers	2
-Technicians or associate Professionals	3
-Clerical workers	3
-Service workers	4
Working hours	
Office hour	13
Shift	1
Half day	1
Period of working	
1-5 years	9
6-10 years	4
More than 10 years	2
Current Breastfeeding Practice (During interview)	
Breastfeeding	11
Stopped breastfeeding	4

4.3.2 Themes Derived From The Study

There were 4 major themes derived from the study. Themes that facilitate breastfeeding among working mothers were personal factors, worksite breastfeeding support, preparation for mothers absence while working and baby's carer assistance.

4.3.2.1. Personal factors

There were four subthemes which were perceived breast milk is the best, perceived benefits of breastfeeding, need to express breast milk in workplace and strong self motivation to express breast milk in workplace.

a. Perceived breast milk is the best

Majority of mothers in the study stated that breast milk was the best milk for their babies. Thirteen mothers expressed their views on this issue. Some of their statements were as follows:

“Breast milk.. people said it's the best milk, right..So, may be a few years ago, people were not aware..but I felt with current health education. They were more aware with breastfeeding..(working mum2)

“Breast milk is good for baby, right..”(working mum 13)

“I felt it's good for baby..Emm..It has many advantages to babies”
(working mum 8)

“In general, breast milk is the best...and supposes breastfeeding up to 2 years right?” (working mum 14)

“Breast milk is my first option for my baby..” (working mum 9)

“Breast milk is the best..”(working mum 1)

One of the working mothers felt that breast milk is the most complete milk for babies.

“Breast milk is the most complete milk..which created especially from mother to babies.. for mothers and babies health..complete.. for me ...the most complete milk..”(working mum 5)

b. Perceived benefits of breastfeeding

From the interviews, mothers stated that the benefits of breastfeeding included benefits to babies, benefits to mothers, benefits to economy and also benefits to employer.

i. Benefits of breastfeeding to babies

All mothers stated that breastfeeding had many benefits to babies. Benefits of breastfeeding to babies includes prevention from infection, baby more intelligent, provide adequate nutrition for baby, hygienic, reduce risk of allergy and healthy for baby.

Prevent from getting infection

About 11 mothers claimed that breastfeeding can prevent infection and the baby do not frequently getting sick. They claimed that breastfed babies were healthier and were getting less infection compared to babies on formula milk.

“Healthier because my colleague...her son was the same age as mine but within one month after delivery she had stop breastfeeding. Her baby was always sick..Her baby frequently had cough and running nose..My baby, until now still hasn't seen any doctors yet..It's good.”(working mum 7)

“..emm..I noticed there was differences between my first, second and third child. I fully breastfeed my third child..em..he less getting sick..He had less getting infection..He looks healthy, not..not..easy to get sick..”(working mum 9)

“For baby's body ...may be healthy..and prevented from germs..”(working mum 13)

“..Can prevent baby from infection..”(working mum 11)

“More over.. from my experience, baby less getting infection because my experience..Up till now, he already one year and three month old and only once had fever. It may be because his brother was getting chicken pox at the same time...Only that..It's difficult for him to get infection like his brother, I only breastfed up to 7 month..Earlier he was well but after that he like easily getting fever, and another fever, haa..by one year old I had to start introduced vitamin C, haa..after that, he had less getting fever..(working mum 12)

“Furthermore, it's difficult for the baby to get sick.. Ha...infection....”(working mum 14)

“Benefits to baby.. he was like.. less getting sick..fever or others..”
(working mum 4)

“Breastfeeding can prevent our baby from getting infection..(working mum 1)

Some mothers also said that breastfeeding increased the babies’ immune system.

A few mothers felt that breastfeeding was the first immunisation for baby.

“..one of the.. emm..first immunization to baby..”(working mum 3)

“For baby..immunoglobulin within the breast milk..”(working mum 5)

“So, his antibody was stronger..At least baby’s antibody was stronger.. Getting sickness was not easy...People said...to other babies.. We can differentiate our baby when.. formula milk and breastfeeding..We felt there’s some difference...Sometimes we look at other people’s child who was on formula milk. They frequently took leave. Whereas breastfeeding like us always working and less taking leave”(working mum 6)

Baby more intelligent

A few working women breastfed their babies as they felt that breastfeeding was good for baby’s brain as stated below.

“her brain is more intelligent...(working mum 15)

“err.. for mental development for him..for the baby...(working mum 3)

Provide adequate nutrition for baby

Another benefit of breastfeeding to baby’s, a few mothers claimed that breast milk provide adequate nutrition for baby.

“..in term of nutrition, breast milk is like ..complete..and always suitable for baby..”(working mum 8)

“... There’s one milk with complete nutrition...It has measurement..water and fat..what others...It’s really perfect for baby’s..(working mum 5)

Hygienic

One mother felt that the other benefit of breastfeeding to baby was related to hygiene.

“ ..like people said..more hygienic for the baby’s health..”
(working mum 13)

Reduce risk of allergy

Another mother felt that breastfeeding reduced the risk of allergy.

“ ..Can reduce risk of allergy.. because my son was allergic..Ha..when he drank cow’s milk, he developed rashes all over his body..Rashes, then vomited..After that, I was afraid to give him that milk..six month to one year, I didn’t mix with formula milk at all.. After 6 month’ I just gave food and breast milk..(working mum 11)

Healthy for baby

Breastfeeding was also healthy for the baby.

“ ..what I know is breastfeeding had more benefit to baby, for..for baby’s health..”(working mum 8)

ii. Benefits of breastfeeding to mothers

Majority of mothers felt that breastfeeding had many benefits to mothers. It includes saving costs, increased bonding, save time and easy to perform, a method of contraception, maintain mothers weight, helped uterus to contract, energetic, satisfaction felt when giving breast milk, reduced breast engorgement, reduced stress and one of cancer prevention.

Saved cost

Majority of mothers claimed that breastfeeding can save budget as no cost needed to buy the breast milk compared to formula milk. They claimed that formula milk was expensive and they had to spend much money to buy formula milk

“Ahh..in term of cost, of course we could save a lot,..it’s really expensive to buy milk..very expensive..it really saved cost..”
(working mum 7)

“ ..no cost...no cost. Totally free and and it really saved cost..
(working mum 8)

“Budget...Cost was ok..compared to buying formula milk..The good thing of breastfeeding is, we did not have to buy milk..Of course it saved cost... especially for milk..”(working mum 4)

“ ..one more, breastfeeding is saved...”(working mum 13)

“..we can save cost..”(working mum 10)

“..Saved, saved cost, err..saved cost..” (working mum 11)

“In term of budget, it saved cost. As now, the baby is less breastfeeding, as the breast milk as not enough and the baby has grown and more active..Compared to before, now more money spent..Formula milk is now expensive, right?..”(working mum 12)

One of the working mothers felt that they need to spend a lot of money to buy formula milk especially formula milk which contain many ingredients. She claimed breastfeeding saved a lot of cost.

“Budget ..it saved cost..At least we know...Right now, if we want to search for milk with more special ‘ingredient’, it was more expensive. Within one month, sometimes with only 50 grams we have to spend more than RM 40.If breast milk some ingredient, was not available in formula milk. But, we did not have to spend money..Whatever we eat we give to our baby...” (working mum 6 - a dietician)

Another mother felt that breastfeeding saved a lot of budget as they only had to buy the instrument for breast milk expression which saves a lot compared to money spent to buy formula milk. Furthermore, the equipments can be reused for her future child.

“In term of budget, there was a lot of difference ..Baby’s cost ..emm...not that much as I only spend on his diapers only.. Hmm...For me.. , plus minus with buying formula milk..I felt it is worth it..Furthermore, I could ..if the baby had stopped breastfeeding, the machine (breast pump) still can be used for my future child..”(working mum 9)

“..Cheap, no need to buy,... the only things we need to buy the equioment for pumping..it’s very easy to prepare, no need to prepare the milk and no need to wake up at night” (working mum 1)

According to one mother in the study, with the availability of instrument for breast milk expression nowadays, breastfeeding can be combined with work. It was a choice for working mother, not like those days which can only be practised at home.

“of course..from the cost..I felt breastfeeding much cheaper and it’s easy..I felt with the available instrument nowadays, it was more practical even for working mothers..because previously, people said breastfeeding can be done only at home..So, nowadays with the available breastfeeding gadget in the market..there was no problem faced..to continue breastfeeding..(working mum 2)

Increased bonding

Most working mothers also felt that breastfeeding increased bonding between mothers and babies. They claimed that, their relationship with their children were closer.

“ Furthermore, our relation with the baby became closer...”

(working mum 13)

“..Err..We were closer with baby.. In other word, if I called my child, she responded quickly.... For example between me and her father, she would say ‘hi’ to me first. Of course, I’m sure she wants her mother...(working mum 10)”

“..it can increase our love, increased our relationship...”

(working mum 11)

“..when I reached home, immediately my child wants to be with me..”(working mum 12)

“..emm..I felt satisfied when I breastfed my child...I felt closer with him. I can easily handle my son when he became irritated or others. Furthermore, I felt when we were away from the child, like when he was with baby sitter and I was at my workplace, I could feel that ..like...he was..hungry or thirsty..There’s positive reflection...The reflect to our breast..I felt the closeness...(working mum 6)

Save time and easy to perform

According to some mothers, the other benefit of breastfeeding was it saved time and was easy to perform. Moreover, they did not have to wake up at night to prepare formula milk as they can directly breastfeed their baby when needed.

“If the baby was with me, I could immediately breastfed her.. No need to prepare..and we didn’t have to wake up at night..”(working mum 12)

“ ...save a lot of time...there’s a lot of advantage of breastfeeding..”

(working mum 3)

“Easy to prepare....no difficulties..”(working mum 5)

A few mothers claimed that it saved a lot of time especially when travelling with the baby as no preparation was needed to give milk to baby during the journey.

“Of course when we are breastfeeding...easier for us to go everywhere or travelling with the baby...No need to become busy..If normally, we have to pack things to prepare formula milk..With breastfeeding, no need to prepare...just me and the baby..”(working mum 4)

A Method of contraception

Some mothers in the study expressed their views that breastfeeding was good as it was one of contraception methods and can help in spacing their pregnancy.

“..like people said, breastfeeding help to prevent another pregnancy..”(working mum 13)

“It helped me to space another pregnancy because for me until now I didn’t take any pills..”(working mum 11)

“Initially it delayed my menses..”(working mum 4)

“Breastfeeding helped me to space my breastfed baby from another pregnancy..It’s one of contraception method..”(working mum 5)

Maintain mothers weight

Some mothers in the study mentioned that another benefit of breastfeeding was maintaining their weight. By breastfeeding, their weight can be maintained and it did increased easily.

“..can reduced our weight easily..”(working mum 15)

“I could be thinned..can reduce my weight..(working mum 7)

One mother in the study expressed that she became hungry easily when breastfed her child however, by breastfeeding, it can balanced her body weight.

“I felt hungry a lot by breastfeeding but I don’t mind because it can balance my body weight. It did not reduce my weight but maintained my body weight. Just nice for me..”(working mum 9)

Helped uterus to contract

A few mothers in the study claimed that breastfeeding helped to contract their uterus and reduced the blood loss during confinement.

“ ..It helped me to contract my uterus...reduced my blood loss during confinement..”(working mum 15)

“In early stage, it helped us to contract our uterus quickly..”(working mum 3)

“Like to us.. quickly contracted uterus..(working mum 4)

Energetic

One mother in the study felt that breastfeeding helped her to regain her energy from easily feeling tired, and she did not have to take any supplement.

“For me..I did not feel tired easily even though I breastfed my baby. Even when I breastfed at night I didn’t have any problems on the next day. No need to take any multivitamin. I easily sweat and did not easily get tired when I was breastfeeding..”

(working mum 9)

Satisfaction felt when giving breast milk

Another mother in the study felt satisfied when she breastfed her child

“I felt satisfied..really satisfied when I breastfed my baby..”(working mum 6)

Reduce breast engorgement, reduce stress and prevent cancer

The other benefits of breastfeeding expressed by a few mothers in the study were it can reduce breast engorgement, reduced stress and prevent cancer.

“It can reduce breast engorgement and also reduce stress to mothers...”

(working mum 5)

“Breastfeeding also good for mothers to prevent cancer..”

(working mum 15)

c. Need to express breast milk in workplace

Another subtheme of personal themes was perceived as the need to express breast milk in workplace. Most mothers felt that they need to express breast milk in workplace due to several reasons. The reasons were to reduce breast engorgement, to continue giving breast milk to their child, there’s no problem to continue breastfeeding and for stockpiling.

i. Reduced breast engorgement

About two third of mothers in the study claimed that they need to express breast milk in the workplace to reduce breast engorgement. They felt uncomfortable and painful when their breast became engorged. When they pumped their

breast, they felt more comfortable to work compared when their breasts were engorged.

“I pumped to express my breast milk when the breast engorged..”
(working mum 13)

“It’s a need for a working mum like me because I would felt the engorgement if I did not expressed..”(working mum 8)

“It’s a need..If we did not express, that ‘thing’ was painful..So, the reason why we expressed was to reduce pain and if it’s in pain I felt like the whole body was uncomfortable..”(working mum 10)

“One more, as a staff we felt more comfortable to work when we expressed out our breast milk. If we work in the situation when our breasts were engorged, it’s really painful and uncomfortable..”(working mum 12)

“It’s a need..If we did not express, it would be painful..”(working mum 3)

A few mothers claimed that they need to express their breast milk at work as they felt the heaviness of their breasts if they did not pump it out.

“It would be difficult if you did not pump it out because you would feel the heaviness of your breast..”(working mum 7)

“It’s a need because once we breastfeed our child, within three to four hours it will engorge and we have to expressed it out. It’s a need.. By 8.30am I felt my breast already full..” (working mum 9)

ii. To continue giving breast milk for baby

Most women in the study stated that they need to express breast milk at workplace to continue breastfeeding to their babies. Some mothers wanted to fully give breast milk for her baby until the age of 6 monts. According to them, the expressed breast milk can be given to their baby when they were at work to continue breastfeeding.

“For me, I expressed my breast milk in workplace, to continue breastfeeding my baby during the first 6 month if possible.. It was like had been set, within 3 hours ‘it’ automatically full. After that I went to express..”(working mum 12)

“If possible, I want to continue breastfeeding..Totally breast milk.. up to.. if possible within the first 6 month because I feel it’s a need to breastfeed my baby..” (working mum 8)

“Because when we expressed our breast milk, we can gave it to our child..”
(working mum 10)

“It’s a need to express in workplace. If we want to continue breastfeeding, it’s a need.. to continue breastfeeding..” (working mum 11)

A few mothers in the study, felt they could continue breastfeeding by expressing their breast milk in workplace although they could not breastfeed the baby directly as they were working. Furthermore, if they continue to express their breast milk, it would maintain they breast milk supply and the supply would not reduce.

“Although we could not give directly ...but what to do.. because we are working, right? If we just keep it, later..the breast will dry..so, later it would be difficult for us to continue breastfeeding. It’s a need to continue breastfeeding at least until the baby’s age of two years old.. ” (working mum 3)

“To continue breastfeeding. If we did not or less expressed the breast milk, it will be reduced..the supply..” (working mum 5)

“My colleague stopped breastfeeding because she refused to express in the office. So, if she did not continue to ‘press’, the supply will stopped..”(working mum 7)

Some mothers in the study stated that it’s a need to express breast milk in workplace to continue breastfeeding as it was a good behaviour and enjoying experience for them. It reminded them of their babies during the expression.

“It was a good behaviour..When we are working, we expressed our breast milk for our baby. Although we are working, we can continue breastfeeding ...” (working mum 14)

“It’s an enjoying experience..It reminded me..of the baby...” (working mum 15)

“During the expression, I feel happy. I could feel it..the happiness.. (working mum 9)

A few mothers claimed that it’s a need to express breast milk in workplace as it became a new trend for younger working mothers and the behaviour was good to continue breastfeeding.

“For me, nowadays breast milk expression has become popular..More people practiced it. It’s a need..That day, I went to Shah Alam and I saw a few mothers looking for place to express their breast milk ..Now it became a new trend..it was not like those days..There was no facilities..no instrument for breast milk expression..no cooler bag and they need refrigerator for storage..Nowadays It’s easy..May be the cost of breast milk expression is a bit expensive but we can use

it longer...Nowadays, there are many younger staff..It's very good practice in workplace and we should encourage the behaviour.." (working mum 6)

"A few years back, maybe people were not aware on breastfeeding but with the education nowadays, they are more aware with breastfeeding..Of course the cost is very much saved, and it's convenient to practice..I felt with the availability of instrument for breast milk expression in the market, it's more practical for working mothers..because previously it only can be done at home, right? So with the breastfeeding 'gadget' in the market, it should not be any problem..(working mum 2)

Another mother in the study informed that she expressed her breast milk for her baby and she felt it was her responsibility as a mother to continue breastfeeding her baby although she was working.

"I did express my breast milk in workplace for my baby..so that we can continue breastfeeding my baby. The experience was..ok, maybe as my responsibility as a mother to breastfeed my baby although I'm working...Actually I'm sincere to give my baby the breast milk.."(working mum 1)

The other reason given by mothers in the study was that it's a need for breast milk expression because it was easy to handle expressed breast milk to be given to the baby.

"For me, it's easier to give expressed breast milk to the baby..It was more convenient and faster..no need any preparation. (working mum 12)

iii. Not a problem to express breast milk

Most mothers felt that they need to express breast milk in workplace as it was not a problem to express breast milk during working hours. They could express express breast milk during rest hours and store their breast milk. Although some mothers had to squeeze her working time, it was still not a problem for them to practice the behaviour as the supervisor was not discouraging. Some mothers could easily express their breast milk when the time needed as the employer did not mind as they were still in their workplace.

"It would not be problem because during break I can express and then, store the milk.." (working mum 10)

"There should not be any problem for me here. It is because there's a place, it's not a constrain. In term of time, although I had to squeeze between my work

time, it should not be any problem because my supervisor did not discourage me to express..It's ok for me.." (working mum 3)

"..Err for me, I did not have any problem in my workplace. Because I could express on time and my boss did not mind as I was still in the office. The only problem is no place provided to express my breast milk.." (working mum 4)

"I didn't see any difficulty to express breast milk in my office because I had a place to express and it's not a problem to my 'boss'.." (working mum 9)

A few mothers in the study commented that the behaviour was easy to practise as she could buy the equipment to express the breast milk and in terms of time she could squeeze her work time.

"I put the scale of breast milk expression is 5.5. Scale '1' is difficult,'2' a little bit easy. I felt it was easy. As I could buy the instrument for expression although expensive, I still can afford it..In terms of time, I could squeeze my work time to express my breast milk. However, it's not to run away from responsibility as a worker..." (working mum 5)

Some mothers commented that it was not a problem as the employer provided refrigerator for storage of the expressed breast milk and place for pumping the breast milk. Furthermore, majority of the workers in the workplace were women.

"I felt it was ok because my boss provides one freezer and place for pumping the breast milk..majority of my colleague are women..May be other workers were having difficulty because no room and refrigerator to do breast milk expression in their workplace" (working mum 7)

A mother in the study mentioned that it was not a problem to practice breast milk expression in workplace as it is a new trend for mothers nowadays, the awareness of mothers on the importance of breastfeeding education and availability of the equipment for expression in the market, facilities as well as flexible time to practice the behaviour in the workplace.

"In few years back, may be people were not aware on breastfeeding but with the education nowadays, they are more aware with breastfeeding..Of course the cost is very much saved, and it's convenient to practice..I felt with the availability of instrument for breast milk expression in the market, it's more practical for working mothers..because previously it only can be done at home, right? So with the breastfeeding 'gadget' in the market, it should not be any problem.
.(working mum 2)

iv. For stockpiling

Some mothers in the study stated that it was a need to express breast milk in workplace for the baby's supply at home or at the care givers place. It was also important keep as stock for the baby when they were away from home for example when they went for courses.

“ Emm, it was easy to keep for the baby..When the breast was full, I pump out the milk as a standby for the baby..” (working mum 13)

“I had made stock of the expressed breast milk to be given to the baby sitter..” (working mum 3)

“When we went for courses, the expressed breast milk could cover the baby's need..” (working mum 10)

d. Strong self motivation to express breast milk in workplace

Self motivation was another personal factor that facilitated mothers to express their breast milk while working. Some mothers in the study still continued breast milk expression in their workplace although they had faced a few challenges to continue the practice. One mother had to bring her baby during a course and another mother had to express her breast milk in the toilet at her new workplace as there was no place provided for breast milk expression.

“It was unexpected challenges...I had intention to breastfeed my baby up to two years..I had read a few other peoples comments, experiences and their difficulties to continue breastfeeding while working. I did not expect the same thing happened to me. I had to bring my baby for on a course.. (working mum 5)

“I had to transfer from Penang to Selangor during my confinement. So, in this new place, some of the buildings were old and we had to search for a place to express. There was no place for breast milk expression in most of this old building. So I had to do it in the toilet..It would be easier if there's a place provided. Most clinics and hospitals provide it, right? However, it's difficult to find it in the workplace..” (working mum 6)

Another mother claimed that she had to plan early before starting work to express breast milk. She had to prepare the equipment for expression, find a place for expression and get her supervisor's permission to express breast milk in workplace.

“I feel maybe people said..breast milk expression needs mental and physical preparation..in terms of cost..earlier.. Although we had been taught to express

breast milk during pregnancy, but for me..I could not do it manually by using my hand because it was slow.. I need instrument for expression because in workplace, we need the fastest result and more expressed milk collected. For me, we had to plan early to search for convenient place for expression, permission from the head department or supervisor as we need time to do it..It's not only once..For me, within 8 hours of working hours, maybe I had to express two to three times..” (working mum 2)

Some mothers in the study skipped their meals or shortened their meal time during their break to express their breast milk.

“No policy for breast milk expression here..It is because until now, they were strict on the duration of our break but for me, I expressed during break. For example during tea time at 10.30 am to express my breast milk..” (working mum 10)

4.3.2.2 Worksite support for breastfeeding

a. Breast Feeding Policy in Workplace

There were three mothers who worked in one of the hospitals with ‘Baby Friendly Hospital Initiatives’ programme. They claimed that the availability of the policy was more for the patients and it was less friendly for the workers like them.

“This hospital is practicing breastfeeding policy for our patient..’Baby Friendly Hospital Initiatives’..however, there was no such thing..The policy is..more for the patient..No breastfeeding regulation for staff..” (working mum 12)

“This is hospital, right? Of course, it was ‘Baby Friendly Hospital’..There was a policy for BFHI..Only that..not for us..” (working mum 2)

However, one mother who worked in a private sector stated that the employer had provided a room for the workers and one of the room usages was mentioned in the policy as for breast milk expression or breastfeeding.

“There is a policy and the policy stated that..one of the room usage is for breastfeeding..My company is a medical supplier company. The company has a utility room and it did mention about the use of the utility room is for breastfeeding. If there is any mother who want to breastfeed their baby or expressed their breast milk, they can use the room..” (working mum 9)

Majority of the mothers in the study claimed that they did not have any breastfeeding policy or regulation in their workplace in terms of flexible working hours

and provision of facilities for breastfeeding except for maternity leave and breastfeeding leave for mothers who worked in the government sector.

“There was no such policy or regulation..It was never done in our office..”
(working mum 1)

i. Breastfeeding Policy for Flexible Hours to Express Breast Milk

From the study, none of the mothers in the study had a written policy on flexible work hours or paid hours for breastfeeding either for breast milk expression or to breastfeed the baby at their workplace.

“There was no policy..It’s on our own..” (working mum 13)

“No regulation or policy here. I just went to express the milk but I did inform my supervisor that I wanted to pump my breast milk for a while..” (working mum 8)

“No policy here..It was because until now, they had already shortened our break but for me, I express during break. For example during tea time at 10.30 am to express my breast milk..” (working mum 10)

“Until now, there was no regulation...(working mum 8)

“No such thing...”(working mum 13)

Nevertheless, according to them it was a matter of their supervisor or their employer understanding to practice the behaviour. Almost all of them informed their supervisors or their employer before they started to express their breast milk in the workplace.

“For me, we had to plan early to search for convenient place for expression, getting permission from the head department or supervisor as we need many time to do it..It’s not only once..For me, within 8 hours of working hours, maybe I had to express two to three times..” (working mum 2)

“No regulation or policy here. I just went to express the milk but I did inform my supervisor that I wanted to pump my breast milk for a while..” (working mum 8)

“It depends on the boss..” (working mum 14)

Some of the mothers stated that their employers allowed them to express breast milk during working hours as most of their employers or supervisors were female and more understanding.

“Now it depends on my boss ‘flexibility’.. So far, I got a female boss. At least, she was more understanding..no problem to go for pumping..” (working mum 6)

For mothers with male employers, they did support the mothers to express their breast milk in the workplace as a few of their wives also expressed breast milk in their workplace.

“My boss did mention to me that his wife was also practicing the same thing, so he understood.. He did not mind because his wife also expressed breast milk in the workplace..” (working mum 1)

Though, there was no policy given for breastfeeding or breast milk expression in the workplace, all of the mothers in the study had expressed their breast milk in their workplace. The frequency of breast milk expression in workplace ranged from one occasion to five occasions. However, majority of the mothers expressed 3 times a day in their workplace. Some mothers claimed that the expression was frequent during the first 6 month but then reduced after that as less milk was being produced. They expressed during morning tea break, lunch hours and about 4 pm or before they went back from work. In the early stage after their confinement, some of mothers took every two or three hours to express their breast milk.

“Initially I expressed every two hour but now when I feel it engorged..Usually I express during my break.. like at 10 am. then during lunch, lastly before going back about 4 pm. I took about..it depends.. but usually was half an hour for each expression...but now I’m using double pump..it’s faster..However, it takes a while to pump the milk out and I had to relax..It won’t come out if I’m stress” (working mum 8)

“During the first 6 month, it was frequent..about four to five times because the milk still a lot but now after 6 month, it was less as the milk reduced, so about three times a day..morning, afternoon and evening..” (working mum 6)

“Earlier, I expressed three times a day in my workplace and I took about fifteen minutes for each occasion..In the morning at 9 am, then at 11 and in the evening before I went back..” (working mum 10)

“I expressed one in the morning at about 10 am then after my lunch and lastly at 4 pm. So..about three times a day..(working mum 14)

“I expressed at 10 am, sometimes at 4 pm. It depends on my meal and fluid intake. If I had my meal, more milk can be produced, however, if I did not take my meal, not much produced..Sometimes I expressed just once a day and I took about an hour to do it..” (working mum 13)

“Usually I expressed between 1 pm to 2 pm because that was my break for lunch. That was the only time I could express... I could not express other than that time because I was working..I only expressed once during my working hours. Sometimes if fewer patients came on that day, I managed to express twice..at 10 am. Then I expressed at night for the other stock for my baby..I took about half an hour for expression.. (working mum 11, a community nurse, working office hour)

“I expressed every three hours in my workplace and for each expression I managed to collect about 10 oz..it didn't take long..about half an hour. If in the morning shift, usually I expressed at 10 am, then at home but sometimes I expressed here, before going back..Sometimes at home, I didn't have time...(working mum 12, community nurse who works in shift)

For one mother who worked half day as a religious teacher, she expressed twice at 3 or 4 pm and before going back home. She took about 15 to 20 minutes for each expression.

“I expressed at either 3 or 4 pm because I started working at 1 pm..I took about 15 to 20 minutes to express..I expressed twice a day in my workplace.. (working mum 15)

There was one mother who combined breast milk expression and breastfeeding while working. She expressed the breast milk in the morning and evening then breastfed her child during lunch hour at home.

“Usually, I expressed at 10 something. Then in the afternoon, I got back and fetched my baby and gave directly to her...Then in the evening, once..Within one day, I expressed twice..” (working mum 13)

For one mother who worked from morning until 3 pm, she expressed twice a day in her workplace and took about half an hour to express it out.

“Emm..I expressed twice because my working hours is up to 3 to 3.30 pm. It took about half an hour...For each time, I managed to collect 4 to 5 oz. At night, I expressed after Maghrib prayer and lastly during sleep..I expressed 4 times including expression at home..” (working mum 9)

b. Support from employer and other employee

The other factors that facilitated mothers in the study to continue breastfeeding in the workplace were support from employers and other employees.

i. Perception of Employer

The mothers in the study stated that although there was no policy on flexible time or time break to breastfeed or breast milk expression in workplace almost all of their employers accepted the practice of breastfeeding or breast milk expression. It was a matter of the employers understanding. Some employers did not mind as they breastfed or expressed in workplace and the workers could continue the work when they finished the expression. Some of the employer did not mind as long as the working women were able to complete their work and it did not disturb their working performance.

“My employer did not mind..As long as we continue and complete our work, they did not mind..” (working mum 13)

“For the moment, all of them accepted..” (working mum 15)

“My employer accepted..It was not a big problem..We only had to ask permission from our boss ‘Boss, I want to go to the prayer room for a while.’ When they saw us carrying the bag, they said ‘oh..ok..ok..’ They did not mind..” (working mum 4)

“They did not mind and did not say anything..They did not mention it disturb our working performance and cause any difficulties..”(working mum 5)

“My employer accepted..I did not face any problem with my boss to express breast milk. However, earlier they did ask me on storage and some of them suggest me to send the expressed breast milk to the baby..I informed them that I did not have to send the milk immediately..It depends on my boss kindness.. (working mum 9)

Some other mothers claimed that having a female employer was an advantage for them to express breast milk in workplace as they were female and more understanding on the needs of a mother to continue breastfeeding.

“I did not face any problem with my employer because I had female boss. She understood my need..”(working mum 8)

“My boss is a female engineer. So, she understood. When it was time to breastfeed, sometimes she asked me whether I had already expressed on that day. I got female boss..at least she was more understanding.. (working mum 6)

Some other mothers in the study also mentioned that a few of their employers encouraged them to continue breastfeeding. It was easier for them to express breast milk in the workplace as their employer were very encouraging. They could express any time when needed or whenever the breasts engorged without any hesitation or being questioned by their employers.

“My boss gave a lot of support. She encouraged me to continue breastfeeding. I had a very kind boss. Actually, they were the one who asked me to express my breast milk, earlier. I had female boss. My boss really encouraged us to do it. So, almost every other female worker had continued breastfeeding..” (working mum 7)

A few employers in the study also gave permission for the mothers to go home in the afternoon to breastfeed their baby and they allowed extra and longer lunch breaks.

“My boss was ok..He did mention that in the afternoon he gave permission for breastfeeding and he allowed me to come in a little bit late..” (working mum 14)

“I did not face any problem with my employer as she encouraged me to continue breastfeeding..” (working mum 11)

A few mothers who worked in a hospital with baby friendly hospital initiatives policy informed that their employer encouraged them to continue breastfeeding and breast milk expression in workplace. Furthermore, there were other staff who had expressed breast milk, previously.

“This hospital is a baby friendly hospital and practicing breastfeeding policy, so all the heads unit had advised us to continue breastfeeding..It was normal because previously, the other staff had also practice the same thing. .and not a problem for my employer..” (working mum 12)

“I did not face any problem with my employer.. Of course The Hospital Director understood.. (working mum 8)

Although some mothers claimed that having a female employer was an advantage for them to express breast milk, one mother in the study claimed her male

employer also supported her to continue breastfeeding. He encouraged her to express breast milk and continue breastfeeding as his wife also practiced similar behaviour.

“My employer knew what I’ve been doing as I had to make stock for my baby. They supported me..My boss told me that his wife was also doing the same thing, so he understood. He did not mind and understood as his wife experience on breast milk expression in her workplace..” (working mum 1)

ii. Perception of supervisor

The other factor that contributed to the mothers to express breast milk in their workplace was the supervisor’s perception on breastfeeding. Some mothers in the study mentioned that their supervisor in the workplace did not mind if they expressed their breast milk. Because of this, they could continue to express their breast milk while working.

“They did not mind...” (working mum 13)

“My supervisor’s work station was there and it was not far from my table. She sat in front of me.. I had no problem.. Most of the time she did not say anything.. She did not discourage me to do it..” (working mum 10)

A few mothers claimed that their supervisors encouraged them to express or breastfeeding when they informed their supervisor that they wanted to express breast milk.

“They said it was good..When I informed her that I wanted to express my breast milk, she said it was good and had allowed her to use any empty room available at that time..She did inform me that there was no suitable or place provided to do it...”(working mum 3)

A few other mothers stated that a few of their supervisors also practised breast milk expression in the workplace and they understood their situation

“My supervisor understood..A few of them also expressed breast milk while working. They did not mind..” (working mum 4)

iii. Perception of Other Employee

Majority of the mothers in the study informed that other employees in the workplace did not mind when they expressed breast milk. Some of them also helped to

cover their work while the mothers expressed their breast milk. Most of them supported the mothers to continue breastfeeding. Most of the mothers in the study also stated that some of their colleagues also encouraged them to express their breast milk and continue breastfeeding as it was good for their baby.

“My friend did not mind.. I requested her to cover my work and she agreed.. We always help each other..They did not mind..” (working mum 13)

“The staff were supportive..Sometimes, when it was like became wet, some of them asked me to go express the breast milk..It can be adjusted..May be we had enough staff in my ward. So when the time came I’ll just pass over to my friend..Furthermore, it won’t be long. Just about half an hour..” (working mum 12)

“Most of them did not say anything or make any noise..They support me to do it..” (working mum 3)

Some of them informed that their colleagues gave advice on breastfeeding and breast milk expression. Some of the other employees gave them support to continue breastfeeding as they were married and have their own children. However, in the early stages of breast expression, they felt a bit strange to combine breastfeeding and working. For a few mothers in the study, they mentioned that breast milk expression was rarely practised in their workplace before.

“They understood..Sometimes they gave advice to me. A few of seniors gave me advice..”(working mum 8)

“They advice me to breastfeed up to two years.. everybody there. Actually they were the person who asked me to breastfeed. .Before I delivered, they advised me that I had to start and continue breastfeeding. I should not stop..They really support me..” (working mum 7)

“My colleague was ok and gave support as it was a good behaviour as they have been married and have their own children. However...Initially, they felt a bit weird to express breast milk in workplace..because they haven’t seen any other worker expressed breast milk before.. ” (working mum 14)

“Most of my friend at about my age..around 20 to 30 years old were very supportive. I rarely practiced before..That’s why they were supporting me..Some of them were interested to continue breastfeeding and expressed their breast milk while working..” (working mum 5)

A few mothers mentioned that the behaviour of breast milk expression in the workplace was becoming a new practice and it caused many other workers interested on breast milk expression. Some of their pregnant colleagues were keen to start breast milk expression after the delivery. For older colleagues, they would like to advice their granddaughters or grandsons to be breastfed.

“So far there was no problem with other employees. It was only.. when we were around people who never expressed their breast milk. So, when I expressed, everybody curious on how can I expressed, collected the milk and stored it. It became attraction to others..Lately, many younger staff had gotten married. When they saw me as a technician was able to express breast milk and it did not disturb our work..Sometimes, there were a few mothers who never express their breast milk became more confident that they would able to combine breastfeeding and working.No problem anymore... Sometimes, the older workers around 50’s who had children and grandchildren wanted to suggest their daughter in law to practice breast milk expression while working ...” (working mum 6)

“Earlier, they did not trust me because most of them never experience breastfeeding their baby while working. However, it was a good experience because I can share many information on breastfeeding with them ...They accepted it...Earlier I had to answer many questions raised by them like how did I pump and where to store the milk..Even though my employer asked me to send the milk immediately to my daughter, I said no need...They really supported me. For example, they remind me when the time comes for expression. I had no problem with other employee acceptance..(working mum 9)

One mother in the study stated that the activity remained hidden because usually most of her colleagues did not know when she expressed breast milk in the workplace.

“Most of the time when I went to express, they did not know..May be because I just got transferred here ...So, not many people recognized me..” (working mum 6)

In this study, a few mothers felt that their male colleagues did not know that they had expressed breast milk while working as most of them were working out station in the morning and went out during break.

“I think they did not know..most of the time they were working outstation and only available in the office in the evening..” (working mum 14)

“Most of my male colleague did not know..because they already went out during break..nobody there..” (working mum 7)

Nevertheless, a few mothers stated that their male colleagues had supported them to continue breastfeeding as it was a good practice. For them, breast milk expression would not cause any problem for them in the workplace.

“Most of my friends understood..My male friends said it was a good behaviour to give own breast milk to our baby..It was not a problem..They were supportive..” (working mum 4)

“I had no problem with my male colleague..I felt they accepted it and they were positive about it. So far, it looked like everybody encouraged me..For those who were still single, they did ask me how to buy the instrument for expression. So they knew the availability of the instrument. Actually, it was easy to practice.. Most of my colleagues were positive on breastfeeding..” (working mum 2)

Among all mothers only one mother had lack of support from her male colleagues. They were a bit sarcastic when she went for expression. She felt her male colleagues did not accept her practice to express breast milk while working as it would disturb her work.

“Sometimes, I felt my male colleague were a bit sarcastic when I was not around and went for breast milk expression. They said, ‘you are making stock, right?’ I had no problem with my female colleague. They were supportive and understanding. Only the male colleague expressed their view that I was frequently not around and went for expression. It was just like I did not do my work. Not all of them...Just one or two person who said like that but sometimes I felt uneasy...(working mum 1)

iv. As Role Model

About half of the mothers in the study stated that besides continuing breastfeeding, they would also educate other workers on breast milk expression in workplace. Most of them claimed that the other workers observed how breastfeeding can be combined with work and some of them were interested to practice the similar behaviour. The other workers also seeks advice from them on how to perform breast milk expression while working and other things about breastfeeding.

“Furthermore, we had friends..We can teach them..In my workplace, many other workers expressed breast milk since I started expressing breast milk while working. There’s one worker asked me how I did it.. So, I told her...what to do..”(working mum 10)

“After I started to express there was another worker also expressed breast milk. After two or three month, another friend of mind started to express..” (working mum 4)

According to a few mothers, the breast milk expression practice was infrequent or never practiced in their workplace before they started doing it. There were a few other workers who were interested to perform the behaviour. According to them, more working mothers could continue breastfeeding while working.

“This was infrequently practiced before So all of my friends were supporting me to do it and some of them were interested to express their breast milk..By doing this, I felt I can encourage others and many working mothers to breastfeed. When they saw, it was easy to practice as it will influence others to do it.. ” (working mum 5)

A few mothers stated that the behaviour of breast milk expression had become a matter of interest to other workers. As there were many married younger workers, they were interested to practice the same practice. The older generation were also keen to encourage their daughters or daughters in law to practice breastfeeding while working.

“When I expressed, everybody was curious on how I can expressed, collected the milk and stored it. It became an attraction to others..Lately, many younger staff had been married. When they saw me as a technician was able to express breast milk and it did not disturb our work..Sometimes, there were a few mothers who never expressed their breast milk became more confident that they would able to combine breastfeeding and working..No problem anymore... Sometimes, the older workers around 50’s who had children and grandchildren wanted to suggest their daughter in law to practice breast milk expression while working ...” (working mum 6)

“Earlier, they did not trust me because most of them never experience breastfeeding their baby while working. However, it was a good experience because I can share much information on breastfeeding with them.. (working mum 9)

One mother in the study informed that breast milk expression had become a new practice to many workers in her workplace. They had developed a breastfeeding group in their workplace and she felt this group had encouraged and influenced other workers

especially to single female workers to combine breastfeeding and working by their example of practice and advice.

“There was a breast milk expression group in this hospital. Since I was pregnant, the group was already there. I felt other workers could observe when we expressed our breast milk and this could encourage them too..For a single female worker, they could see there were instruments sold for breast milk expression. By that, she knew it was easy to practice it..” (working mum 2)

c. Facilities provided by employer for breastfeeding or breast milk expression in workplace

Majority of the mothers stated that the most important facility needed in workplace was a place or room for breast milk expression. Some of them also needed refrigerator to store their expressed breast milk. They did not mention the need of the breast pump as majority had their own breast pump and a few mothers expressed using their hands. None of the mothers in the study were provided nursery in their workplace.

i. Place or room to express breast milk

From the study, a few mothers had breastfeeding room provided by their employer. Only one mother in the study informed that she expressed breast milk in a utility room which was mentioned in the workplace policy that it can be used for breast milk expression or breastfeeding. Another four mothers who worked in a baby friendly hospital and a health clinic were also breastfeeding in a room provided by the employer. However, the room provided was more for the patients and it was less convenient for them as workers. Hence, they did not use it. All other mothers in the study mentioned there was a place for them to express breast milk in their workplace. However the available place were rooms for other purpose like prayer room, rest room, pantry room, and the worse case was the toilet. Most mothers expressed their breast milk in the prayer room.

There was one mother in the study who stated that her employer had provided a room for breastfeeding or breast milk expression.

“Sometimes I expressed in my room or in a room provided by my company. I worked in an Irish based company. There was a room provided for staff. They call it utility room which can be used for personal purpose or breastfeeding. They did mention in the policy that the use of the room is for breastfeeding. Anybody who wants to pump their breast milk can use the room..” (working mum 9)

Another three mothers who worked in a hospital with baby friendly hospital initiatives policy stated that there were breastfeeding rooms in the outpatient clinics and specialist clinics provided for patients or public. However it was located far from their workplace. Furthermore there was no plug point provided in the room for the breast pump. It was less friendly for the workers like them. Therefore, they preferred to express their breast milk in any empty rooms in the clinics or wards which were nearer and easier for them.

“There is a breastfeeding room..but sometimes I expressed in this room if nobody is here because it was nearer. No plug point available in that room..I had to express by hand there and it took longer duration. Usually I expressed in this room..it’s faster” (working mum 11)

“For me..Sometimes I used the rest room because the room was provided for all staff. I expressed when other people were not around. But when there were many people, I used my own room..So, I closed the door, switch off the lights..because I could expressed it when I was alone. Most of the time, I expressed in the rest room or prayer room..There were a few breastfeeding rooms in this hospital like in the specialist clinic and in the ward4. However, there was none in my unit, in the kitchen..The room was a bit far, and I’m lazy to bring the entire instrument there..
(working mum 2, dietician)

“In the ward, usually I expressed in the prayer room. Sometimes I used the scan room because there was no breastfeeding room provided in this ward..”
(working mum 12)

For a mother who worked in the health clinics, she mentioned that she felt inconvenient to express in the breastfeeding room provided by the employer as it was an open area which was just covered by a wall and it had less privacy. According to her,

the breastfeeding area was provided for the patients however it was less friendly for the worker.

“There was a breastfeeding area and it was situated at the back. It’s a bit open. It was only covered by a wall. It was uncomfortable..There was no lock and it cannot be closed..That’s why I choose this room or any other empty room. Anywhere..If the room was being used, I will use the doctor’s room at the back..” (working mum 3)

A few mothers felt uncomfortable to express in an open place like the pantry room as they felt there was less privacy. However, she still expressed her breast milk in that room because she wanted to continue to breastfeed her baby.

“I expressed in my office...in the pantry room..There was no special room. When I expressed I felt a bit uncomfortable and had to observe whether anybody had come in...” (working mum 13)

“There was a place for mothers who want to express breast milk in my workplace..It was like a room. This room was a prayer room in the office and the room was for ladies. There was a place to do it..Plug point was also available. In other words we can use either electric pump or by manual in the room..The room was closed. This room was considered a multipurpose room. It was a special place” (working mum 8)

Most of the mothers mentioned that there was a place available for breast milk expression though not especially for breastfeeding. However a few mothers mentioned that the room could not be locked. However, they still felt the place was convenient because it was provided only for female workers. They could also teach other workers on breast milk expression when they expressed their breast milk in that room.

“There was a prayer room in my workplace..I expressed there..Furthermore there were many friends in the room, so I can teach them on how to express breast milk. The room was a closed room however it could not be locked..” (working mum 10)

A few working mothers in the study, informed that the room used for breast milk expression was the prayer room and the room was a closed room and can be locked.

“I expressed in the prayer room. There was a pantry room in the prayer room. It was a closed room and can be locked from inside..” (working mum 14)

“I used the prayer room. It was a closed room and I locked the room when I

expressed..Usually I expressed when the room was empty. If other people were around, they did not mind because they were female worker..” (working mum 4)

Among all mothers in the study, one mother expressed her breast milk in the toilet as there was no proper place for breast milk expression available in her workplace.

“I expressed in the toilet or in the prayer room. Most of the time during lunch the prayer room was full..It was a bit embarrassing to do it there. So I went to the ladies because most of government office did not provide rooms for breast milk expression..especially in the old buildings. For me, I’m working in the technical unit and it was a bit difficult as the place was situated far among each other. For me, there was no place for expression in the workplace..(working mum 6)

ii. Breast Pump

Among all mothers in the study, only one mother who works in a hospital with baby friendly hospital initiatives mentioned her employer had provided breast pump in the workplace. However, it was situated in another ward and it was not convenient for her.

“There was no breast pump here, in ward 2. It was only provided in the paediatric ward..(working mum 12)

Regarding the methods of expression, two mothers were using their hands for milk expression while the other thirteen mothers were using breast pump. All of the thirteen mothers used their own breast pumps for milk expression.

Majority of the mothers in the study informed that they expressed their breast milk using their own breast pump. The breast pumps were electric, battery or manual. However, most mothers were using electric breast pump as according to them it was faster and produced more milk compared to the manual pumps or using hands. They would prefer the electric machine as it was faster and they could go back to continue their work earlier. A few mothers in the study stated that they used manual breast pumps.

“I’m using breast pump. It was a manual pump..” (working mum 13)

“I expressed using a pump. It was a manual..not the electric pump.. (working mum 3)

Majority of mothers in the study stated that they used the electric breast pump. According to some mothers, it was faster and they could pump both breasts at the same time. As it was faster, shorter time was required for expression and they could go back to continue with their work earlier.

“I’m using spectra 3, an electric breast pump. We could not take longer duration for expression because we were working. It took longer duration if I used the manual pump..It was easier using the electric pump. I could double pump. I could express both breasts at the same time and it was easier..” (working mum 8)

“I’m using electric pump. It was faster. May be it was an electric pump, it was faster. If using hand it took longer duration. (working mum 4)

“I’m using electric pump. I was not familiar with manual pump. It was more comfortable and produced more milk.. (working mum 1)

A few mothers in the study used battery operated breast pump as it was also faster compared to manual breast pump and cheaper compared to electric breast pumps. Therefore, they could afford to buy the pump.

“Earlier I used manual pump, but the product depend on our hand, right? Tiring..I was a bit exhausted, so I used pump with battery. It was my own pump. I used ‘Puree’ brand. It did not cost much, only about RM100..” (working mum 6)

Another mother in the study was using mobile pad for breastfeeding. She could use the pump anywhere because she usually work outstation and the pump can be used either by using electricity or battery. She bought all other instrument for sterilization, cooler bag for storage, the pump and the bottle.

“For me, I’m using mobile pad for breastfeeding because usually I worked on mobile. I’m not in the office most of the time. That’s why my pump can be used either powered by electric or battery. I bought the pump, bottles for collection, cooler bag and additional instrument for sterilization. It was easier because I could pump in my shirt while working.. .” (working mum 9)

The amount spent by the mothers in the study to buy the pump and other instruments needed for expression or storage ranged from RM 25 to RM 1500. Majority of mothers spent about RM400 to RM 800 to buy the equipment for breast milk expression like the electric pump, cooler bag and the bottles. For mothers who used

manual pumps, they spend less money whereas the budget for battery operated pump was between RM100 to RM200. Only one mother in the study, spent about RM1500 to buy the equipment for breast milk expression. The amount spent covered the mobile electric or battery operated pump which can be used under the dress while working, bottles, cooler bag and place for sterilization.

A few mothers in the study stated that they did not have to spend much money when they used the manual pump as it was cheap.

“I’m using a manual pump. It was about RM 25..” (working mum 13)

“It was not expensive at all..less than RM 50..(working mum 14)

Some other mothers in the study preferred to use the pump with battery as it was faster compared to manual pump and they could afford with the price.

“The pump..was about RM70 or RM80. Initially I used the manual pump but I wanted the fastest results as we were working and had to continue our work earlier..So, I bought the pump with battery...” (working mum 12)

“I searched the pump which not that expensive..The cost was around RM50 to RM60..” (working mum 3)

“The pump with battery power cost about RM100. I bought ‘Pureen’ brand. The amount spent was around RM200 if it includes the cooler bag with ice pack and also the bottle for milk collection..”(working mum 6)

One mother in the study stated that she had both manual breast pump and battery operated pump. She spent about RM200 to buy the equipment for breast milk expression and the budget included twenty manual breast pumps and three pumps with battery power. She kept changing the pump to the new one as it could not be used after a short while. She stated that the amount spent was not that expensive as each manual breast pump was cheap.

“About RM 200 because I used the pump until it could not be used. So, I changed to the new pump. When it could not be used, I changed to the new one again. I bought about 20 manual pumps and three pumps with battery power. It was not expensive.” (working mum 7)

Most mothers in the study preferred to use the electric breast pump as it was faster and a few models provide breast shield for both breasts which can be used for both breast expression at the same time. The price was between RM400 to RM 800. Although the price was a bit expensive, the breast expression sets included the electric pump, breast shield, cooler bag and bottle for breast milk collection.

“If we buy one set of the electric pump with the cooler, all over was less than RM500. At that time, I bought online. There was a discount given at that time, so it was cheaper. It was not wasting at all. The price was around RM400..(working mum 8)

“I bought one set. The price was around RM600. It includes the electric breast pump and two breast shields which can be used for pumping at the same time. It also includes the cooler bag.. ice bag..a complete bag with ice pack..(working mum 5)

“My budget for breast milk expression was around RM800. I bought the electric breast pump, cooler bag and a few bottle for storage..(working mum 2)

One mother in the study had spent around RM1500 to buy breast milk expression equipment. She claimed the model she bought was an advanced model which could be used while on the go or while working as she usually worked outstation. This model used electric power or battery power when no plug is available. The amount spent also included the cooler bag, bottle for milk collection and place for sterilization. She did not mind spending money for the equipment as according to her, the budget still cheaper compared to buying formula milk and it could be reused for her future children.

“I spent about RM1500 for the breast pump, bottle for milk collection, cooler bag with ice pack. I also bought additional instrument for sterilization. If plus minus with buying formula milk, I think it was worth to buy it. Furthermore if the baby had stopped breastfeeding, the breast pump can be used for the next baby.. (working mum 9).

Two mothers in the study informed that they used hands for breast milk expression. One mother stated that she felt more convenient as she could use her hand to press a few mass in her breast which could not removed by expression using the breast pump. According to them, no budget was needed for breast milk expression.

“I prefer to use hands. Previously, I had used a breast pump, but I still felt a few round masses in my breast. It’s irregular. I used the electric pump but it was a bit painful. At last, I used hands because I knew which area still hard and press it out. I felt easier using hands and it produced much more milk than the pump..” (working mum 10)

“I only used hands for expression..” (working mum 15).

“No need budget at all..” (working mum 10)

iii. Breast milk storage

All of the mothers in the study informed that their employers provided a refrigerator in their workplace. However, majority of them mentioned that the refrigerator was for general usage and not solely provided for breast milk storage. Nevertheless, majority of the mothers still store the expressed breast milk in the refrigerator provided by the employer. A few mothers who worked in the hospital stated there was a refrigerator for breast milk storage, however it was only provided in paediatric ward. So, they kept the milk in the refrigerator available in their units or wards. Some other mothers stored or kept their expressed breast milk in their own cooler bag. They preferred to keep the milk in the cooler bag as they felt it was inconvenient to keep the expressed breast milk in the refrigerator provided in workplace.

“There was a refrigerator provided in the workplace. I kept the expressed breast milk in the freezer..They only keep ice cube in that fridge..The refrigerator was provided for the office usage.. (working mum 13)

“There was a refrigerator..Everybody can use it however most of working mothers kept their expressed breast milk in the freezer. The refrigerator has two doors..” (working mum 8)

“I kept the expressed milk in the refrigerator. Usually, nobody uses the freezer, only sometimes they made ice cube..It was situated in the pantry room..” (working mum 10)

A few mothers who worked in the hospital claimed that there was a special refrigerator for breast milk storage provided by their employers. However; it was only in the paediatric ward. Therefore, they stored the expressed breast milk in the

refrigerator available in their unit which was also used for other purpose.

“I worked in ward 3.. There was a fridge. I used that refrigerator ...I wrote my name, date and time taken. It was for multiple usage..It did help me to store the milk.. So far, there was no special refrigerator for breast milk storage in this ward .There was a fridge for breast milk storage in ward 4 which is paediatric ward and neonatal ward. It was only there..(working mum 12)

There were five mothers in the study mentioned that they stored the expressed breast milk in their own cooler bag. They stated that their employers did provide a refrigerator for the general workplace or for other workers usage. However, they felt uncomfortable to keep the breast milk in the fridge provided. Therefore, they preferred to store the milk in their own cooler bag.

“There was a fridge provided but I had already bought a bag for milk storage. I just put the ice pack in the bag..It was a bit difficult to store the milk in that fridge as it will mixed with other peoples belongings ...” (working mum 4)

“I stored the milk in an ice bag..a cooler bag..There was a refrigerator; however it was for the dental substance. I felt I did not want to store it there and mix it with other substances. There was no refrigerator especially provided to store the breast milk..(working mum 5, dental officer)

“There was a refrigerator for general usage. For me, I did not face any problem..I brought my own cooler bag and stored the milk there..It can last up more than 12 hours..I managed to reach home by then..The milk still cold..(working mum 6)

iv. Nursery in Workplace

None of the mothers in the study were provided with nursery in their workplace.

One mother suggested that the employer should provide nursery for their worker because it would be convenient for working mothers to continue breastfeeding.

“It would be useful if the government department provides a nursery. They had suggested to them previously. I saw the SUK department provide a nursery for their employee..It was really helpful for mothers to continue breastfeeding.. (working mum 10)

4.3.2.3 Preparation for mothers absence

The third theme that arose from the study was preparation for mothers absence. There were two subthemes namely preparation during confinement leave and preparation after they had started working.

a. Preparation during confinement leave

The preparation during confinement leave included preparation of mothers, preparation of babies and preparation of baby's carer during confinement leave. All mothers in the study had started their preparation to express breast milk during their confinement leave. The preparation included learning to express breast milk and making stock, educate the baby to drink expressed breast milk and some mothers educate the baby to use artificial nipple and bottle feeding and lastly, educate and train the care givers to give expressed breast milk.

i. Preparation of mothers: Learning to express breast milk and stockpiling expressed breast milk

Majority of mothers in the study started to learn to express their breast milk since they were in confinement leave. As most mothers in the study were first time mothers, according to them this was very important because they have to be familiar with expression before they start working. Majority of them also prepared stock of expressed breast milk while they were still on confinement leave. This was important so that their baby had enough expressed breast milk supply when they were left with baby carer while their mothers had gone to work.

“I had started to express my breast milk while I was still on confinement leave to make stock. When the baby was sleeping suddenly, I felt ‘heavy’..I went to pump and kept the expressed breast milk in the freezer. Then I breastfed the baby directly when he woke up. I did not give the milk which was stored in the freezer. It was just for storage and stock. I kept doing it until I finished my confinement leave..” (working mum 4)

“I had started to express and store my breast milk early..I had a lot of stock. My freezer was filled with the expressed milk..” (working mum 7)

Besides preparing for stock during confinement, some of the mothers expressed their breast milk at home in addition to expression in the work place when they had started working. They expressed it at night and stored it in refrigerator for baby's need while mothers were working.

"I had enough stock. I had standby other bottles. I also had other supply in the freezer. I had prepared early..since my confinement leave..When I had started working, I expressed morning and afternoon while working and at night after Maghrib prayer and lastly during sleep. It was four times a day...The stock was always enough for the next day.." (working mum 9)

"After I breastfed the baby, when the baby was sleeping, I expressed and stored it in refrigerator. I had a lot of expressed breast milk stock. Until sometimes, my baby sitter said that she still had the stock so, no need for me to send the new stock for that day.." (working mum 12)

ii. Preparation of babies: Train baby to accept and drink expressed breast milk

More than half of mothers in the study had trained their baby to accept expressed breast milk using artificial nipple and bottle since their confinement leave. This was because they want to familiarize their baby to suck expressed breast milk using artificial nipple and bottle. Some of the mothers stated that it took time for the baby to accept and suck the expressed breast milk using the artificial nipple and bottle. This became the most challenging difficulties faced by them as they felt depressed and sad when they saw the baby cried and refused to suck the milk in front of them. Nevertheless, they had to scarifice their feelings and tried not to breastfeed the baby directly during the training phase.

"It was first during confinement leave..Sometimes, he refused to drink it. I threw away that expressed breast milk as he refused to drink it. It took long time for him to accept and suck the expressed breast milk. Earlier, he was not familiar with the bottle..It was during the earlier part. After a while, as the time went on, he was familiar with it he sucked it when he was really thirsty, after a short while, he refused to suck..It took time for him to accept it..When I was at workplace, I called my mum a few times because I was worried..However my mum said, he had accepted and sucks it..No need to worry.." (working mum13)

"Earlier, my baby was not familiar with the bottle feeding. After short while, he knew it was from artificial nipple and he finally sucked the milk, however, he

did not drink much. Sometimes, it was like a waste. When we gave the expressed milk in the bottle he only sucks a little...When I breastfed him directly, he sucked a lot..." (working mum 8)

"I trained my baby within two weeks before I started working during my confinement leave. I gave the expressed milk using bottle...Maybe when I trained early, the baby accepted the expressed breast milk using the artificial nipple and bottle feeding.." (working mum 9)

A few mothers started to train the baby to drink the expressed breast milk just before they started working. As a result, they faced some problems. The baby refused to suck or accept the expressed breast milk from the bottle as there were changes from breast nipple to artificial nipple. Nevertheless, finally the baby accepted and sucked the milk given by the babysitter.

"During our maternity two month leave, I fully breastfed the baby. I introduced the expressed breast milk a bit late. About 2 to 3 days before start working. Therefore it caused a little problem. Earlier, he refused to accept it..I used bottle and artificial nipple to give the expressed breast milk..However, the baby finally sucked and accepted the expressed breast milk given by bottle and artificial nipple when he was hungry and stayed with babysitter. It took about two to three weeks for the baby to really accept and sucked the expressed breast milk. When he felt very hungry and after crying a lot, at last, he sucked the milk..He did not vomit. I think he had no problem with the expressed breast milk just the changes from sucking breast nipple to artificial nipple ..." (working mum 12)

Most mothers felt they had to train the baby to suck using the artificial nipple and bottle feeding to give expressed breast milk to the baby. The baby took longer duration to accept and suck the expressed breast milk using the artificial nipple and bottle.

"I took about one to two weeks to train the baby to accept the expressed breast milk using the bottle and artificial nipple. I heat the milk. Initially a bit difficult for him to accept it.. '(working mum 14)

"I think it was the difference between breast nipple and artificial nipple when using bottle feeding. Earlier, it was difficult. After a while, he accepted and sucks the expressed breast milk.." (working mum 4)

"Earlier, the baby confused with the nipple. It took about one week for the baby to accept it.." (working mum 5)

iii. Preparation of care givers: Educate and Trained the Child Carer

Majority of mothers in the study had educated and trained their baby carers the right ways to give expressed breast milk. Usually, they educate and train them before the mothers started working, while, they were still on leave.

“My mum took care of this baby..I had educated her and trained her and she knew how to do it. I already kept the milk in the bottle. I told her to take it out from freezer when she wants to feed the baby. After, it already thaws, put the bottle in the warm water. It was easier for my mum because I already limit and stored the expressed breast milk in many small bottle...about 5 oz per bottle. One bottle for each feeding..Most of the time he could not finished it all. He sucked only about 3 oz (working mum 10)

“I educate my baby sitter how to give the expressed breast milk. It was easier as she only had to put the milk in the bottle and put in the bottle in warm water and gave to the baby..No need other preparation..” (working mum 12)

“I did educate and show her the methods ...I told her that we could not boil the milk on the fire..” (working mum 14)

“I taught her how to keep and store the milk. I educated her how to do it. I informed her, when she want to feed the baby, the first thing she had to put the milk in the second door of refrigerator. Heat it with warm water and do not boil it direct on the fire..” (working mum 3)

A few mothers in the study felt, it was easier to educate the baby's carer because they already knew the methods to give expressed breast milk. This was because there were other babies taken care by them who were also on expressed breast milk. They already had been told and trained by the other baby's mother how to give the expressed breast milk.

“I had educated my baby's carer how to give the expressed breast milk..I'm glad she knew the management of expressed breast milk. I did educate and trained the carer and she seems familiar to give the expressed breast milk as she also took care of other children too. I had provided to her a heater to heat the expressed breast milk...No problem..Maybe she had experience on doing that” (working mum 8)

“When I went to the nursery and told the care givers that I gave expressed breast milk to my baby, they seemed already familiar. They were familiar with it because there were a few other mothers also gave expressed breast milk to their babies. They already knew the methods. Furthermore, there was a refrigerator provided especially to keep or store the expressed breast milk stock for the baby in the nursery. ...(working mum 2)

Most mothers had taught and trained the care givers the methods to give expressed breast milk because they were afraid if they did not inform properly and the care givers might ruin the expressed breast milk before feeding the baby. The most important factor they were afraid was the care giver might boil or heat the milk with hot water which can damaged the expressed breast milk. When they observed the care givers had done the right ways to give expressed breast milk to their babies, they felt relieved and confident to leave the baby with the care givers while they were at work.

“Initially, two week before I start working, I went to the nursery to educate and trained the care givers to take care my baby for one day. I wanted to observe them for one day how they manage to give the expressed breast milk to my baby. I noticed they were already expert on doing that. There were many hospital staff also sent their babies. They understood how to heat the milk ... The only thing, they did not use the syringe or spoon .They gave it by bottle feeding because they said it was faster..When I observed them the way they manage to give expressed breast milk to baby, I felt relieved. I was afraid if they heat it with hot water, but they knew they had to soak it with warm water. I think I can trust them. I was afraid they did not know the management when I send stock of expressed breast milk and afraid it will damage the milk..but I trust them when I had observed the way they did it..(working mum 2)

b. Preparation after the mother had started working

The preparation after the mother had start working included preparation of breast milk expression equipments and ice bag and the stock of expressed breast milk supplied to care givers before the mothers went out to work.

i. Preparation of breast milk expression instruments before going to work

Majority of mothers had to prepare the breast milk expression instrument like the breast pump, bottle to keep the milk and some mothers also prepared the cooler bag and ice pack before they went out to work. They had to spare some time to do the preparation.

“I woke up at 5 am in the morning to prepare the instrument..I put in the ice back in the cooler bag.. (working mum 4)

“I prepared the breast pump, ice pack and cooler bag before went out to work. I brought it all when I went to work..(working mum 6)

ii. Preparation of stock of expressed breast milk supplied to care givers

All mothers in the study usually prepared the stock of expressed breast milk to be supplied to the care givers for the babies’ feeding. They usually stored the milk in the small containers or bottles before storage. The amount supplied to baby care givers ranged from four to seven container but most mothers supplied about four to six containers for one day. The amount kept in each container ranged from three to five ounces. According the them, the amount supplied was enough for the baby’s need for that day and most of the times they supplied extra in order to make sure the stock was enough for the baby’s need.

“In one day, I gave 5 small bottles to the care givers. It was about 4 oz in each bottle. (working mum 11)

“Earlier, during the first 6 month I supplied 20 oz per day. So, it was about 4 to 5 containers..(working mum 6)

“On that time, mostly I put 4 oz in each bottle. I supplied five to six bottles to my baby sitter for one day. But sometimes the baby only took about 5 bottles. Sometimes 4 bottles...Less than 6. I supplied extra because I’m afraid it’s not enough..(working mum 2)

4.3.2.4 Baby’s care taker assistance /role of baby’s care taker

The fourth theme arise from the study was the role of baby care givers to feed the babies with expressed breast milk while their mothers were working. There were two subthemes which were supporting the mothers by feeding the baby with expressed breast milk and maintaining the price of baby’s care charges.

a. Supporting mothers by giving expressed breast milk to baby

Majority of mothers in the study mentioned that their care givers accepted their request to feed the baby with expressed breast milk when they approached them to take care of the baby while they went out for work. A few mothers stated that their care

givers were very supportive as they informed the mothers not to worry and continue their work when the baby was under their supervision. However, there were a few mothers in the study mentioned that their care givers informed them they would prefer to give formula milk rather than expressed breast milk. Nevertheless, they fed the baby with expressed breast milk as requested by the mothers.

About 9 mothers sent their babies to babysitter, 3 mothers sent to her mothers and another three mothers sent their babies to the nursery. According to the women who sent their babies to their mother, they did not face any problems with their mothers to feed the baby with expressed breast milk. They were very supportive and told them not to worry to leave the baby with them. They could manage to give the expressed breast milk to the baby and the baby accepted the expressed breast milk. They advised the mothers to continue their work.

“When I went to work, my mum gave the expressed breast milk to the baby. When I called her, she said to me not to worry and asked me to continue to work. She told me, the baby accepted the milk and the baby was fine.. (working mum 13)

“My mum did not face any problem to feed the baby with expressed breast milk. She knew what to do because she had observed me doing it..” (working mum 7)

From the study, the mothers who sent their babies to the babysitter mentioned that there were only a few other children taken care by them. For some of them, the babysitter only took care of their baby. Majority of the babysitters did not face any problems to feed the baby with expressed breast milk while the babies were under their care.

“I already told my baby sitter about feeding the baby with expressed breast milk. She accepted and I taught and trained her how to do it. She knew how to do it and she had no problem with it..I also provide warmer to warm the milk and other instrument as well..”(working mum 8)

“At home I breastfed her directly, however she was given expressed breast milk by my baby sitter..The baby accepted, as I was not around and my baby sitter just gave it to the baby.. My babysitter only took care of 3 children including my baby and she had no problem with expressed breast milk feeding.. (working mum 11)

My baby sitter only took care of my children, the baby and his elder brother. So far she had no problem to give the expressed breast milk. I told her what to do.. She seemed knew what to do. Maybe she had observed it or had read magazine, how to give expressed breast milk.. (working mum 12)

“So far I had no problem with my baby sitter as she understood that I’m working..I did teach her how to feed the baby with expressed breast milk..(working mum 14)

“I asked my baby sitter whether she had problem to feed the baby. According to her she had no problem to feed her with the expressed breast milk. The baby accepted it..The baby was ok..She only took care of two children, the baby and another 5 years old child.. (working mum 13)

Only one mother in the study mentioned that she had some problems with her babysitter. It was the first experience for her babysitter to give expressed breast milk to the baby. The babysitter claimed she had to take care of the baby and also fed him with expressed breast milk. She also requested the mother to feed the baby with formula milk rather than expressed breast milk because she did not feel comfortable to prepare it. Nevertheless after the mother’s appeal and provided a warmer to her, she accepted to feed the baby with the expressed breast milk.

“There was some problem. Maybe, it was the first time for her to take care of the baby and also feed the baby with expressed breast milk. Until one time, she requested to me and my husband whether she can give formula milk to the baby as she was unable to prepare the milk.. According to her, she had to do more work to prepare expressed breast milk before feeding the baby.. I tried to reduce her burden by providing warmer. Finally, she accepted my request..and agreed to continue feeding the baby with expressed breast milk... (working mum 1)

Another two mothers in the study who had sent the babies to nursery mentioned that their care givers accepted when they mentioned they want to feed the baby with expressed breast milk. They did teach and train the care givers on the right methods to give expressed breast milk. One mother had provided the care givers a book on the right ways to give expressed breast milk to increase their knowledge. The other mother mentioned it was helpful as the care givers were familiar with giving expressed breast milk as there were other babies too that were on expressed breast milk in the nursery.

“I had given some briefing to my baby’s care taker. At the same time, I also provided she with a book as additional information for them because this is the first experience for them...no other baby was on expressed breast milk before.. So far they accepted and did not make any noise on it..The charge for baby’s care was also similar with baby on formula milk..” (working mum 9)

“I did not face any problem. In that nursery, they were already familiar to give expressed breast milk to the baby. There were a few other mothers who supplied the expressed breast milk for their baby. They knew how to do it....There was a refrigerator provided only to keep expressed breast milk in the nursery.
(working mum 2)

One mother who sent her baby to the nursery stated that she had problems with her care giver. According to her, they were not supportive and mentioned that it was difficult to feed the baby with expressed breast milk compared to formula milk. They did not understand the right ways to give expressed breast milk to the babies as they mixed the remaining milk which the baby did not suck with the new thawed milk and gave it to the baby.

“In the nursery, they seemed less understood the right ways to feed the baby with expressed breast milk. They mixed the remaining milk which was not taken by the baby with the new thawed expressed breast milk and fed the baby with it...I didn’t know earlier. After sometimes..I did teach and train them earlier but not in detail...They did mention it was a bit difficult to handle expressed breast milk....Earlier, they suggest to me to buy formula milk as it was easier for them to prepare. I think it was easy to feed the baby with expressed breast milk but they thought it in different ways...(working mum 5)

b. Maintaining the similar charge of baby’s care

Majority of mothers in the study stated that their care givers accepted their request to give expressed breast milk to their baby when they went out to work. They maintained and did not increase the charges.

“..So far they accepted and did not make any noise on it..The charge for baby’s care was also similar with baby on formula milk..” (working mum 9)

“I already had two babysitters. The first baby sitter did not have any problem. According to her, it was easier to give expressed breast milk and she reduced the charge. She charged a little bit cheaper..(working mum 6)

Nevertheless, one mother in the study stated that her babysitter had increased the care charges as she claimed she took longer time to prepare the milk before feeding the

baby. According to her, the baby sitter had to look after another four children and she understood why the baby sitter increased the charges. The mother stated that she did not mind paying the care giver higher charges as long as the babysitter could prepare the expressed breast milk properly and feed the baby with it.

“My second babysitter did not mind taking care of my child and feeding him with expressed breast milk because the other baby she took care also taking expressed breast milk. No problem...Only the cost..She mentioned that she had to do more work when preparing and feeding the baby with expressed breast milk. She charged a bit expensive. Maybe she had to take care of another four children at the same time..I did not mind..As long my son was fine and she could feed the baby according to my request.. The difference was RM50. If for other child, the charged was RM250 but for me she charged RM300 (working mum 6)

4.4 Summary of the finding

Results from part one found that the percentage of ever breastfeeding was high, however mothers had difficulty to sustain breastfeeding practice either any breastfeeding practice, predominant breastfeeding and the exclusive breastfeeding practice up to 6 months. Our study showed that the exclusive breastfeeding was slightly higher at 1 month; however it showed a reducing trend from 2 months, 4 months and drop further at 6 months of baby's age, while the complementary breastfeeding practice had showed an increase from 1 month to 6 months of baby's age.

It was observed that individual level factors such as Malay ethnicity, non working mothers, good knowledge, had intention to continue breastfeeding as long as possible, never felt not enough breast milk and breastfed due to religion were all positively associated with any breastfeeding practice for children up to 6 months. We also found that non working women and women who never felt not enough breast milk were positively associated with exclusive breastfeeding for children up to 6 months, similar to any breastfeeding practice. In addition, intrapersonal level factor which was women who were given support by mothers, community level such as women with cultural practice of not giving water to their baby and individual level factors such as

women who do not give water due to not enough breast milk were also associated with exclusive breastfeeding of up to 6 months in our study.

Our study also found that working women were having difficulty to combine breastfeeding and work particularly exclusive breastfeeding after returning to work. The percentage of exclusive breastfeeding markedly declined at 4 months and it decreased steeply at 6 months among working mothers compared to non-working mothers. Our study revealed that working in government sector, working half day, mothers who expressed breast milk and availability of room to express breast milk at workplace were positively associated with any breastfeeding practice of up to 6 months. The positive factors associated with exclusive breastfeeding up to 4 months among working mothers were mothers who expressed breast milk during working hours and working mothers who owned breast pump. We also found that there was lack of breastfeeding facilities provided by employers at workplaces, particularly breast pump provision at workplace.

The qualitative study had found that that individual level factors which were mothers with strong personal factors and mothers who prepared early for mother's absence while working, organization level such as worksite support for breastfeeding and intrapersonal level with support from baby care takers facilitated working mothers to combine work and exclusive or predominant breastfeeding up to 4 months of baby's age in our study. Due to strong personal factors, mothers were highly motivated to plan their time in order to practice exclusive breastfeeding starting as early as during confinement, just before returning to work, after returning to work and continued to exclusively or predominantly breastfeeding by breast milk expression at workplace. Our study had found there was no workplace breastfeeding policy except Baby Friendly Hospital Initiatives policy which was claimed by mothers as more focused for patients compared to them as workers. Although, there was no workplace policy in workplace except maternity or breastfeeding leave, they would try to accommodate the practice of

breast milk expression at workplace by informing the employers, supervisors or other employees for an excuse to express breast milk during working hours. Our study also found that intrapersonal level factors at workplace which were supportive employers and other employees would facilitate working mothers to combine breast milk expression and work. We also found that male supervisors and male employees were supportive for working mothers to continue breast milk expression after return to work. However, our study also revealed that most working mothers would use their tea break or lunch hour break for breast milk expression. For a few mothers, the practice remained unnoticed by their supervisors and other employees. We also found the provision of breastfeeding facilities at workplace were still lacking. However, due to strong self motivation, mothers tried to accommodate the place available at workplace for breast milk expression. We also found that majority would use their own equipment for breast milk expression and storage, though some would store it in the workplace refrigerator. Our study also found that intrapersonal level factors which was support from baby's care taker had facilitated working mothers to combine work and breastfeeding. Mothers would train the baby's care takers on handling expressed breast milk and the right way's to feed the baby with expressed breast milk. However, our study found, initially, a few care taker were a bit reluctant to feed the baby with expressed breast milk and preferred to feed the baby with formula milk when the infant was under their care. Nevertheless after being counselled by the mothers, the care taker had agreed to feed the baby with expressed breast milk. Our study also found a few care takers would increase the care charges as they claimed they need more time for the preparation to feed the baby with expressed breast milk though majority of other care takers would maintain the same charges as with other babies who were fed with formula milk.

CHAPTER 5: DISCUSSIONS

5.1 Introduction

This chapter will discuss the results laid out in chapter four on breastfeeding practice which include breastfeeding initiation, any breastfeeding duration and exclusive breastfeeding duration, general factors associated with breastfeeding practice, breastfeeding practice among working mothers and non working mothers, employment factors affecting breastfeeding practice among working mothers and facilitating factors to sustain breastfeeding among working mothers.

5.2. Breastfeeding Practice

Breastfeeding practice in this chapter will be divided to ever breastfeeding or breastfeeding initiation, any breastfeeding duration at one, two, four and six months and exclusive breastfeeding duration at one, two, four and six months..

5.2.1 Ever breastfed

The ever breastfeeding rates in our study was slightly higher compared with finding in a national study done in 2006. In the National Health Morbidity survey in 1996 and 2006, the prevalence of ever breastfed among children aged less than 2 years old was 88.6% and 95.0% respectively (Fatimah et al., 2010). The increase of ever breastfeeding rate from 88.6% in 1996 to about 99.2% in this study was due to many initiatives done by Ministry of Health of Malaysia. This included the revision of breastfeeding policy in 2006. The national breastfeeding policy was introduced by the Malaysian government to support, promote and protect breastfeeding practices in Malaysia in 1993 (UNICEF, 2008a). The revised Malaysian Breastfeeding Policy was announced in 2006 stating that “ All mothers are encouraged to breastfeed their babies exclusively with breast milk from birth until 6 months of age and thereafter to continue until the child is 2 years old. Complementary foods should be introduced when the baby

is 6 months old .” (UNICEF, 2008a). All the government health facilities including private facilities are encouraged to advise all antenatal women and new mothers to follow the breastfeeding policy from their antenatal period, antepartum period, intranatal, postnatal period including postnatal visits as well as during the child’s health check up.

The Ministry of Health of Malaysia has implemented Baby Friendly Hospital Initiatives and Code of Ethics of Infant Formula to promote and protect breastfeeding practice in Malaysia((Ministry of Health, 2005). The Ministry of Health of Malaysia had launched Baby Friendly Hospital Initiatives in 1993 and the first Baby Friendly Hospital Initiatives hospital was developed in 1995. There were 116 government hospitals under Ministry of Health which had implemented Hospital Baby Friendly Initiatives by end of year 2006, out of 128 government hospitals. There are six private hospitals, two government hospitals under the Ministry of Defence and two government hospitals under the Ministry of Education designated as Baby Friendly Hospital in 2006(Ministry of Health, 2006).

Our study found that ever breastfeeding was almost comparable or slightly higher than the global breastfeeding initiation trends. As stated above, the increased rates are strongly associated with the breastfeeding promotion and protection introduced by Ministry of Health, Malaysia. In a national study done in Singapore in 2001 in which 2098 mothers were interviewed at 2 months and 6 months after delivery, it was found that about 94.5% of the mothers attempted breastfeeding(Foo et al., 2005). In a study among 6,068 mother-child pairs in 11 provinces in Vietnam in 2011, all babies were ever breastfed(Nema et al., 2014).

In a recent study done in Nepal, the percentage of babies given colostrum at birth was 90.9% and at one month of baby’s age about 99.3% were breastfed (Karkee, Andy, Khanal, & Binns, 2014). A review in Saudi Arabia found that the breastfeeding

initiation was more than 90% in most of the reviewed study (Al Juaid et al., 2014). In a study done among 422 mother-infant pairs in Euthopia, majority, 96.6%, (95% CI=0.86,0.97) of the mothers have ever breastfed their infants (Seifu, Assefa.G., & Egata, 2014).

A study done in central and south-west Sydney, Australia among 419 working mothers during November and December 2009, 98% of them had ever breastfed their babies. The participants in this study were employees in an Australian health service who had returned to work. The higher prevalence of ever breastfeeding compared to our findings might be related to the participants place of work of as health care workers (Weber et al., 2011). Another cohort study done in Perth, Australia had found after the participant left the hospital, the breastfeeding percentage was 93.8% and it was lower compared to our finding (J. A. Scott et al., 2006). In UK, the breastfeeding initiation rate was much more lower which was less than 70% among whites (Kelly, Watt, & Nazroo, 2006).

Our finding was higher in comparison to a review done in China for breastfeeding rate, which found that ever breastfed' rate was 90.1%. In general, breastfeeding initiation rates from the review was ranged from 92 to 99 % except in Hubei and Harbin which was about 72 % and 74%, respectively (Xu et al., 2009). In Hong Kong, a study among 82 primiparous women, only 51.2% of mothers breastfed their babies at 6 weeks postpartum which was lower compared the finding in our study (Ku & Chow, 2010). The breastfeeding initiation rates in Taiwan among 12,201 participants, was also lower compared to our study in which only 24.9% breastfed during hospital stay. However, the rate was increased slightly to 33.2% at one month of babies age (Kuo et al., 2008).

The finding of ever breastfeeding rates in our study was almost similar or slightly higher compared to other studies done in Malaysia. A large cohort study done in

Sabah (sample size 2072), stated that the rate of breastfeeding initiation was 95.6% (Aza Sherin, 2013) . Another study done in Selangor, (cross-sectional, sample size 508) found that the prevalence of ever breast feeding was 92%, (K.L. Tan, 2007). Another study done in a rural area in Kedah in 2005 (cross sectional study , sample size 115) stated that 99.0 % initiated breastfeeding (Yadav, 2010). In one study in an urban polyclinic near Kuala Lumpur, found that the breastfeeding initiation rate was 99.3%(C. K. Siah & Yadav, 2002).A recent study done in the largest public hospital in Malaysia, also found that the ever breastfeeding percentage was 98.0%(Norzakiah & Nabilla, 2013).

The higher ever breastfeeding percentage in this study compared to other studies done in Malaysia might be related to the location of the study area as the Kuala Langat District is a rural area. The national study done in 2006 found that rural area was associated with higher prevalence of breastfeeding compared to urban areas (Fatimah et al., 2010). Similarly another study done in Klang District also found that women who lived in the rural area had higher percentage of breastfeeding compared to urban area. Other than that, the majority of study population were Malays. It had been documented in other studies that Malay women have higher intention and prevalence of breastfeeding practice(Rahmah et al., 2011; C. K. Siah & Yadav, 2002; K.L. Tan, 2011)

5.2.2 Breastfeeding duration

Breastfeeding duration for this study will be discussed according to any breastfeeding duration, exclusive breastfeeding duration, predominant breastfeeding duration and complementary breastfeeding duration.

The percentage of any breastfeeding in our study was lower compared to the findings of the National Health Morbidity Survey finding in 2006. The overall prevalence of any breastfeeding (exclusive, predominant and complementary feeding)

for children below four months was 85.7% and for children below six months 78.3% (Fatimah et al., 2010).

Similarly to any breastfeeding rates, the percentage of exclusive breastfeeding for children below six months was lower in our study in comparison to the findings in the National Health Morbidity Survey (NHMS III) in 2006. However, for children below four months, the percentage of exclusive breastfeeding was slightly lower in the NHMS III compared to exclusive breastfeeding percentage at four months that was found in our study. In NHMS III, the overall prevalence of exclusive breastfeeding below four months was 19.3% (95%CI=15.5,23.9) while the overall prevalence of exclusive breastfeeding below six months was 14.5%(95%CI=11.7,17.9). Nevertheless, if we analysed from the breastfeeding status by age group, in NHMS III, it showed that the prevalence of exclusive breastfeeding was 26.7% among infants younger than two months. This prevalence decreased rapidly among 11.7% in infants aged between two to three months and it declined further by almost half to 6.1% for infants between the ages of four to five months (Fatimah et al., 2010). This shows that the percentage of exclusive breastfeeding in our study was higher at baby's age of one month to five months compared to the findings of NHMS III.

The percentage of predominant breastfeeding was lower in our study compared to finding in NHMS III in which overall prevalence of predominant breast feeding below four months and six months was 19.7% (95%CI=15.6,24.7) and 16.9% (95%CI=13.7,20.6), respectively. The complementary breastfeeding had increased from 10.9% at one month, 25.3% at two months, 35.2% at four months and 49.0% at six month. Similarly, the percentage of not breastfeeding also increased from 6.0% at one month, 15.8%, at two months, 30.4% four months and 38.1% at six months of baby's age. The prevalence of complementary breastfeeding was higher in NHMS III for children below four months while slightly higher for children below six month,

46.7% (95%CI= 41.2,52.2) and 46.9% (95%CI= 42.4-,1.4), respectively compared to our study. The study by Fatimah et al, 2010, also found that exclusive breastfeeding prevalence was significantly more in the rural areas, 30.7%(95%CI=23.3,39.2) compared to the urban localities, 12.9% (95%CI= 8.9 ,18.5)(Fatimah et al, 2010).

In the study done by Fatimah et al, 2010, the breastfeeding outcome was examined in relation to whether various types of liquid or solid foods were given to the child at any time during the preceding 24-hour period (past day and night) based on WHO recommendation while in the our study, breastfeeding outcome were assessed whether various types of liquid or solid food were given to the child at any time since birth until time of interview. This might explained the difference in the findings. The use of 24-h recall indicators have been shown to produce overestimations in the prevalence of exclusive breastfeeding and although it also has the potential of recall errors, the use of 'from birth recall' is less misleading (Aarts et al., 2000; Binns, Fraser, Andy H Lee, & Scott, 2009). The other contributing factors which might explain the difference was the NHMS III was a nationwide study while our study setting was in a district in the Selangor State. Although the study area was considered as a small district, it is situated in the state with the highest population and employment hence, the prevalence of breastfeeding was more related to the scenario seen in the urban area(Fatimah et al., 2010).

The findings in our study was lower compared to a cohort study done in Sabah, in which the percentage of any breastfeeding was 95.9% at 1 month, declined to 88.2% at 3 months and 80.7% at 6 months of baby's age(Aza Sherin, 2013). The study in Sabah did not measure the exclusive breastfeeding rate due to the cultural reason of giving water to babies. The researcher classified full breastfeeding as a combination of percentage of exclusive and predominant breastfeeding. The full breastfeeding rates at 1 month, 3 months and 6 months were 67.2%, 49.8% and 36.1%, respectively in that

study which were higher if compared to our study (percentage of exclusive and predominant breastfeeding). This might be related to the study setting. Sabah is still considered as rural area compared to Selangor state. The rural areas are considered to have higher prevalence of breastfeeding (Fatimah et al., 2010). The study design in Sabah was a cohort study in which the temporal relationship of outcome could be assessed compared to our study which was cross-sectional study. The difference between the results of our study and the study by Aza, 2013, might be due to the different outcomes measured. In the study by Aza, 2013, the breastfeeding outcome was full breastfeeding which was a combination of mothers who fully breastfed and giving water only to their babies while the our study separately classified exclusive and predominant breastfeeding based on World Health Organisation definitions (WHO, 2001).

Our study finding was also lower compared to another study done among 682 mother-infant pairs in Klang District, in Selangor. In the study by Tan KL, 2011, the prevalence of exclusive breastfeeding was 63.3, 43.2, 36.6, 40.6, 37.3 and 32.4 at one, two, three, four, five and six month respectively (Tan KL, 2011). In fact, the prevalence of exclusive breastfeeding was higher in the Tan's study compared to NHMS III study. There are a few factors that might have contributed to the disparity. In our study, breastfeeding outcome were assessed according to the various types of liquids or solid foods given to the child at any time since birth until time of interview (baby's age at 6 months old) while in the study by Tan, 2011, the breastfeeding outcomes were assessed in term of various types of liquids or solid foods that were given to the child within one month. In a study done abroad, the 24 hours recall could be misleading compared to 'exclusive since birth' (Aarts et al., 2000; Binns et al., 2009). Another factor that might have contributed to the different finding was the interviewers in the our study were from non-medical background with casual attire compared to the

interviewers in the study by Tan, 2011, which involved a medical doctor with health personnel uniform which might contribute to information bias. The majority of the respondents in the Tan's study were from low family income and not working which were strongly associated with exclusive breastfeeding in Malaysia(Tan K.L., 2007).

The findings in the our study was almost similar for exclusive breastfeeding rates at four months found in another study done in a rural area in Kedah in 2005 (cross sectional study, sample 115) reported that exclusive breast feeding was 21.0%, predominant breastfeeding practice was about 12.2 % and complementary breast feeding was 65.2% at 4 months(Yadav, 2010).This might be related to the rural settings in both studies in Peninsular Malaysia. However, our finding was lower compared to the study in Kuala Lumpur which found that the exclusive breastfeeding rate were 79.6%, 40.5% and 12.3% at one, fourth and sixth months postpartum respectively (Tahir & Al-Sadat, 2013). In the above study, the breastfeeding outcome was according to 24 hours recall which might cause over estimates of excusive breastfeeding rates (Aarts et al., 2000).

Breastfeeding rates during the last decades in a rural area in Kelantan in which all mothers were Malays and Muslims, almost all the mothers (97.3%) breastfed their child and 51.2% were exclusively breastfeding (282) in all age groups. Analysis according to different age groups found that most mothers were exclusively breastfeeding below 7 months (2 to 3 month-23 babies (57.5 %), 4 to 5 months-44 babies (80.0%) , 6 to 7 months-35 babies (76.1%)- except for age one month and below- 11 babies (35.5).About quarter of mothers who stopped breastfeeding gave reason of insufficient milk(28.3%), followed by working(19.7%) and mother pregnant again (16.4%)(Zulkifli et al., 1996).The exclusive breastfeeding rates were higher compared to our study due to the study area was a rural area and all participants were Malays and Muslim which were factors associated with higher prevalence of breastfeeding(Tan

K.L., 2011). In a recent study done in Kelantan, the exclusive breastfeeding prevalence at one month was 54.4% and it was lower compared to our study. In Kelantan, it was found that most mothers were giving water to their babies other than giving breastmilk which might contribute to lower rates of exclusive breastfeeding (Tengku Alina et al., 2014). Delay in initiation of breastfeeding, facing breastfeeding difficulties, intention to breastfeed and expressing breast milk were negatively associated with exclusive breastfeeding(Tengku Alina et al., 2013).

The finding of exclusive breastfeeding in our study was lower compared to exclusive breastfeeding rates in The East Asia and the Pacific Region. The UNICEF Fact Sheet, 2008 stated that the exclusive breastfeeding rates for infants less than four months was 61 % and at six month was 35 % in the East Asia and the Pacific Regions. The State of the World's Children 2011 report stated that the percentage of exclusive breastfeeding for children less than six month was 28% in the East Asia and the Pacific Region and 36% worldwide between years 2005 to 2009. The percentage of exclusive breastfeeding for children less than six months was 42%, 28%,24% ,34% and 15% in Indonesia, China , Myanmar, Philipines and Thailand respectively (UNICEF, 2014) . This finding might be related to the difference of breastfeeding outcome measurements used and other factors related to breastfeeding duration that will be discussed later. Our study measured introduction of fluids or solid food 'from birth' where as in most studies done in the other countries the researchers were using 24 hours recall for introduction of fluids or solid foods. However, in some other studies they had different measurements for breastfeeding outcome particularly the exclusive breastfeeding. A cross-sectional study done in DKI Jakarta Province, Indonesia involving 445 mothers with infants less or equal to six months, exclusive breastfeeding practice at time of interview was 17.5%. In this study, exclusive breastfeeding practice was based on whether the infant was still breastfeeding, self-reported exclusive breastfeeding practice

by the mothers, and whether the infant never received any pre lacteal feeding (Februhartanty et al., 2006). In a review of the national study done in Thailand, the exclusive breastfeeding rates at four months was 20.7% and at six months was 14.5% (Hangchaovanich & Voramongkol, 2006) which was higher compared to our study. In this study, the exclusive indicator used was “24 hour recall” of feeding practice, which was consistent with WHO indicator. In a randomised control trial of knowledge sharing practice with empowerment strategies in pregnant women done in Thailand, the exclusive breastfeeding rate at six months was 20.0% among the study group (Voramongkol & Phupong, 2010). The rates were higher as the study group had been given extra knowledge from pregnancy in the study.

In Vietnam, the percentage of partial breastfeeding at five months was 80.5% which is much higher compared to the rates in our study. However, the percentage of exclusive breastfeeding at one month was 41.1% and it declined further to 6.2% at the age of five months which was lower compared to the findings in our study at one month of baby's age (Nema et al., 2014). Nevertheless, our finding was higher compared to the study done in Singapore. A national study was done in Singapore in 2001 in which 2098 mothers who were still breastfeeding at 2 months were interviewed at 2 months and 6 months after delivery. The study found that the percentage of mothers who were still breastfeeding were 71.6%, 49.6%, 29.8% and 21.1% at 1 month, 2 months, 4 months and 6 months, respectively. The study also found that exclusive breastfeeding was not commonly practised in which about 20% at one month dropped to more than 10% at 2 months and was markedly decreased to 7% and almost 0% at 4 months and 6 months respectively (Foo, et al., 2005). In this study, non working mothers were positively associated with breastfeeding practice. Singapore is a developed country with higher employment rates compared to Malaysia which might contribute to the lower breastfeeding prevalence (Ong et al., 2005).

In general, our finding was lower compared to other studies abroad. A review of the national surveys conducted in China showed that exclusive breastfeeding rates at three months were 46.3% and 24.4% at four month (Xu, Qiu, Binns, & Liu, 2009). A national study done in Iran found that the exclusive breastfeeding rates were 57% (95%CI= 38.8, 79.6) at 4 months and 28% (95%CI=15.4, 52.7) at 6 months (Olang, et al , 2009). In Perth Australia, 83.3% mothers breastfeed their babies during discharged from hospital, and 61.8% and 49.9% were still breastfeeding at three and six months, respectively. The finding in Australia was lower compared to our finding. In this study, younger age, less well-educated and women who intend to breastfeed for less than the recommended 4–6 months were negatively associated with breastfeeding practice (J.A. Scott, Aitkin, Binns, & Aroni, 1999). In a study done in childcare setting in Australia, 50.5 % of babies were still breastfed for children less than six months and this was lower compared to the current study (Julie P. Smith et al., 2013).

5.3 Factors associated with breastfeeding duration

5.3.1 Factors associated with any breastfeeding duration

In our study, the factor that was associated with breastfeeding duration at six months was ethnicity. This finding was similar to the study done in Klang district in Selangor in which Chinese mothers were 0.12 times less likely to exclusively breastfeed compared to Malay mothers, OR=0.20(95% CI=0.11,0.35)(Tan K.L., 2011). In another study done earlier by same researcher, Chinese women were more likely not to practice exclusive breastfeeding compared to Malay women, OR=18.2(95% CI=3.95,84.54)(Tan K.L., 2009b). In another study done in a polyclinic in Kuala Lumpur, Chinese mothers were found to have the shortest duration of breastfeeding with the majority of them (61.3%) stopping breastfeeding at three months old infant age while only 21.7% of Malay mothers stopped at 3 months post-delivery and 15.4 % continued to breastfeed

even at 24 months and beyond. Among the Indian mothers, 40.9% of Indian mothers stopped breastfeeding at 3 months of infants' age and 9.1% up to 24 months (C. K. Siah & Yadav, 2002). The shorter duration of breastfeeding among Chinese might be related to the shorter duration of intention to breastfeed as reported in a study done among primiparous Chinese mothers in Ipoh, Perak, Peninsular Malaysia. In the study, about more than 30% had the intention to breastfeed for one month while another 63% had the intention to breastfeed for 6 weeks or more. For mothers with intention to breastfeed for one month only 30% achieved their intention while for mothers who intended to breastfeed for 6 weeks or more only 15.7% achieved their target. The shorter intention to breastfeed at one month and the shorter practice of breastfeeding was related to the traditional post-delivery confinement period in the Chinese culture in Malaysia (Teh et al., 2000). According to a study done by Tan in Klang District, Malaysia, the lower duration of breastfeeding among Chinese was related to the Chinese custom in which Chinese mothers usually hired an experience helper to take care of the infant and the household needs during the first month of confinement which led to the reduced effort and opportunity for breastfeeding (Tan K.L, 2011). Nevertheless, ethnicity was not associated with exclusive breastfeeding in our study.

Our study also found that religion was associated with breastfeeding duration at 6 months. In our study, majority of participants were Malay and Muslims. The finding might be related to Islam's stance towards breastfeeding as stated in the Quran (Chapter 2, Verse 233) stated that 'mothers shall give suck to their offspring for two whole years'. A review on breastfeeding practice among Muslims found that the breastfeeding initiation among Muslim mothers were high. Almost all of Muslim mothers initiated breastfeeding within the first day of postpartum. The breastfeeding initiation rates were 98 percent and 77.8 percent among Turkish and Saudi Arabian mothers, respectively. The breastfeeding rates also were high. Evidence revealed that the breastfeeding rates

among Muslim Indonesian, Egyptian, and Turkish mothers were 98 percent, 95.8 percent, and 86 percent, respectively. However, the EBF rates among Muslim mothers were low. The EBF rates were only 9 percent and 12 percent among Egyptian mothers and Saudi Arabian mothers, respectively (Anggraeni, Punthmatharith, & Petpichetchian, 2014). In a national study done in Singapore, religion was found to be statistically significant in which Muslim mothers were 6.7 times more likely to breastfeed their babies at 2 months, $OR=6.69(95\%CI=2.69,16.65)$ and two times higher at 6 months $OR=2.39(95\%CI=1.68,3.41)$ compared to Buddhist/Taoist mothers. Christian mothers were also more likely to breastfeed their babies longer compared to Buddhist/Taoist mothers, at 2 months and 6 months with $OR=2.4(95\%CI=1.80,3.32)$ and $OR=2.60(95\%CI=1.80,3.75)$ respectively. The researcher stated that in Singapore among the Malay mothers, all were Muslims whereas among the Chinese mothers, their religious affiliations were varied in which about half were Buddhist/Taoists, about a quarter were Christians, and another quarter had no religion (Foo et al., 2005). A study in Singapore found that Muslims mothers were more likely to breastfeed at 2 month and 6 months compared to Buddhist mothers. Being a Muslim was associated with higher breastfeeding prevalence due to the religion had encouraged mothers to breastfeed as stated in Holy Quran (Foo et al., 2005). In another study done in Sabah, Malaysia, being a Buddhist was also associated with prelacteal feeds as compared to Muslims which reduced the exclusive breastfeeding practice. In Malaysia, religion was observed to be related to ethnicity in which Buddhism is associated with Chinese while Muslim is associated with Malay (Aza Sherin, 2013).

Our study found that working was negatively associated with exclusive breastfeeding. This finding was similar to the observation of studies done in the country and many studies abroad. The findings of our study also consistent with the study done in Klang in which non working mothers were 3.5 times more likely to exclusively

breastfeed compared to working mothers, $OR=3.66(95\%CI=2.45,5.46)$ (Tan K.L., 2011). The study done in Kuala Lumpur also found that reason given for breastfeeding cessation was return to work (Norzakiah & Nabilla, 2013). A large cohort study done in Sabah also found that employment status was inversely associated with full breastfeeding duration, $aHR=0.760(95\%CI=0.62,0.93)$ (Aza Sherin, 2013). In another study done among 566 mothers in a rural area in Kelantan found that 19.7% gave the reasons that mother was working (Zulkifli et al., 1996). The finding in our study was consistent with many studies done abroad, that is working or employment had a negative effect on breastfeeding outcome especially breastfeeding duration, breastfeeding prevalence or time frame (DeRose, 2003; Fein & Roe, 1998; Hawkins et al., 2007; Kimbro, 2006; Kuo et al., 2008; Ong et al., 2005; Ryan et al., 2006). A critically appraised of the studies showed that the negative effect mainly affected the full time and longer working hours, the fab or manual work or administrative workers as compared to self employed, part time, professionals or agricultural workers who had flexible time either to express their breast milk, or breastfeed their babies or brought their babies to work. A review in Arab Saudi also found that four studies concluded that working mothers breastfed less frequently and had shorter duration than non working mothers(Al Juaid et al., 2014).In a qualitative study done in Australia among Indian Imigrants, employment was also found to be the reason for breastfeeding cessation . In this study, women in paid employment felt that they had to cease breastfeeding before resuming work. The women had started weaning their infants prematurely during maternity leave by giving bottle feedings to the baby. They also felt that expressing breast milk was seen as time consuming and inconvenient(Maharaj & Bandyopadhyay, 2013). In a study done in Australia, age of infant of less than 6 months and 6 months to less than one year when the mother returned to work was associated with the risk for discontinuing any breastfeeding before 12 months, $HR=1.69,(95\%CI=1.28,2.34)$ and

full breastfeeding before 6 months, Hazard risk=1.42(95%CI=1.08–1.88) (Scott J.A, et al., 2006).

In our study, good knowledge on breastfeeding was found to be positively associated with breastfeeding duration at 6 months. Good knowledge on breastfeeding is important for mothers to continue breastfeeding. In a study done in Euthopia, mothers who received postnatal counselling aOR=3.88(95%CI=1.88,7.99) were positive predictors of exclusive breastfeeding. In another study done in another province in Euthopia, being illiterate, aOR=3.2;(95%CI=1.2,8.3) and no advice during antenatal care about breastfeeding, aOR=1.9(95%CI= 1.0,3.4) were significantly associated with early cessation of breastfeeding(Gultie & Sebsibie, 2016) . In another cross-sectional study conducted in Nigeria among 383 lactating mothers who had breastfed for not less than six months and up to two years, there was a significant association between having previous training on breastfeeding and cumulative breastfeeding knowledge score level ($p=0.013$). In this study, the researchers found that good knowledge had longer breastfeeding practice at least 6 month(Mbada et al., 2013).

The finding in our study was also similar to a cross sectional study among 115 mothers in a rural area in Kedah, Malaysia. Mothers who scored more than 50% in more than seven correct answers in the knowledge questions demonstrated a longer duration of breastfeeding as compared to those who answered less than seven correct answers. In a cross sectional study among 508 mothers done in Klang District, also found the similar findings in which mothers with good knowledge practised breastfeeding more commonly as compared to mothers with poor knowledge(ever breastfeeding, $p <0.001$ and exclusive breastfeeding at one month , $p <0.001$)(Tan K.L., 2007). These findings could be due to the fact that mothers who were aware of the benefits, techniques and complication of breastfeeding would breastfeed longer as compared to those with lower knowledge on breastfeeding as they were not aware of the benefits, the proper

techniques and complications of breastfeeding(Yadav, 2010). A study in Klang, reported that seventy one percent of all women reported that 'Breast milk is the best' for the infant and the knowledge had influenced the breastfeeding practice(Tan K.L., 2009b).

Intention to continue breastfeeding as long as possible compared to less than 2 months was found to be associated with longer breastfeeding duration up to 6 months in our study. This finding was similar to that found in a cohort study done recently in USA. Of the 1799 women who prenatally intended to exclusively breastfeed within the first few weeks postpartum, 34 and 9 % exclusively breastfed for at least 3 months and 6 months, respectively. In this study, mothers who strongly valued exclusive breastfeeding had over 2 times the odds of exclusively breastfeeding for at least 3 months, aOR=2.29(95%CI=1.84,2.85) and 6 months, aOR=2.49(95%CI=1.7,3.53) compared to mothers who did not strongly value exclusive breastfeeding. Mothers who strongly agreed with the statement of 'babies should be exclusively breastfed for the first six month' was considered strong valued exclusive breastfeeding (Nnebe-Agumadu et al., 2016). In a study done among 889 mothers in Australia, mothers who never intended to breastfeed for 6 months or more were less likely to breastfeed at six months, aOR= 0.28(95%CI=0.18,0.44) as compared to mothers who had intention to breastfeed at 6 months and more. In this study women who had either an antenatal or postnatal intention to breastfeed six months or more were more likely to breastfeed at six months as those who had this intention at both time points. Foster et al, 2006, suggested that interventions during pregnancy to increase women's intention to breastfeed such as antenatal breastfeeding education may have had an effect (Forster D.A. et al., 2006). Similar findings were found in a prospective cohort study among 1003 mothers in Melbourne Australia. Mothers with intention to breastfeed more than 6 months were more likely to breastfeed at 6 month, aOR=3.46(95%CI=2.39,5.00)

(Forster D.A. et al., 2015). In a prospective longitudinal study of 695 women in China, mothers who were undecided on how long to breastfeed, aHR=1.41(95% CI=1.16,1.72), were more likely to terminate lactation within 1 year. This study found that mother with no intention of how long to breastfeed their baby will stop breastfeeding early (Tang et al., 2015). In another cohort study done in Kelantan, found that women with longer prenatal intention to exclusively breastfeed were less likely to discontinue exclusive breastfeeding at one month after delivery, AOR=0.80(95%CI=0.71,0.91)(Tengku Alina et al., 2013).The intention to breastfeed for longer duration had an influence for mothers to breastfeed longer.

Our study found that mothers who had never felt that they had not enough breast milk would continue breastfeeding up to 6 months. The perception of sufficient breastmilk is very important to continue breastfeeding so that they would not give water or formula milk to the baby. Our findings were similar with the results of a cross sectional study in Saudi Arabia which found that insufficient breast milk was among the main reasons given by 169 (44%) of the participants, for stopping breastfeeding before two years(Al-Binali, 2012). In a recent systematic review done in Saudi Arabia, the most common reason for stopping breastfeeding was insufficient breastmilk (Al Juaid et al., 2014). Similarly, in a survey done among 556 mothers in Kelantan, found that the main reason for stopping breastfeeding was insufficient breast milk (28.3%) (Zulkifli et al., 1996). In a recent cohort study done in Kelantan among 210 mothers, the reasons given of were no breastmilk(33.3%) and insufficient breastmilk (25.5%) for giving formula milk and water to their babies(Tengku Alina et al., 2013). Breastfeeding education informing that breastfeeding only is sufficient and never felt that there was inadequate breastmilk is important and will influence the mother's perception and attitude on breastfeeding practice. These issues were confirmed in this study. One study also found that exclusive breastfeeding duration was associated with

mothers who never felt not enough breast milk compared to mothers who always felt not enough breast milk, aOR=4.58(95%CI=1.05,20.04).

Mothers with complications during pregnancy and delivery was positively associated with any breastfeeding duration at six months which contradict the findings of other studies. In a study done in Australia, mothers with preterm birth ($p = 0.01$) and lower birthweight ($p < 0.0004$) was associated with premature cessation of breastfeeding (Quinlivan et al., 2015). In another study done in Kuwait, mothers delivered by caesarean section were less likely to exclusively breastfed at discharge from hospital, aOR=0.15(95% CI=0.05,0.43) and mothers with infants had not been admitted to Special Care Nursery were significantly more likely to have initiated breastfeeding, aOR=5.67(95%CI=2.49,12.95) (Dashti et al., 2010). The finding in our study contradict with that of other studies elsewhere. The finding in this study might be due to the fact that in Malaysia, mothers with complications during antenatal and delivery would have more frequent follow up appointments in the health clinics or obstetric clinics in the hospital and therefore mothers would have more frequent opportunities to see the health personnels. During these frequent visits, they were given education on the importance and the proper techniques on breastfeeding. In a study done Euthopia, mothers who received infant feeding counseling during postnatal care visit were nearly four times, aOR=3.88(95%CI=1.8,7.99) more likely to breastfeed their infants exclusively compared to those who did not get counseling during postnatal care(Liben et al., 2016). Mothers who did not receive advice about breastfeeding during antenatal care, aOR=1.9 (95%CI=1.0,3.4) were more likely to cease breastfeeding early as compared mothers who did not received antenatal breastfeeding advice(Gultie & Sebsibie, 2016)

5.3.2 Factors associated with exclusive breastfeeding duration

Our study observed that non working mothers had the odds of 4.73 to exclusively breastfed at 6 months compared to working women (95%CI=2.21,10.11).

As explained in the paragraph 5.3.1, many working mothers were less likely to exclusively breastfeed as compared to non working mothers as there was lack of support from their employers such as lack of facilities to express breastmilk and lack of policies on breaks for breastmilk expression(Chen et al., 2006). In a national survey done in USA among women who were employed full or part time, only 40% of these women had access to both break time and private space. This study also found that women with both adequate break time and private space were 2.3 times (95%CI=1.03,4.95) more likely to be breastfeeding exclusively at 6 months and 1.5 times (95%CI=1.08,2.06) more likely to continue breastfeeding exclusively with each passing month compared with women without access to these accommodations (Kozhimannil et al., 2016). In a cohort study in France involving 2002 women, time of return to work, was a major predictor for breastfeeding cessation and this study found that the earlier the mothers return to work, the less likely they breastfed their babies at 4 months of infant's age, return to work between 5 and 8 months/part-time, aOR=4.4 (95%CI=2.1,9.3) as compared to return to work at 4 months or before/full-time. The association was stronger for almost exclusive breastfeeding mothers (Bonet et al., 2013). In a study done among 290 working mothers in an urban area in Malaysia also found that having lack of breastfeeding facilities at the workplace was also a risk factor for breastfeeding discontinuation, aOR=1.8(95%CI=1.05,3.1)(Rahmah et al., 2011)

In our study, women who had support from mothers were more likely to exclusively breastfeed up to six months as compared to women without mothers' support. Mothers usually will make sure the best is being done for their children. Usually mothers will assist in the household chores so the women who had just delivered had more time with their babies. In a qualitative study done in USA, the mother would support newly delivered women by informing about the values of breastfeeding. In this study the woman recalled, "My mom would say, 'That's the best

thing that you can do' and that she really enjoyed breastfeeding her kids . . . she always encouraged me to do it'' (Grassley & Eschiti, 2008). In another qualitative study done among first time mothers in Southern Ireland, support from participants' mothers was very helpful as they were involved in a close relationship with the young mothers and provided direct childcare or became the main carer of the baby (Cronin, 2003).

The other positive association of exclusive breastfeeding in our study was mothers without cultural practice of giving water as compared to mothers with cultural practice of giving water to babies. Mother who did not give water due to not enough breastmilk were more likely to exclusively breastfeed as compared to mothers who gave water. Many studies found that the culture of giving water would reduce exclusive breastfeeding practice and this was confirmed in our study. Women without culture of giving water were more likely to exclusively breastfeed their babies. In a cross sectional study done in Democratic Republic (DR) of Congo, the main reasons for water supplementation included "heat" and cultural beliefs that water was needed for proper digestion of human milk (Yotebieng et al., 2013). In a cohort study among 204 women, who were followed up from 32 weeks of gestation up to one month post delivery, in Kelantan, Peninsular Malaysia, 22(10.8%) women did not practise exclusive breastfeeding because they gave water in addition to breast milk. The reasons given were to avoid/treat jaundice, hot weather, no breastmilk and to avoid constipation (Tengku Alina et al., 2013). In a cohort study done in Tanzania, , 36% of the infants were given water at the age of one month which increased to 73% by the third months of infant's life. About 43% of babies had been introduced water at the first week of infant's life which was higher as compared to our study in which 15.6% of infants had been introduced water at one week and this had affect the exclusive breastfeeding practice. The prevalence of exclusive breastfeeding was 48.8 % at 1 month, 22.0 % at three months and 0.2 % at six months after delivery (Hussein et al., 2015). However, the

above studies did not show any significant relationship of culture of giving water and exclusive breastfeeding. In a qualitative study done in the district of Pasir Mas, Kelantan, the culture of giving water was a barrier to exclusive breastfeeding as almost all participants had fed their infants with plain water, and they believed that it was a right practice. Their main concern was related to infant's hunger, thirst and constipation (Tengku Alina et al., 2014). Education to mothers starting from the antenatal period, delivery and post natal for not introducing water to their babies is very important to break the culture of giving water in the community.

Our study found that mothers who had never felt they had insufficient breast milk had the odds 5.21 higher than mothers who always felt not enough breast milk(95%CI=3.06,8.89) to continue breastfeeding up to 6 months. The perception of sufficient breastmilk is very important to continue breastfeeding so that they will not supplement with water or formula milk. In a study done among Labenese women, several women wanted to introduce formula feeding because they felt their infants were not getting enough milk. They introduced formula milk as supplementation to satisfy the hunger of the infant as the baby continued to cry after the breast feeds or because the mother was no longer having the engorgement that is commonly associated with breastfeeding in the first few weeks. In this study it was also observed that lack of breastmilk was inherited in the family (Osman et al., 2009). The finding in our study was similar to the findings of a cross sectional study in Saudi Arabia which found that insufficient breast milk was among the main reasons given by 169 (44%) of participants, for stopping breastfeeding before two years(Al-Binali, 2012). In a recent cohort study done in Kelantan among 204 mothers, gave the reasons of no breastmilk (33.3%) and insufficient breastmilk (25.5%) for introduction of formula milk and water to their babies(Tengku Alina et al., 2013). However, the studies done in Malaysia and abroad did not show any statistical relationship between exclusive breastfeeding and

feeling of insufficient breastmilk. Breastfeeding education informing mothers that breastfeeding only is inadequate and never having the feeling of insufficient breast milk is important and will influence the mothers' perception and attitude on breastfeeding practice which was confirmed in this study.

5.4 Employment Factors Associated With Breastfeeding Practice

Our study noted that mothers who worked in the government sector were more likely to breastfeeding at 6 months as compared to mothers who worked in the private sector, aOR=1.97(95% CI=1.17,3.32). A study in urban area in Selangor among 290 working mothers also found a similar finding, in which 57% of mothers who worked in the private sector had ceased breastfeeding as compared to 40% mothers who worked with the government($p < 0.01$). The mothers stated that in the private sector, workers such as factory workers and other types of jobs were less flexible and they had short resting periods (Rahmah et al., 2011). In another study done among 297 employed mothers in Pakistan also found that the government employers provided flexible time to express breast milk(23%) as compared to the private sector (9%), $p < 0.01$ %, OR=14(95%CI=4,24).In this study, the 3 months maternity leave for government employees was 99% as compared to 81% in private sector employee (Soomro, 2015). In Malaysia, during the duration of the study, the maternity leave for government personnel was still 60 days in accordance with the maternity circular in 1998 which stated that each female government servant will be allowed for five maternity leaves during their whole service in the government, and for each maternity leave , they were allowed 60 days of fully paid leave. The government employee was also allowed to continue another 90 days from the end of maternity leave, for them to continue child care leave which is unpaid leave. They were allowed to apply for childcare leave for five times throughout their entire service in the government sector (Department of General Service, 1998). However, the policy was revised in October 2010, in which

women can have a flexibility to choose their own maternity leave between 60 days to 90 days for each delivery and the total of 300 days of maternity leave for their whole service in the government sector (Department of General Service, 2010). In this circular, the civil servant will be given full payment salary. This circular also continuing the clause of 5 years of child care leave during their entire service in the government which included breastfeeding leave, for women to continue their leave direct from maternity leave. This was another Malaysian government action to promote mothers to continue exclusive breastfeeding up to 6 months. Not many mother took this leave as they will not be paid for this leave. Nevertheless the duration of maternity leave was not associated with either exclusive breastfeeding practice or any breastfeeding practice in this study. This was probably why most mothers will only apply for paid maternity leave. As documented in the study very few mothers applied for childcare or breastfeeding leave as it was unpaid leave.

The Malaysian government had also promoted that all the government facilities should provide nursery or childcare in the government worksite to increase the bonding between mothers and their child as well as breastfeeding practice. However, in our study we did not identify many facilities that provided nursery or childcare for their employee. In private sector, the duration of maternity leave ranged from 42 days to 60 days. For women who were self-employed sometimes they had started to work earlier especially if they were working from home. The job flexibility and less worksite support from private employers might contribute to the decline in breastfeeding practice at 6 months. The policy to provide worksite breastfeeding support as well as breastfeeding education targeting employers in private sector should be implemented to improve breastfeeding practice.

In our study, women who worked more than 5 years were more likely to breastfeed at 6 months as compared to women who worked less than 5 years. In a study

involving employed women in an urban area in Selangor found that there was no significant association of length of employment either less than 6 years working or more than six years working on breastfeeding practice (Rahmah et al., 2011). In a cross sectional study done among 998 female employees who worked in a Taiwanese-owned semiconductor manufacturing company, years of employment were negatively correlated to initiation of breastfeeding. However it was not significantly correlated with continued breastfeeding. The finding contradicts with the finding of our studies in which shorter length of employment more likely to breastfeed at six months as compared to longer duration of employment (Chen et al., 2006). The finding in our study may be due to the fact that females with longer duration of employment were more familiar with the employers, supervisors, other employees and the worksite regulations and policy as compared to female with shorter duration of employment. In another study done in Taiwan, encouragement by colleagues to use breast-pumping breaks, OR 1.76 (95%CI= 1.01,3.13) increased the intention to use breast pump breaks. Encouragement by supervisors increased the use of breast pump break (71.0% vs. 52.9%, $p < 0.0001$) (Tsai, 2014).

In our study, working half day was associated with longer duration of breastfeeding compared to regular office hours. This may be due to the fact that working mothers have shorter duration of working hours and less time when the baby was separated with their mothers. In a cohort study done in USA among 1488 mothers, part time employment had no effect on breastfeeding duration as compared to non working mothers, the adjusted mean duration was 25.1 weeks for non working mothers, 24.4 weeks for those working 1 to 19 hours per week, and 22.5 weeks for those working 20 to 34 hours per week ($p > 0.05$). However, working full time decreased the breastfeeding duration as compared to non working mothers. The women with full time jobs breastfed an average of 16.5 weeks, which was 8.6 weeks less than nonworking

mothers ($p < 0.05$). This study found that mothers with shorter duration of working hours were more likely to breastfeed longer compared to mothers who were having longer working hours (Sara B. Fein & Roe, 1998). Our finding was compatible with the finding in another cohort study done among 6917 employed mothers in UK, women with part-time employment or self-employment were more likely to breast-feed for at least 4 months than those with full-time employment $aOR = 1.30$ (95%CI=1.17,1.44) and $aOR = 1.74$ (95%CI=1.46,2.07), respectively). In this study, noted that mothers with longer duration of working hours were less likely to breastfeed at 4 months as compared to those with shorter working duration (Hawkins et al., 2007). In another cohort study done in Hongkong, among 1738 mothers who returned to paid employment postpartum and followed up to 12 months of baby's age, women with shorter working hours were less likely to wean from any or exclusive breastfeeding, for full time working hours as compared to part time, $HR = 1.44$ (95%CI=1.18,1.75). Although after adjustment, the $aHR = 1.25$ (95%CI=0.96,1.64), this study also proved that shorter duration of working hours increased breastfeeding duration as compared to full time working hours or office hours. (Bai, Fong & Tarrant, 2015b). Similarly, in another cohort study done in USA among 1470 mothers, fulltime work was associated with shorter duration than part time work (< 35 h/week) (28.3 weeks vs. 36 weeks, $p < 0.05$) (Mandal, Roe & Fein, 2010). However, in a cohort study done among 3697 mothers in Australia found that part-time employment of less than 30 hours per week, or casual employment of variable hours had a strong negative effect on the likelihood of continuing to breastfeed for 6 months, $aOR = 0.49$ (95%CI=0.37,0.64) and $aOR = 0.72$ (95%CI=0.54,0.97) respectively which contradict our findings. The full time working mothers had $aOR = 0.35$ (95%CI=0.22, 0.55) on breastfeeding continuation or breastfeeding at six months (Cooklin, Donath, & Amir, 2008). In the study by Cooklin et al, 2008, the researcher was comparing the breastfeeding duration among full time, part time and casual with non working mothers

whereas in our study, we were comparing the breastfeeding duration among women with part time, half day and oregular ffice hours.

Our study found that mothers who expressed breast milk during working hours had higher odds to breastfed at 6 months and exclusively breastfed at 4 months as compared to mothers who did not express breast milk. Our finding was similar to a cohort study done among 60 mothers in USA. Mothers who planned to work by 6 months had aOR=7.67(95%CI=1.86,31.67)to express breast milk at 4 weeks postpartum as compared to women who did not plan to work. This study had claimed that maternal employment was strongly predictive of breastmilk expression and their study had shown that mothers expressed their milk even prior to returning to work (Geraghty, Davidson, Tabangin & Morrow, 2012). In a cohort study done in Australia among 587 mothers, the risk of discontinuing any breastfeeding at 6 months was lower, aRR:=0.71 (95%CI= 0.52,0.98) among women who expressed breast milk as compared to women who did not expressed breastmilk. According to the researcher in the above study, breast milk expression allowed a mother to be away from the baby and not directly breastfeed the baby which may allow mothers to return to work or undertake some social activities while continuing to breastfeed (Win, Binns, Zhao, Scott & Oddy, 2006). In a retrospective study done among working mothers enrolled in an Employer-Sponsored Lactation Programme in USA, mothers who were provided with private rooms in the workplace with equipment for pumping, 98% of the women who attempted to express milk at work, expressed milk in the workplace for a mean duration of 6.3 months and up to 21 months. In the study by Ortiz et al, 2004, 84% of the women who expressed milk at workplace were employed full-time and 74% of women who pumped at work were still breast-feeding at 6 months (Ortiz, McGilligan, & Kelly, 2004). The workers in a study by Ortiz et al, 2004 were fortunate to be sponsored with breast pump facilities. In Malaysia, majority of the employer did not provide breast pump to their employer and

almost all employees had to buy the breast pump equipment themselves. Breast milk expression among working women is associated with longer breast feeding duration either any breastfeeding or exclusive breastfeeding. Our study had found that working mothers who owned breast pump had the odds of 3.23 higher than working mothers who did not own breast pump to continue exclusive breastfeeding at 4 months.

Our study also found that working women had to express breastmilk using their own breastpump in order to continue breastfeeding practice as the majority of the employers in Malaysia did not provide breast pumps in the workplace. As explained by the mothers who expressed breastmilk at work place in our qualitative study, although the pump was provided in the work place, they had to share the breast pump with the patient in BFHI which was not convenient for them as a worker. Our finding was similar to a study done among health workers in Australia. Most breastfeeding women used a manual pump (51%) or electric pump (33%) to express, and most used their own pump (83%) (Weber et al., 2011).

5.5 Facilitating factors for mothers to continue breast milk expression at workplace

Our study had found that personal factors which are good knowledge and good perception on the benefits of breastfeeding were factors that facilitated mothers to continue breast milk expression at workplace. Mothers' perception that there is a need to express breast milk in workplace and a strong self motivation to express breast milk in workplace were vital facilitating factors. These perceptions had an influence on the mother to continue breast milk expression at workplace thus sustaining exclusive or predominant breastfeeding among working mothers. In a qualitative study done in USA among 20 working mothers, breastfeeding was seen as a practice was beneficial for their babies' wellbeing and the mothers were satisfied in knowing that their breastmilk contributed to the development of their baby (Payne & Nicholls, 2010). In another

qualitative study done among low income mothers who planned to breastfeed their infants and already working or planning to return to work full- or part-time after childbirth, most mother recognised the benefits of breastfeeding for both the mother's and the infant's health such as being natural, facilitating closeness, healthy (protects the baby from disease) and most mothers generally accepted as breastfeeding as part of the maternal role. In the study by Rojjanasrirat & Sousa, 2010, breastfeeding was also seen in terms of its economic benefits for employers as breastfed infants experience fewer illnesses, therefore less time for mothers to be absent from work. Rojjanasrirat & Sousa, 2010 also stated that commitment and effort as well as plan to accomplish the goal and meet the baby's needs were similar with our study findings that there was a need to express breast milk to continue breastfeeding to meet the baby's need (Rojjanasrirat & Sousa, 2010). In another study done among nurses in Taiwan, they were managing to express breastmilk as it was felt that there was a need to express breastmilk in which all the participants would accommodate and adjusted their work schedule in order to express breastmilk although they were very busy (Wu et al., 2008)

Our study finding showed there was lack of policy on breastfeeding at workplace particularly with respect to flexible hours to express breast milk. The available policy related to breastfeeding are maternity leave and childcare leave as stated in Malaysian Government Circular 2010, for 90 days maternity leave or 300 days throughout the worker's service in the government. They were paid during this leave. However for a few allowance will be deducted as they are on leave for more than 30 days. Working women in the government sector are also given option for childcare leave which was given for five years throughout the whole service in the government sector. However not many utilized this provision because it is unpaid leave. Generally, the maternity leave in the private sector is usually only for 60 days and shorter compared to government employees in Malaysia. This maternity leave was similar to Indonesia.

From a study on the legal protection for breastfeeding mothers in Malaysia, the duration of maternity leave in Malaysia is relatively comparably short compared to other South East Asian countries. In other South East Asian countries such as Thailand, Laos, and Cambodia the employees have longer maternity leave in about 90 days. The length of maternity leave in Vietnam is 4 to 6 months, and 12 weeks in Myanmar and Singapore. Other countries such as China and Egypt have 90 days of maternity leave. Maternity leave in Brazil is 120 days. In Europe, Britain and Spain the maternity leaves are 52 and 16 weeks respectively. However, female employees on maternity leave in Malaysia are fully paid during the coverage period and this provision is much better than Cambodia and Myanmar where wages paid during the coverage or eligible period is only 50% and 67% respectively (Hassan & Musa, 2014). Similar to our finding, studies conducted in other countries also stated that there is lack of policy on breastfeeding. The International Labour Organization (ILO) includes seven key elements of maternity protection at work, with special reference to Maternity Protection 2000 (Convention 183) and the Maternity Asian Women 2014 Vol.30 No.2 | 99 Protection Recommendation (Recommendation 191). These elements are scope, leave, benefits, health protection, employment protection, non-discrimination, and breastfeeding breaks (World Alliance of Breastfeeding Action, 2008; 2012) The amount of leave under the International Labour Organisation standard is not less than 14 weeks, but Malaysia only provides 90 days for government workers and 60 days for private and informal workers. The Employment Act 1955 also has no clear provision on breastfeeding breaks statement to protect working mothers in Malaysia as commented by the writer in the above study. In a global comparative study by World Health Organisation to asses breastfeeding policy found that more than two thirds of the countries had paid breastfeeding breaks in 130 countries (71%) and unpaid breaks in seven countries (4%). However, there is another 25% of the countries, have no policy on breastfeeding break. In the WHO study,

provision of breastfeeding breaks had increased the breastfeeding duration. The guarantee of paid breastfeeding breaks for at least 6 months was associated with an increase of 8.86 percentage points in the rate of exclusive breastfeeding ($p < 0.05$) (Heymann et al., 2013). Our finding showed that, there is no policy on breastfeeding break thus, Malaysia can be included in the 25% of countries without policy on breastfeeding break. The Malaysian government should advocate policy on breastfeeding breaks to all employers to increase breastfeeding practice particularly exclusive breastfeeding among female workers.

The other policy on breastfeeding found in our study were Baby Friendly Hospital Initiative for employees who work in government hospitals. Nevertheless, the worker claimed the policy is more focused for the patients and not for the employees in the workplace. They try to adjust their working schedule to express breast milk and find a suitable place and time for breastmilk expression similar to a study done among nurses in Taiwan (Wu et al., 2008) The situation in our study was less critical in comparison to a study done among employees working in hospitals in Hongkong in which only two hospitals (11%) allowed employees to take breaks as needed and to use a breast pump. While, employees in other 10 hospitals (55%) had to use their meal time and regular break times. (Dodgson, Chee, & Yap, 2004). Eventhough in our study, there was no policy on breastfeeding breaks, the employees would adjust their work schedule to express breast milk sometimes by using their meal and regular break time.

Our study had found that support from employers and other employees were important for them to continue breastfeeding. Although, there is no policy on breastfeeding breaks in the workplace, the understanding of employers and supervisors by allowing employees to express breastmilk during working hours assist them to sustain exclusive or predominant breastfeeding up to four months. Our finding was similar to that found in study done by Weber et al, 2011, which found that support from

management and colleagues, 11% (n=43) and 13% (n=51) respectively, were important as enabling factors to continue breastfeeding at workplace. However there was no significant association of support and women's intention to breastfeed or breastfeeding practice done in their study (Weber et al., 2011). Our findings contradict the findings in a study done among low income mothers in USA, which stated that with their current job scope, the employers might not understand their need to express breast milk while working. However, similar to our study, in the study by Rojjanasrirat & Sousa, 2010, a few women believed that working for a female boss would make combined breastfeeding and work a little easier than working for a male. A female boss was more understanding as some of them also practised breast milk expression at work. Study by Rojjanasrirat & Sousa, 2010, also stated that the male boss would label them taking breaks to express breast milk as extra breaks and use it as an excuse which contradict our finding. In our finding, male bosses also understood and gave support to the mothers as they knew the importance of breastfeeding and their wives were also expressing breast milk at work. The mothers in the study conducted by Rojjanasrirat & Sousa, 2010, also anticipated a lack of breastfeeding support from their co-workers especially the male workers when they commented unkindly on time taken for breastmilk expression by these women which was also in contradiction with our finding in which other employees also gave support for them to continue breast milk expression (Rojjanasrirat & Sousa, 2010). Similar to Rojjanasrirat & Sousa, 2010, in a qualitative study done among primiparous mother in Singapore, though some workplaces did have breastfeeding facilities for working mothers, the breastfeeding practice at workplace was still dependent on their superior's and other employee's attitudes towards it, as some of them would categorise the mothers who expressed breast milk during working as inefficient (Choo & Ryan, 2016).

In our study, a few other employees would consult working mothers on their experience to combine breastfeeding and work. This finding was similar to a study of 407 employees to assess attitudes towards workplace breastfeeding and/or breast milk expression among employees of a large US corporation that provided a variety of on-site services for breastfeeding, having had a co-worker who breastfed or expressed milk was associated with a 2.4-point increase in average IBA (Index of breastfeeding attitude score) ($p < 0.01$) (Suyes, Abrahams & Labbok, 2008). In other words, the exposed employees will be having higher positive attitudes toward breastfeeding which was similar to the finding in our study. They can become the role model to other workers in the similar workplace for breastmilk expression. In another study done among 715 working mothers employed in an electronics manufacturing plant in Taiwan, encouragement by colleagues to use breast-pumping breaks was positively associated with intention to use breast-pumping breaks, $aOR=1.76(95\%CI=1.01,3.13)$ as compared with no encouragement (Tsai, 2014). Similar as in a study in Taiwan, these mothers were able to continue breastfeeding are the role models or act as counsellors as they were successful in breastfeeding their child. Their colleagues will ask their opinions or consult them about their breastfeeding experience (Wu et al., 2008). Hence, these successful breastfeeding mothers can be a peer supporting breastfeeding group at workplace.

Our study also found that there was still limited facilities for breastfeeding at workplace. Though there was room to express breast milk at workplace, it was a general place like prayer room or pantry rooms and not a special breastfeeding room. Similar with refrigerator provided at workplace, was also for domestic use and was not specific for breastmilk storage. Similar to a qualitative study done in East Coast Malaysia, there was lack of facilities for breastfeeding at workplace in which they had to express breast milk in prayer room or washroom and the refrigerator provided at

workplace was for general use and not specific for breast milk storage (Tengku Alina, Zaharah, et al., 2012). Worksite breastfeeding facilities, supportive environment and right support from employers and other employees were important to increase the exclusive and predominant breastfeeding practice. In a cross sectional study done among 998 female employees in Australia, 19% of participants had access to a room specially designated for breastfeeding, and they found that flexible work options and lactation breaks, as well as access to a private room, were identified as the main factors that facilitated breastfeeding at work. In the study by Weber et al, 2011, there were several enabling factors that favour combining breastfeeding and work which were flexible work options (including working part time or reduced hours) (17%, n=71) and flexibility of break times (11%, n = 40), support from management and colleagues (11%, n=43) and (13%, n=51) respectively, and access to a private room for breastfeeding or expressing breast milk (n=40) (Weber et al., 2011). Allowing working mothers to express breast milk during working hours i.e. flexibility of working hours for mothers to express breast milk had improved the exclusive breastfeeding practice up to 4 months and breastfeeding duration (Win, Binns, Zhao, Scott, & Oddy, 2006; Fein, Mandal, & Roe, 2008).

Our study also identified that caretakers had influenced the breastfeeding practice among working mothers whereby the former can help working mothers to sustain exclusive breastfeeding. The exclusive or predominant breastfeeding up to four months was considered as mother able to sustain breastfeeding practice among working mothers as the majority of mothers discontinued exclusive breastfeeding after returning to work (Chuang et al, 2010). In Malaysia since 2012, mothers in the public sector usually return to work after three months of confinement leave. Although in a quantitative study done in UK had mentioned that informal, RR= 0.51 (95%CI=0.43,0.59) and formal, RR=0.84 (95%CI=0.72,0.99) childcare was associated with a reduced

likelihood of breastfeeding as compared to being looked after only by a parent (Pearce et al., 2012). Our study had found that either formal or informal baby caretaker can assist working mothers to sustain exclusive breastfeeding if they were educated and trained to give expressed breast milk to the babies. In our study, mothers had to express breast milk and provide the expressed breast milk to the caretakers.

Our study also found that mothers had to prepare themselves during their confinement leave by learning and practising to express breast milk and stockpiling the expressed breast milk. A similar finding was found in a secondary qualitative analysis in New Zealand, in which mothers started building up a stockpile of breastmilk several weeks prior to their return to work. It was stated in the study that mothers in this study had to learn techniques of expressing, producing, handling and storing breastmilk (Payne & Nicholls, 2010). Another study done in another province in Malaysia also stated that among women who were able to exclusively breastfed their child up to six months, they had started expressing breast milk from early postpartum period (Ismail, Sulaiman, Jalil, Muda, & Man, 2012).

Our study also found that all mothers were using bottle feeding to feed the baby with expressed breast milk while they were working. Artificial nipples, bottle feeding and the use of pacifiers were not recommended as it had been documented that the use of pacifiers reduced the breastfeeding practice. In a study done in Kuala Lumpur, those who allowed babies to use pacifiers had significantly shorter breast feeding duration and it was significantly associated with non-exclusivity in breastfeeding, while those who do not use the pacifiers were significantly associated with having ever breast fed (Siti, Joanita, Nisa, Balkish, & Tahir, 2013). However, in our study, all babies were given expressed breastmilk using bottle and artificial nipple. According to mothers it was easier to be given by the baby caretaker and less time consuming as compared to spoon feeding. Health education should be given to the caretakers on the hygiene of the

feeding bottle and artificial nipple used. Health education should also target the mothers and care givers to give expressed breast milk using the recommended guidelines by WHO.

Mothers also prepared the amount of small packed expressed breast milk according to the baby's needs before sending the baby to the caretaker. The amount supplied to the baby sitters should be sufficient according to the needs of the baby. In most studies, it did not state on the need to supply adequate breast milk supply to baby care takers (Ismail et al., 2012; Rojjanasrirat & Sousa, 2010).

From our study, babies who were taken care of by grandmothers had more support to be fed with expressed breast milk. This contradicts the finding in studies done in the UK in which informal childcare was documented to have lower breastfeeding practice as compared to formal childcare (Pearce et al., 2012). Our finding also contradicted the findings of a study in Taiwan which stated that one of the independent factors that increased the likelihood of formula feeding during the first one to two months of life was grandmothers or other people and were mainly the child caretakers (Chen, Liu, Merrett, Chuo, & Wan, 2008).

Our study also found that a few mother had been discriminated by the baby caretaker as initially, the latter were a bit reluctant to feed the baby with expressed breast milk. The care takers preferred to feed the baby with formula milk compared to express breast milk. Nevertheless, in this study, the child care takers were able to be advised by the mothers to continue to feed their babies with expressed breast milk. In Australia, in a study done on discrimination of breastfeeding mothers in childcare, five per cent reported being discriminated against breastfeeding in childcare. The proportion was higher (10 per cent) among the currently breastfeeding mothers (Smith et al., 2013).

In Malaysia, currently there is no specific Act to protect working mothers against discrimination of breastfeeding in childcare. Although Malaysia has legal

provisions on maternity leave, a study done in 2014, revealed that in Malaysia, female employees require legal support on breastfeeding rights because there was no regulation, policy, or law to protect or support them to breastfeed in the workplace and with respect to childcare. The study found that in Malaysia, employees' breastfeeding rights were not provided under the Employment Act 1955 (Hassan & Musa, 2014). Australia, on the other hand, had extended its protections to include discrimination on the grounds of breastfeeding, since July 2011. The changes established breastfeeding as a specific ground of discrimination prohibited by the Act (Section 7AA). Direct discrimination under section 7AA includes treating a breastfeeding woman less favourably than someone who is not breastfeeding. For this Act, direct discrimination by childcare services could include, for example, a family day care educator refusing to accept care of a child that was currently breastfed until it was weaned, staff refusing to handle expressed breast milk, or women being prevented from breastfeeding on the childcare premises. Indirect discrimination under Section 7AA of the Act occurs if a person imposes a condition, requirement or practice which has the effect of disadvantaging persons who are breastfeeding. According to the Act, indirect discrimination included lack of suitable place to breastfeed or express milk, or lack of lactation breaks for breastfeeding staff. Requiring exclusively breastfeeding mothers to pay childcare fees which cover the service's costs of supplying formula was also included as indirect discrimination. In a qualitative study in Australia, one mother reported of being told by caretakers that it would be easier to give her baby formula milk rather than continue struggling with breast milk supply (Smith et al., 2013).

Apart from the availability of workplace breastfeeding support, there is a need to educate the baby's caretakers on handling expressed breast milk. In a study in Australia, significantly lower breastfeeding prevalence was evident among mothers whose babies were in childcare services that did not offer certain breastfeeding support measures

(Smith et al., 2013). Mothers have to depend on baby's care takers to make sure babies' are receiving expressed breast milk while working and measure should be taken to ensure breastfeeding practice can be maintained according to the recommended duration by WHO. The activity of breast milk expression in workplace can promote other working mothers in the same organization to sustain breastfeeding. Nevertheless, in this study all mothers had to buy their own breast pump and other equipments for pumping and some mothers had to buy equipment for storage of breast milk. Government should provide income tax reduction for working mothers who buy breast milk expression instrument as most of work place were unable to provide breast pumps at the workplace.

In this study, there were a few baby caretakers who increased the service charge for babies fed with expressed breast milk. In Australia, this would have been considered as an indirect discrimination to breastfeeding mothers (Smith et al., 2013). Baby care takers should maintain the baby care charges and should not increase the baby care charges for baby's receiving expressed breast milk. It is advisable to reduce the baby care charges. The Malaysian government should monitor the charges of childcare particularly when the babies are receiving expressed breast milk, and income tax reduction should be considered for mothers who expressed breast milk.

5.6 Study Strength

Study was conducted in two parts using quantitative and qualitative methods. The qualitative study was a cross sectional study was conducted to identify general factors associated with breastfeeding and employment factors associated with longer breastfeeding duration among working mothers. The qualitative study was to explore in depth factors positively associated with exclusive breastfeeding among working mothers and their experience of sustaining exclusive breastfeeding while working. This study have added the role of baby care taker to sustain exclusive breastfeeding among working mothers. Our study was the first study done in the country using both methods,

quantitative and qualitative study to assess work related factors and success of combining exclusive breastfeeding and working, among working mothers. This study also add the new knowledge related to working mothers as not many local studies have assessed employment factors related with breastfeeding practice in the Malaysia.

The strength of this study is the complement of qualitative study to explore in depth the facilitating factors combining exclusive breastfeeding while working including the role of baby caretakers. This qualitative study also include Malay and Chinese participants as the study participants although the Chinese have been documented to have lower breastfeeding practices compared to other ethnicities in Malaysia (Tan K.L., 2011).

In addition, the quantitative study done enrolled higher sample size compared to other localised cross sectional studies done in Malaysia. Although our study participants was lower compared to the National study done in 2006, our study was more recent compared to the National study done (Fatimah et al., 2010)

5.7 Limitation of the study

The limitation could occur from the cross sectional study design chosen for this study. The temporal relationship could not be determined by this study design whether working mothers or non working mothers precede the breastfeeding initiation or breastfeeding duration at 6 months. However, the objectives could be achieved by this study design, despite limited resources.

The setting of the study done in Kuala Langat district and therefore we were unable to generalise the findings to general population in Malaysia. The finding can only be generalised to the district. Nevertheless, the general findings and employment factors finding can be used as additional data particularly in relation to working mothers as our study includes all races and multiple factors related to working mothers. Not many studies done in this country had examined the factors related to working

mothers and breastfeeding practice particularly exclusive breastfeeding using both quantitative and qualitative methods. Although there were a few studies done in Kelantan assessing working mothers and breastfeeding practice, Kelantan is considered as a rural area in Malaysia compared to Selangor state where our study was conducted. In addition, compared to Kelantan in which almost all the population are Malays, our study area populations includes all the three major ethnic in Malaysia which are Malay, Indian and Chinese and others.

The other limitation could occur from error and bias. Selection bias could occur from the study, as the participants involved only selected females who attended the government health clinics. In this study, the females who attended private health clinics were not invited to participate in the study due to limited resources such as man power, time and budget. Furthermore not all private clinics were registered to Kuala Langat District Health Office. It might be difficult to get data for patients who attend the private clinics in the district. However, some of the participants who were involved in the study delivered in private hospital which might provide some data on private health care practices on infant feeding. Nevertheless, government health clinics in Malaysia are accessible to the general population from low socioeconomic group up to the higher socioeconomic group. Hence, our findings can be considered to be generalised to all the population in area. Most Malaysians are seeking treatment from government facilities including for vaccination for babies as Ministry of Health had given subsidised health care to all Malaysians. They only have to pay Malaysian Ringgit (MYR) 1 for child health visit to the government clinics which included immunisation services according to age for children above one year of age. For Malaysian children below one year of age, no charges for government child health visits and treatment was given. Even though the patients visit the private health clinics, all the mothers who delivered in the area, will be visited by government health clinic nurses for postnatal visits when the delivery

was registered to the nearest public health clinics. In future another study which involve the females who attend private health clinics should be done so that the findings can be generalized to the population in the area.

Information bias also could occur in this study as a results of recall bias during the interview, during the data collection and data entry and during the interviews with the participants. The interviewer bias was minimized in the study as the interviewers were trained by the researcher about the questionnaire. The interviewers were also supervised a few times during the interview session by the researcher. The interviewers were not chosen from health staff who worked in the clinic to reduce the interviewer bias. The questionnaire was also pretested before the study was conducted and restructured according to the findings in the pretest. Misclassification bias also could occur from the study regarding the type of breastfeeding and the duration. However, for each type of breastfeeding, the operational definition was described during the interview so that the study participants could answer the questionnaire appropriately. In the qualitative study, the information bias was minimised as the participants were interviewed in the separate rooms and only involved the investigator and the participants

Recall bias was another limitation in the study. However, six months of baby's age was chosen as the time of data collection for the quantitative study to minimize the recall bias that might occur.

The potential confounding factors in the study were sociodemographic factors namely, mother's age, mother's ethnicity, mother's education level, monthly household income and marital status, obstetric factors such as parity, complication of pregnancy/delivery and type of delivery, lactations problems faced by mothers, social support from husband, family and friends, breastfeeding initiation, cultural and belief, intend to breastfeeding, knowledge, attitudes and practices towards breastfeeding

breastfeeding education and infant characteristic. Most of the confounding factors mentioned in the study were controlled during the analysis by logistic regression. The logistic regression was used for analysis of multiple predictors of breastfeeding initiation and duration at 6 months.

This study only targetted working mothers visiting health facilities and did not target workers and employers in a certain workplace. However, our study included working mothers from private sector and government sector as well as self employed mothers in the quantitative study. In the qualitative study, a few mothers were interviewed at their workplace. Therefore, the investigator was exposed to the workplace area during the interview and was able to further understand the participant's explanation. Another study is suggested to be done at the workplace setting to assess the employee and the employer point of view

The absence of Indian participants limits the findings in the qualitative study. However, in the quantitative study, all the major ethnics groups in Malaysia were included. In addition, the Chinese mothers were also included in the qualitative study in addition to Malay mothers.

Other than that, the study only assessed the working mothers' views on their child care taker's opinions on practising giving expressed breast milk to their babies. Due to lack of resources, interviews only involved the working mothers and did not assess the childcare takers. The baby care takers ranged from formal and informal childcare takers. The informal child care takers, included their mothers and other family members as well as non-registered baby care taker sknown in Malaysia as baby sitter. The baby sitter are usually either their neighbour or nearby family members and only take care for a few babies and sometimes only one baby at their own house. Further studies should be done at various child care centres whether formal or in formal

childcare to assess the support of breastfeeding for working mothers and discrimination against them.

University of Malaya

CHAPTER 6: CONCLUSION

6.1 Introduction

This chapter will present the research statement, the summary of the findings from our study and the recommendations based on the findings in the study.

6.2 Research Statement

Although breastfeeding has many advantages for the infants, mothers and employers, the prevalence of exclusive breastfeeding had declined in Malaysia (Fatimah et al., 2010). Many factors contributed to the low exclusive breastfeeding practice. In Malaysia, the women labour participation rate is increasing from year to year and almost half of women in Malaysia are involved in the employment sector either working in the public sector, private sector or they are self-employed. Studies abroad and locally, had found that working was incompatible with breastfeeding practice, particularly exclusive breastfeeding. However, there was lack of studies to assess whether employment factors were related to breastfeeding particularly exclusive breastfeeding and the facilitating factors for a successful combination of work and exclusive breastfeeding. There were a few local studies done which were either only quantitative or only qualitative study. In addition, there were very limited numbers of studies using both methods in Malaysia. Therefore, we conducted this study by using both quantitative and qualitative methods to achieve our study objective.

6.3 Summary

A total of 964 mothers with 6 months old babies participated in the cross sectional study to identify general and employment factors related to the breastfeeding practice. This was followed by a qualitative study to assess the positive factors associated with exclusive breastfeeding among working mothers identified in the first part of the study. Our quantitative study found that women who were expressed breast milk positively associated with exclusive breastfeeding among working mothers. Therefore, women who expressed breast milk and exclusively or predominantly breastfeed up to 4 months of baby's age were considered successful in combining breastfeeding and work particularly exclusive breastfeeding. The participants were identified from the earlier cross sectional study done. The facilitating factors for sustaining exclusive or predominant breastfeeding were explored in the qualitative study.

Our study had demonstrated that although the percentage of ever breastfeeding was high, mothers had difficulty to sustain breastfeeding practice either any breastfeeding practice, predominant breastfeeding and particularly the exclusive breastfeeding practice up to 6 months. Our study showed that exclusive breastfeeding was slightly higher at 1 month. However it showed a reducing trend from 2 months, 4 months of baby's age and dropped drastically at 6 months post delivery. In contrast, the complementary breastfeeding had increased from 1 month to 6 months of the baby's age. When comparing our study findings with that of the national study and other previous studies, the percentage of any breastfeeding was still higher eventhough it showed a decreasing trend with the increasing age of the baby.

Our study also revealed that Malay ethnicity, non working mothers, good knowledge, had intention to continue breastfeeding as long as possible, never felt not enough breast milk and breastfed due to religion were more likely to be associated with any breastfeeding up to 6 months. This study also observed that non working women and women who never felt not enough breast milk would continue to breastfeed exclusively up to 6 months. It was also similar with any breastfeeding practice. In addition, women who were given support by mothers, women with cultural practised of not giving water to their babies, women who do not give water due to not enough breast milk were also associated with exclusive breastfeeding of up to 6 months/

Our study had also demonstrated that working women who practised breastfeeding after delivery and were having difficulty to maintain the breastfeeding practice particularly exclusive breastfeeding after returning to work, were unable to sustain exclusive breastfeeding up to 6 months compared to non working mothers. The percentage of exclusive breastfeeding had markedly dropped at 4 months and dropped steeply at 6 months among working mothers compared to non working mothers. Though the length of maternity leave and returning to work were not associated with breastfeeding practice at 6 months, the reduction might be contributed to the above factors as during our study, the maternity leave was 2 months. Our study revealed that working in government sector, working half day, mothers who expressed breast milk and availability of room to express breast milk at workplace were positively associated with any breastfeeding practice of up to 6 months while only mothers who expressed breast milk during working hours and working

mothers who owned a breast pump were positively associated with exclusive breastfeeding up to 4 months. This finding was similar to many other studies done abroad (chapter two), however, the difference compared to the findings of other studies done abroad, our mothers had to have their own breast pump for them to exclusively breastfeed at 4 months. This finding was supported by an earlier descriptive finding in which our workplace still lack the support of employers to provide facilities to breastfeed particularly breast pump provision at workplace.

The qualitative study finding revealed that mothers with strong personal factors, worksite support for breastfeeding, , mothers who prepared early for mother's absence while working and support from baby care taker facilitated mothers to sustain exclusive or predominant breastfeeding up to 4 months of baby's age. The strong personal factors would motivate mothers to plan their time in order to practice exclusive breastfeeding starting as early as during confinement, just before returning to work, after returning to work and continued to exclusively or predominantly breastfeed by breast milk expression at workplace. Although, there was no workplace policy except maternity or breastfeeding leave, these mothers tried to accommodate the practice of breast milk expression at workplace by informing the employers, supervisors or other employees for an excuse to express breast milk during working hours. This study demonstrated that mothers with supportive employers and other employees were able to sustain breastfeeding practice. Nevertheless, the majority would use their tea break or lunch hour for breast milk expression and remained unnoticed by their supervisors to sustain the practice. We also found that the provision of breastfeeding facilities at

workplace were still lacking. Nevertheless, due to strong self motivation, mothers tried to accommodate the place available at workplace for breast milk expression. We also found that majority would use their own equipments for breast milk expression and storage, though some would store their breast milk in workplace refrigerator. Compared to the study done abroad, our findings revealed that the workplace support particularly the breastfeeding policy and basic facilities for breastfeeding was far behind other countries and this should be taken into consideration by the Malaysian government in order to balance employment for women and their family as well as their employers. Our study also demonstrated that support from baby care takers was also a factor that contributed to the success of combining breastfeeding and work. However, there was no proper education for training the child care takers. There was no policy on the discrimination by baby's care takers for working mothers to continue exclusive breastfeeding. Therefore, certain care takers would refuse to continue the exclusive breastfeeding for the infant when the infant is under their care.

As a conclusion, this study had provided information on breastfeeding practice among mothers in the district, particularly the working mothers and the facilitating factors that enabled working mothers to continue breastfeeding as well as the barriers of breastfeeding practice while working. Working was one of the factors for early cessation of any and exclusive breastfeeding practice in our study. In addition, good knowledge on breastfeeding and perception of adequacy of breast milk were other important general factors which influenced exclusive breastfeeding practice among mothers whether they were working or not working. Education to mothers regarding the

benefits of exclusive breastfeeding only without the practice of giving water to babies is important. Supportive employers and conducive working environment as well as baby care taker's assistance played an important role in sustaining breastfeeding among working mothers.

Provision of supportive working environment can aid in improving breastfeeding practice among working mothers. More effort in educating working mothers, their employers and baby care takers on the benefits and knowledge on breastfeeding can help to improve breastfeeding practices.

6.4 Recommendations

The outcomes from our findings are discussed with future work recommendations. In light of the findings of our study, there are some recommendation relevance to a few Ministries in Malaysia that can contribute to the further increase the breastfeeding practice particularly exclusive breastfeeding.

6.3.1 Malaysian Government

The Malaysian government should advocate a policy for longer duration of maternity leave and paternity leave comparable with Singapore and other neighbouring and developed countries. It should involve both government and private sectors to enable working mothers to sustain longer duration of exclusive breastfeeding practice. From the study findings, there is a need to extend the maternity leave in Malaysia as the exclusive breastfeeding practice is dropping rapidly at 4 months and 6 months of baby's age. The exclusive breastfeeding practice was very low due to working mothers being unable to combine work and breastfeeding. Though the Malaysian government

had revised the maternity leave to 90 days in 2010, but the maternity leave in the private sector remains 60 days and it is the lowest duration compared to other countries. If we analysed properly, even though the government had given 90 days maternity leave, the 90 days leave in the government sector is only for the first three children, and the mothers are left with 30 days maternity leave for the fourth child as the cumulative maternity leave is only 300 days for all children. The mothers have to take childcare leave for the subsequent child which is unpaid leave. Mothers who take 60 days maternity leave will be able to apply maternity leave up to the fifth child as the total maternity leave is 300 days throughout their service in the government sector.

In addition, the government should also revise the policy on unpaid breastfeeding leave among government servants to at least quarter or half pay leave and most importantly, government should advocate policy on breastfeeding breaks among working mothers after returning to work if government is not able to provide longer duration of maternity leave or revise the payment terms for childcare leave.

Due to lack of workplace facilities for breastfeeding, government should at least advocate the policy of income tax exemption for working mothers to buy breast milk expression equipment and storage. In our study, all mothers had to buy their own breastfeeding expression instruments. With the tax exemption policy, it might increase the practice of exclusive breastfeeding practice. Even though lack of facilities provided by the employer, more working mothers will be able to buy the instrument including women from the middle and low socio economic group.

6.3.2 Employer

Employer should advocate breastfeeding policy in workplace to assist nursing mothers while working particularly on flexible hours to express breast milk and provide facilities for working breastfeeding mothers which are nursery in workplace, proper and private rooms for breast milk expression, breast pump and equipment for breast milk expression and refrigerator for storage of expressed breast milk. The employer should also provide breastfeeding education at workplace as part of the training for their employees and they can collaborate with personnel from nearby health clinics for technical advice on breastfeeding at workplace. In addition, it is advisable for the employers to develop a breastfeeding support group in the workplace particularly by involving working mothers who have had the experience of exclusive breastfeeding or breast milk expression during working hours as a support and counsellor for other workers to practice breastfeeding while working.

6.3.3 Ministry of Health

Malaysian Ministry of Health should strengthen the breastfeeding education programme as well as education on breast milk expression targeting working mothers. These programmes should be conducted at health clinics, workplace, nursery or child care centres. In addition, provision of breastfeeding education should also target baby care takers particularly on breast milk storage and expressed breast milk preparation before feeding the baby. Ministry of Health should also advocate policy on flexible working hours and adequate facilities in the health facilities for health care workers and for patients. The ministry should also strengthen the Baby Friendly Hospital

Initiatives programmes not only targeting all patients who attended the clinics and hospital but also to targeting all health care workers who breastfeed in the BFHI facilities.

In addition, Ministry of Health should also collaborate with Ministry of Higher Education for breastfeeding research. Both ministries should work together and do intervention programmes or advocate policy based on the research finding as currently, there are inadequate of research done by Ministry of Health. A few breastfeeding research had been conducted by Ministry of Higher Education particularly targeting employed mothers.

6.3.4 Ministry of Women, Family and Community Development

The Ministry of Women, Family and Community Development is recommended to provide budget assistance for employers to develop their own nursery to increase the number of employers to provide childcare nurseries for their own workers. They are also advised to promote the registration of nurseries giving expressed breast milk to babies under their care. In addition, they should also monitor and supervise nursery employees and home care takers to maintain the same or less charges for babies who received expressed breast milk in order to avoid discrimination to working mothers who practice exclusive breastfeeding while working.

6.3.5 Ministry of Education

It is important for the Ministry of Education to introduce in the school syllabus on the topic of breastfeeding and the importance of breastfeeding in the sexual reproductive health education to primary and secondary school students in order to increase their knowledge from very early stage in life.

Therefore, it will influence their behaviour at the later stage of life to practice exclusive breastfeeding and promote their partner or family members to practice breastfeeding. As many teachers are female teachers, it is recommended for the ministry to advocate a policy for teachers to be given time off or breaks, or flexible hours to express breast milk during working hours.

6.3.6 Department of Islamic Development Malaysia (JAKIM)

It is recommended to JAKIM to introduce a module on breastfeeding education, the importance of breastfeeding as well as breast milk expression during pre-marital course given to all Muslim partners before getting married. This is important to increase their knowledge and influence their behaviour to practice exclusive breastfeeding after their marriage or promote their partner and family members to practice breastfeeding and continue breast milk expression while working. It is important for this group of potential parents to have the knowledge that working is not a barrier for breastfeeding cessation and there are ways to combine breastfeeding and work by practising breast milk expression.

6.3.7 Other recommendations

Another study should be conducted involving mothers attending the private clinics in the district, so that the findings can be generalised for the population in the district or a nationwide study using similar methods to assess the effect of working and workplace support of breastfeeding in Malaysia. In addition, a cohort study using online Malaysian Ministry of Health portal is also suggested, to evaluate the exclusive breastfeeding practice from post

delivery up to 6 months, which can include participants from government health facilities and private health facilities.

Our study only examined the working mothers and did not include the employers. Therefore, further studies involving employers or employees in the working setting should be done in order to examine the employment factors from employees' as well as employers' point of view in relation to breastfeeding practice.

Our qualitative study only included Malay and Chinese participants.. In future, further qualitative studies should include the Indian participants to explore the facilitating factors among Indian working mothers.

University of Malaysia

REFERENCES

- Aarts, C., Kylberg, E., Hörnell, A., Hofvander, Y., Gebre-Medhin, M., & Greiner, T. (2000). How exclusive is exclusive breastfeeding? A comparison of data since birth with current status data. *International Journal of epidemiology*, 29(6), 1041-1046.
- Abada, T. S. J., Trovato, F., & Lalu, N. (2001). Determinants of breastfeeding in the Philippines: a survival analysis. *Social Science & Medicine*, 52(1), 71-81.
- Adlina, S., Narimah, A. H. H., Hakimi, Z. A., & Mazlin, M. M. (2006). Knowledge, attitude and practice of breastfeeding among mothers in the pre-baby friendly hospital initiative implementation at seven private hospitals in Malaysia. *Malaysian Journal of Public Health Medicine*, 6(1), 58-63.
- Ahmad, Z., Kyi, D. W., & Isa, A. R. (1996). Breastfeeding and weaning practices in rural communities of Kelantan. *Malaysian Journal Nutrition*, 2, 148-154.
- Ahmadi, M., & Moosavi, S. M. (2013). Evaluation of Occupational Factors on Continuation of Breastfeeding and Formula Initiation in Employed Mothers. *Global journal of health science*, 5(6), 166.
- Al-Binali, A. M. (2012). Breastfeeding knowledge, attitude and practice among school teachers in Abha female educational district, southwestern Saudi Arabia. *International Breastfeeding Journal*, 7(1), 1.
- Al Juaid, D. A. M., Binns, C. W., & Giglia, R. C. (2014). Breastfeeding in Saudi Arabia: a review. *International Breastfeeding Journal*, 9(1).
- Ameer, A. J. A., Al-Hadi, A.-H. M., & Abdulla, M. M. (2008). Knowledge, attitudes and practices of Iraqi mothers and family child-caring women regarding breastfeeding. *Eastern Mediterranean Health Journal*, 14(5), 1003-1014.
- Anggraeni, M. D., Punthmatharith, B., & Petpichetchian, W. (2014). The proposed causal model of exclusive breastfeeding practice among Muslim mothers. *Songklanagarind Journal of Nursing*, 34(Supplement, January - April 2014), 138-148.
- Augustin, A., Donovan, K., Lozano, E., Massucci, D., & Wohlgemuth, F. (2014). Still Nursing at 6 Months: A Survey of Breastfeeding Mothers. *MCN, American Journal of Maternal Child Nursing January/February*, 39(1), 50-55.

- Aza Sherin, M. Y. (2013). *Breastfeeding and postnatal depression in Sabah, Malaysia*. (PHD), Curtin University, Curtin University. Retrieved from espace.library.curtin.edu.au
- Bai, D. L., Fong, D. Y., & Tarrant, M. (2015a). Factors Associated with Breastfeeding Duration and Exclusivity in Mothers Returning to Paid Employment Postpartum. *Maternal and Child Health Journal*, 19 (5), 990-999.
- Bakar, F. A. (1992). *A Descriptive Cross-sectional study on Breastfeeding Practices in A Rural Area in Northern Perak*. . (Master of Public Health (Family Health) Dissertation), University Malaya.
- Bentley, M. E., Dee, D. L., & Jensen, J. L. (2003). Breastfeeding among low income, African-American women: power, beliefs and decision making. *The Journal of nutrition*, 133(1), 305S-309S.
- Bewick, V., Cheek, L., & Ball, J. (2005). Statistics review 14: Logistic regression. *Crit Care*, 9(1), 112-118.
- Biagioli, F. (2004). Breast-Feeding And The Working Mom. *Pediatrics for Parents*, 21(1), 7-11.
- Binns, C. W., Fraser, M. L., Andy H Lee, A. H., & Scott, J. (2009). Defining exclusive breastfeeding in Australia. *Journal of Paediatrics and Child Health*, 45(2009), 174-180.
- Bland, R., Rollins, N., Solarsh, G., Van den Broeck, J., & Coovadia, H. (2003). Maternal recall of exclusive breast feeding duration. *Archives of disease in childhood*, 88(9), 778-783.
- Bonet, M., Marchand, L., Kaminski, M., Fohran, A., Betoko, A., Charles, M., & Blondel, B. (2013). Breastfeeding duration, social and occupational characteristics of mothers in the French 'EDEN Mother-Child' Cohort. *Maternal and Child Health Journal*, 17(4), 714-722.
- Bowen, G. A. (2008). Naturalistic inquiry and the saturation concept: a research note. *Qualitative Research*, 8(1), 137-152.
- Chan, S. K., & Asirvatham, C. V. (2001). Feeding Practices of Infants Delivered in a District Hospital during the Implementation of Baby Friendly Hospital Initiative. *Medical Journal Malaysia*, 56(1).
- Chang, C. T., Denney, D. F., & Cheah, W. L. (2015). Perceptions of exclusive breastfeeding among Bidayuh mothers in Sarawak, Malaysia: a qualitative study. *Malaysian journal of nutrition*, 21(2), 263-268.

- Chen, Y. C., Chi Wu, Y. C., & Chie, W. C. (2006). Effects of work-related factors on the breastfeeding behavior of working mothers in a Taiwanese semiconductor manufacturer: a cross-sectional survey. *BMC Public Health* 2006, 6:160 doi:10.1186/1471-2458-6-160, 6(160), 1-8.
- Choo, P. J., & Ryan, K. (2016). A qualitative study exploring first time mothers' experiences of breastfeeding in Singapore. *Proceedings of Singapore Healthcare*, 25(1), 5-12.
- Chuang, C. H., Chang, P. J., Chen, Y. C., Hsieh, W. S., Hurng, B. S., Lin, S. J., & Chen, P. C. (2010). Maternal return to work and breastfeeding: A population-based cohort study. *International Journal of Nursing Studies*, 47(4), 461-474.
- Chye, J. K., Zarin, Z., Lim, W. L., & Lim, C. T. (1997). Breastfeeding at 6 weeks and predictive factors *Journal of Tropical Pediatrics*, 43(5), 287-292.
- Cooklin, A. R., Donath, S. M., & Amir, L. H. (2008). Maternal employment and breastfeeding: results from the longitudinal study of Australian children. *Acta Paediatrica*, 97(5), 620-623.
- Cox, K. N., Giglia, R. C., & Binns, C. W. (2015). The influence of infant feeding attitudes on breastfeeding duration: evidence from a cohort study in rural Western Australia. *International Breastfeeding Journal*, 10(1), 1-9.
- Cronin, C. (2003). First-time mothers – identifying their needs, perceptions and experiences. *Journal of Clinical Nursing*, 12, 260-267.
- Dachew, B., & Bifftu, B. (2014). Breastfeeding practice and associated factors among female nurses and midwives at North Gondar Zone, Northwest Ethiopia: a cross-sectional institution based study. *International Breastfeeding Journal*, 9(11), 7.
- Danso, J. (2014). Examining the Practice of Exclusive Breastfeeding among Professional Working Mothers in Kumasi Metropolis of Ghana. *International Journal of Nursing*, 1(1), 11.
- Dashti, M., Scott, J. A., Edwards, C. A., & Al-Sughayer, M. (2010). Determinants of breastfeeding initiation among mothers in Kuwait. *International Breastfeeding Journal*, 5(7).
- De Rose, L. F. (2003). *Women's Work and Breastfeeding Simultaneously Rise in Ghana*.
- Department of General Service, M. (1998). *Circular Service Number 2, Year 1998: Maternity Leave* Department of General Service, Malaysia.

Department of General Service, M. (2010). *Service Circular Number 14, Year 2010: Maternity Leave for Civil Servant*. Department of General Service, Malaysia.

Department of Statistics, M. (2006). Labour force statistics, Malaysia, 2006 Retrieved 25 Desember, 2007, from http://www.statistics.gov.my/english/frameset_product.php?file=synopsis&id=a7)

Department of Statistics, M. (2007). Labour Force Survey Report First Quarter 2007. In A. Series No. 10 No.2/2007 (Ed.): Department of Statistics, Malaysia.

Department of Statistics, M. (2010a). Basic Population Characteristics by Administrative Districts. Available from www.statistics.gov.my Retrieved 17 January, 2012

Department of Statistics, M. (2010b). Preliminary Count Report, Population and Housing Census, Malaysia, 2010: Department of Statistic Malaysia.

Department of Statistics, M. (2013). State/district social statistics Malaysia 2013. Department of Statistic, Malaysia

Der, G., Batty, G. D., & I.J., D. (2006). Effect of Breastfeeding on intelligence in children: prospective study, siblings pairs analysis and meta analysis. *British medical Journal*, 333, 945.

Dewey, K. (2001). Guiding Principles For Complementary Feeding of Breastfed Child.: World Health Organization. Global Consultation on Complementary Feeding, December 2001.

District Health Office, K. L. (2007). *Kuala Langat District Health Office Presentation to Selangor State Health Office 2007*. Kuala Langat District Health Office.

Dodgson, J. E., Chee, Y. O., & Yap, T. S. (2004). Workplace breastfeeding support for hospital employees. *Journal of Advanced Nursing*, 47(1), 91-100.

Dodgson, J. E., Codier, E., Kaiwi, P., Oneha, M. F. M., & Pagano, I. (2007). Breastfeeding Patterns in a Community of Native Hawaiian Mothers Participating in WIC. *Fam Community Health Supplement*, 30(2), 46-58.

- Emma, M., Abdul Latif, A., Samsudin, A. R., & Latifah, P. (2013). Understanding Religion and Social Expectations in Contemporary Muslim Society When Promoting Breastfeeding. *Asian Social Science*, 9(10), p264.
- Fatimah, S., Saadiah, H., Tahir, A., Hussain, M. I., & Faudzi, Y. A. (2010). Breastfeeding in Malaysia: Results of the Third National Health and Morbidity Survey (NHMS III) 2006 *Malaysian Journal of Nutrition*, 16(2), 195-206.
- Februhartanty, J., Bardosono, S., & Septiari, A. M. (2006). Problems During Lactation are Associated with Exclusive Breastfeeding in DKI Jakarta Province: Father's Potential Roles in Helping to Manage These Problems. *Mal J Nutr*, 12(2), 167-180.
- Fein, S. B., Mandal, B., & Roe, B., E. (2008). Success of strategies for combining employment and breastfeeding. *Pediatrics*, 122(Supplement 2), S56-S62.
- Fein, S. B., & Roe, B. (1998). The Effect of Work Status on Initiation and Duration of Breast-Feeding. *American Journal of Public Health*, 88(7), 1042-1046.
- Foo, L., Quek, S., Ng, S., Lim, M., & Deurenberg-Yap, M. (2005). Breastfeeding prevalence and practices among Singaporean Chinese, Malay and Indian mothers. *Health Promotion International*, 20(3), 229-237.
- Forster, D. A., Johns, H. M., McLachlan, H. L., Moorhead, A. M., McEgan, K. M., & Amir, L. H. (2015). Feeding infants directly at the breast during the postpartum hospital stay is associated with increased breastfeeding at 6 months postpartum: a prospective cohort study. *BMJ open*, 5(5), e007512.
- Forster, D. A., McLachlan, H. L., & Lumley, J. (2006). Factors associated with breastfeeding at six months postpartum in a group of Australian women. *Internal Breastfeeding Journal*, 1(1), 1-12.
- Garson, G. D. (2011). StatNotes: Topics in Multivariate Analysis, from North Carolina State University, Public Administration Program :Scales and Standard Measures.
from faculty.chass.ncsu.edu/garson/PA765/statnote.htm
- Gatrell, C. J. (2007). Secrets and lies: Breastfeeding and professional paid work. *Social Science & Medicine*, 65, 393-404.
- Geraghty, S., Davidson, B., Tabangin, M., & Morrow, A. (2012). Predictors of breastmilk expression by 1 month postpartum and influence on breastmilk feeding duration. *Breastfeeding Medicine*, 7(2), 112-117.

- Glaser, B. (2012). What is Grounded Theory. Retrieved 22 February, 2012, 2012, from www.groundedtheory.com
- Grassley, J., & Eschiti, V. (2008). Grandmother breastfeeding support: what do mothers need and want? *Birth, 35*(4), 329-335.
- Guilbert, T. W., Stern, D. A., Morgan, W. J., Martinez, F. D., & Wright, A. L. (2007). Effect of Breastfeeding on Lung Function in Childhood and Modulation by Maternal Asthma and Atopy. *American Journal Of Respiratory and Critical Medicine, 176*, 843-848.
- Gultie, T., & Sebsibie, G. (2016). Determinants of suboptimal breastfeeding practice in Debre Berhan town, Ethiopia: A cross sectional study. *International Breastfeeding Journal, 11*(5).
- Hall, W. A., & Hauck, Y. (2007). Getting it right: Australian primiparas' views about breastfeeding: A quasi-experimental study. *International Journal of Nursing Studies 44* (2007) 786-795, 44, 786-795.
- Hangchaovanich, Y., & Voramongkol, N. (2006). Breastfeeding promotion in Thailand. *J Med Assoc Thai, 89*(Suppl 4), S173-S177.
- Hassan, K. H., & Musa, N. C. (2014). Women's Right to Breastfeed in the Workplace: Legal Lacunae in Malaysia. *Asian Women, 30*(2), 85-108.
- Hawkins, S. S., Griffith, L. J., Dezateux, C., & Law, C. (2007). The impact of maternal employment on breast-feeding duration in the UK Millennium Cohort Study. *Public Health Nutrition, 10*(9), 891-896.
- Institute of Public Health (1996). *National Health and Morbidity Survey, 1996*. Institute of Public Health, Ministry of Health.
- Institute of Public Health (2006). *National Health Morbidity Survey. Individual Questionnaire*. Institute of Public Health, Ministry of Health, Malaysia
- Institute of Public Health (2008). *Infant Feeding. The Third National Health and Morbidity Survey 2006*: Institute of Public Health, National Institute of Health, Ministry of Health, Malaysia.
- Heymann, J., Raub, A., & Earle, A. (2013). Breastfeeding policy: a globally comparative analysis. *World Health Organization. Bulletin of the World Health Organization, 91*(6), 398-406.
- Hirani, S. A., & Karmaliani, R. (2013). The experiences of urban, professional women when combining breastfeeding with paid employment in Karachi, Pakistan: A qualitative study. *Women and Birth, 26*(2), 147-151.

- Huang, R., & Yang, M. (2014). Paid maternity leave and breastfeeding practice before and after California's implementation of the nation's first paid family leave program. *Economics & Human Biology*, xxx(0), xxx-xxx.
- Huang, Y., Hauck, F., Signore, C., Yu, A., Raju, T., Huang, T., & Fein, S. (2013). Influence of Bedsharing Activity on Breastfeeding Duration Among US Mothers. *JAMA Pediatrics*, 167(11), 1038-1044.
- Hussein, T. H., Mgongo, M., Uriyo, J. G., Damian, D. J., Stray-Pedersen, B., & Msuya, S. E. (2015). Exclusive Breastfeeding up to Six Months is Very Rare in Tanzania: A Cohort Study of Infant Feeding Practices in Kilimanjaro Area. *Science*, 3(2), 251-258.
- Jing, H., Xu, H., Wan, J., Yang, Y., Ding, H., Chen, M., . . . Yang, J. (2014). Effect of Breastfeeding on Childhood BMI and Obesity: The China Family Panel Studies. *Medicine*, 93(10), e55.
- Joy Noel-Weiss, M. T., Sonya Kujawa-Myles. (2014). Breastfeeding and lactation research: exploring a tool to measure infant feeding patterns. *International Breastfeeding Journal*, 9(5).
- Kameswararao, A. A. (2004). Breastfeeding Behaviour of Indian Women. *Indian Journal of Community Medicine*, 29(2), 04-06.
- Karacam, Z. (2008). Factors affecting exclusive breastfeeding of healthy babies aged zero to four months: a community-based study of Turkish women. *Journal of Clinical Nursing*, 17, 341-349.
- Karkee, R., Andy, A. H. L., Khanal, V., & Binns, C. W. (2014). Infant feeding information, attitudes and practices: a longitudinal survey in central Nepal. *International Breastfeeding Journal*, 9(14).
- Kelly, Y. J., Watt, R. G., & Nazroo, J. Y. (2006). Racial/ethnic differences in breastfeeding initiation and continuation in the United Kingdom and comparison with findings in the United States. *Pediatrics*, 118(5), e1428-e1435.
- Kimbrow, R. T. (2006). On-the-Job Moms: Work and Breastfeeding Initiation and Duration for a Sample of Low-Income Women. *Maternal & Child Health Journal*, 10(1), 19-26.
- Koon, P. B., Peng, W. Y., & Karim, N. A. (2005). Postpartum Dietary Intakes and Food Taboos Among Chinese Women Attending Maternal and Child Health Clinics and Maternity Hospital, Kuala Lumpur. *Malaysian Journal Nutrition*, 11(1), 1-25.
- Kosmala-Anderson, J., & Wallace, L. M. (2006). Breastfeeding works: the role of employers in supporting women who wish to breastfeed and work in four organizations in England. *Journal of Public Health*, 28(3), 183-191.

- Kozhimannil, K. B., Jou, J., Gjerdingen, D. K., & McGovern, P. M. (2016). Access to Workplace Accommodations to Support Breastfeeding after Passage of the Affordable Care Act. *Women's Health Issues, 26*(1), 6-13.
- Ku, C.-M., & Chow, S. K. (2010). Factors influencing the practice of exclusive breastfeeding among Hong Kong Chinese women: a questionnaire survey. *Journal of Clinical Nursing, 19*, 2434-2445.
- Kuo, S. C., Hsu, C.H., Li, C. Y., Lin, K. C., Chen, C. H., Gau, M. L., & Chou, Y. H. (2008). Community-based epidemiological study on breastfeeding and associated factors with respect to postpartum periods in Taiwan. *Journal of Clinical Nursing, 17*, 967-975.
- Lakati, A., Binns, C., & Stevenson, M. (2002). Breast-feeding and the working mother in Nairobi. *Public Health Nutrition, 5*(6), 715-718.
- Lawrence, R. A. (2000). Breastfeeding: benefits, risks and alternatives. *Current Opinion in Obstetrics and Gynecology, 12*, 519-524.
- Liben, M. L., Gemechu, Y. B., Adugnew, M., Asrade, A., Adamie, B., Gebremedin, E., & Melak, Y. (2016). Factors associated with exclusive breastfeeding practices among mothers in dubti town, afar regional state, northeast Ethiopia: a community based crosssectional study. *International Breastfeeding Journal, 11*(4).
- Local Authority, K. L. (2011). About kuala Langat. Retrieved 1st December, 2011, from http://en.wikipedia.org/wiki/Kuala_Langat
- Local Authority, K. L. (2008) Kuala Langat Local Authority. About Kuala Langat . Retrieved 13 January, 2008, from http://en.wikipedia.org/wiki/Kuala_Langat
- Maharaj, N., & Bandyopadhyay, M. (2013). Breastfeeding practices of ethnic Indian immigrant women in Melbourne, Australia. *International Breastfeeding Journal, 8*(17).
- Maizatul , A. C. D. (2008). *January to Disember Achievement of Nutrition Programme, 2008*. Kuala Langat District Health Office.
- Manan, W. A. (1995). Breast-feeding and infant feeding practices in selected rural and semi-urban communities in Kemaman, Terengganu *Malaysian Journal Nutrition, 1*, 51-61.
- Mandal, B., Roe, B. E., & Fein, S. B. (2010). The differential effects of full-time and part-time work status on breastfeeding. *Health Policy, 97*(1), 79-86.

- Mbada, C. E., Olowookere, A. E., Faronbi, J. O., Oyinlola-Aromolaran, F. C., Faremi, F. A., Ogundele, A. O., . . . Augustine, O. A. (2013). Knowledge, attitude and techniques of breastfeeding among Nigerian mothers from a semi-urban community. *BMC research notes*, 6(1), 552.
- McCrary, C., & Layte, R. (2012). Breastfeeding and risk of overweight and obesity at nine years of age. *Social Science & Medicine*, 75(2012), 323-330.
- Ministry of Health, M. (2005). Yearly Report and Activities, Year 2005 Nutrition Unit, Ministry of Health of Malaysia.
- Ministry of Health, M. (2006). Annual Report 2006 Division of Family Health Development, Ministry of Health of Malaysia: Ministry of Health, Malaysia
- Ministry of Health, M. (2008). *Child Health Record(0-6 years)*.
- Mirkovic, K. R., Perrine, C. G., Scanlon, K. S., & Grummer-Strawn, L. M. (2014a). In the United States, a mother's plans for infant feeding are associated with her plans for employment. *Journal of Human Lactation*, 30(3), 292-297.
- Mirkovic, K. R., Perrine, C. G., Scanlon, K. S., & Grummer-Strawn, L. M. (2014b). Maternity leave duration and full-time/part-time work status are associated with US mothers' ability to meet breastfeeding intentions. *Journal of Human Lactation*, 30(4), 416-419.
- Mohd, R. (1990). A comparative study of breastfeeding of urban and rural mothers, Selangor. (*Master of Public Health Dissertation*), University of Malaya.
- Mosleh, J., Al-Hussein, K., Al-Sayed, M., Al-Faris, A., Al-Shaya, A., & Al-Shehri, H. (2015). Breastfeeding Practices among Employed Saudi Mothers. *Med. J. Cairo Univ*, 83(1), 1159-1163.
- Nazatul, S. B., & Ruby, H. (2009). Challenge and support for breastfeeding in highly motivated Malaysian mothers. *Journal of the University of Malaya Medical Centre (JUMMEC)*, 12(2), 70-73.
- Nema , H., Phuong, H. N., Priya, M., Tuan, T. N., & Lan, T. M. (2014). Suboptimal breastfeeding practices are associated with infant illness in Vietnam. *International Breastfeeding Journal*, 9(12).
- News, N. (2005). Maintaining Breastfeeding For Working Mothers *Nyam News From The Carribean Food and Nutrition*, 1 & 2.

- Nnebe-Agumadu, U. H., Racine, E. F., Laditka, S. B., & Coffman, M. J. (2016). Associations between perceived value of exclusive breastfeeding among pregnant women in the United States and exclusive breastfeeding to three and six months postpartum: a prospective study. *International Breastfeeding Journal*, 11(1), 1.
- Noraini, M., Nani, D., Rosediani, M., & Harny, M. Y. (2015). Knowledge and Attitude towards Exclusive Breastfeeding Practices among fathers who attend Primary Health Care Facilities in Suburban, Malaysia. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 7(7), 154-163.
- Normadiah, D., Nadhirah, N., Zurita, M. Y., Norsuhaily, A. B., & Che Suhaili, (2015). The Encouraging Factors of Breastfeeding among Women Academicians in Malaysian Higher Education Institution of Kuala Terengganu, Malaysia. *The Social Sciences*, 10(3), 298-305.
- Norzakiah, M. T., & Nabilla, A. S. (2013). Does telephone lactation counselling improve breastfeeding practices?: A randomised controlled trial. *International Journal of Nursing Studies*, 50(1), 16-25.
- Nowak, M. J., Naude, M., & Thomas, G. (2013). Returning to work after maternity leave: Childcare and workplace flexibility. *Journal of Industrial Relations*, 55(1), 118-135.
- Olang, B., Farivar, K., Heidarzadeh, A., Strandvik, B., & Yngve, A. (2009). Breastfeeding in Iran: prevalence, duration and current recommendations. *Int Breastfeed J*, 4(8).
- Ong, G., Yap, M., Li, F. L., & Choo, T. B. (2005). Impact of working status on breastfeeding in Singapore. *European Journal of Public Health*, 15(4), 424-430.
- Ortiz, J., McGilligan, K., & Kelly, P. (2004). Duration of breast milk expression among working mothers enrolled in an employer-sponsored lactation program. *Pediatric Nursing*, 30(2), 111-119.
- Osman, H., El Zein, L., & Wick, L. (2009). Cultural beliefs that may discourage breastfeeding among Lebanese women: a qualitative study.
- Patton, M. Q. (Ed.). (2002). *Qualitative Research & Evaluation Methods*: SAGE Publications, 2002.
- Payne, D., & Nicholls, D. A. (2010). Managing breastfeeding and work: a Foucauldian secondary analysis. *Journal of Advanced Nursing*, 66(8), 1810-1818.

- Pearce, A., Li, L., Abbas, J., Ferguson, B., Graham, H., & Law, C. (2012). Childcare use and inequalities in breastfeeding: findings from the UK Millennium Cohort Study. *Archives of disease in childhood*, 97(1), 39-42.
- Plenge-Bönig, A., Soto-Ramírez, N., Karmaus, W., Petersen, G., Davis, S., & Forster, J. (2010). Breastfeeding protects against acute gastroenteritis due to rotavirus in infants. *European Journal Pediatric*, 169, 1471-1476.
- Polgar, S., & Thomas, S. A. (Eds.). (2008). *Introduction to Research in Health Sciences. Fifth Edition* (Fifth ed. Vol. 9): Churchill Livingstone Elsevier.
- Promoting the Rights of Working Women to Breastfeed Retrieved 5 January, 2008, from <http://www.waba.org.my/wbw/wbw93/folder93.htm>).
- Qiu, L., Zhao, Y., Binns, C., Lee, A. H., & Xie, X. (2009). Initiation of breastfeeding and prevalence of exclusive breastfeeding at hospital discharge in urban, suburban and rural areas of Zhejiang, China. *International Breastfeeding Journal*, 4(1), 1-7.
- Quinlivan, J., Kua, S., Gibson, R., McPhee, A., & Makrides, M. M. (2015). Can we identify women who initiate and then prematurely cease breastfeeding? An Australian multicentre cohort study. *International Breastfeeding Journal*, 10(1), 16.
- Quinn PJ, O'Callaghan M, GM, W., & al, e. (2001). The effect of breastfeeding on child development at 5 years: A cohort study. *Pediatric Journal. Child Health* 2001, 37, 465–469.
- Raffle, H., Ware, L. J., Borchardt, A. R., & Strickland, H. A. (2011). Factors that influence breastfeeding initiation and persistence in Ohio's Appalachian Region Voinovich School of Leadership and Public Affairs at Ohio University: Voinovich School of Leadership and Public Affairs at Ohio University.
- Rahmah, M. A., M.S, Z., Rosnah, S., Shamsul, A. S., Azlan, D., & Khadijah, S. (2011). Work related determinants of breastfeeding discontinuation among employed mothers in Malaysia. *International Breastfeeding Journal*, 6(1), 4.
- Rampal, S. (2006). Knowledge, attitude, practice and perception of breastfeeding among reproductive female in Kuala Nerang. Retrieved 3 September, 2009
- Rao, M., Hediger, M., & Levine, R. (2002). Effect of breastfeeding on cognitive development of infants born small for gestational age. *Acta Paediatrica*, 91(3), 267-274.

- Reiss, N. S. (2007). New Research Suggests that Breastfeeding Babies for at Least Six Months is Best. *Pediatrics for Parents*, 23(5), 4.
- Rojjanasrirat, W., & Sousa, V. D. (2010). Perceptions of breastfeeding and planned return to work or school among low-income pregnant women in the USA. *Journal of Clinical Nursing*, 19(13-14), 2014-2022.
- Ryan, A. S., Zhou, W., & Arensberg, M. B. (2006). The Effect of Employment Status on Breastfeeding in United states. *Women's Health Issues*(16), 243-251.
- Sattari, M., Serwint, J. R., Neal, D., Chen, S., & Levine, D. M. (2013). Work-Place Predictors of Duration of Breastfeeding among Female Physicians. *The Journal of Pediatrics*, 163(6), 1612-1617.
- Scott, J. A., Aitkin, I., Binns, C. W., & Aroni, R. A. (1999). Factors associated with the duration of breastfeeding amongst women in Perth, Australia. *Acta Paediatrica*, 88(4), 416-421.
- Scott, J. A., Binns, C. W., Oddy, W. H., & Graham, K. I. (2006). Predictors of breastfeeding duration: evidence from a cohort study. *Pediatrics*, 117(4), e646-655. doi: 10.1542/peds.2005-1991
- Seifu, W., Assefa.G., & Egata, G. (2014). Prevalence of Exclusive Breast Feeding and its Predictors Among Infants Aged Six Months in Jimma Town, Southwest Ethiopia, 2013. *Journal of Pediatrics & Neonatal Care*, 1 (3), 00017.
- Siah, A. K. L., & Lee, G. H. Y. (2015). Female labour force participation, infant mortality and fertility in Malaysia. *Journal of the Asia Pacific Economy*(ahead-of-print), 1-17.
- Siah, C. K., & Yadav, H. (2002). Breastfeeding Practices Among Mothers in an Urban Polyclinic. *Med J Malaysia*, 57(2), 188-194.
- Siti, Z. M., Joanita, S., Nisa, K., Balkish, M. N., & Tahir, A. (2013). Pacifier Use and its Association with Breastfeeding and Acute Respiratory Infection (ARI) in Children Below 2 Years Old. *Med J Malaysia*, 68(2), 125.
- Smith-Gagen, J., Hollen, R., Walker, M., Cook, D. M., & Yang, W. (2014). Breastfeeding Laws and Breastfeeding Practices by Race and Ethnicity. *Women's Health Issues*, 24(1), e11-e19. doi: <http://dx.doi.org/10.1016/j.whi.2013.11.001>
- Smith, J. P., Javanparast, S., McIntyre, E., Craig, L., Mortensen, K., & Koh, C. (2013). Discrimination Against Breastfeeding Mothers in Childcare. *Australian Journal of Labour Economics*, 16(1), 65-90.

- Smith, J. P., McIntyre, E., Craig, L., Javanparast, S., Starzdin, L., & Mortensen, K. (2013). Workplace Support Breastfeeding and Health. *Family Matters*, 93, 58-73.
- Soomro, J. A. (2015). *Factors affecting breastfeeding practices in working women of Pakistan*. (Master Master-Thesis), University of Oslo, Faculty of Medicine Retrieved from <http://urn.nb.no/URN:NBN:no-49453>
- Spatz, D. L. (2014). Preventing Obesity Starts With Breastfeeding. *Journal of Perinatal & Neonatal Nursing*, 28(1), 41-50.
- Sulong, F., & Salim, F. (2006). *Study on Breastfeeding Practice in Negeri Sembilan*.
- Suyes, K., Abrahams, S. W., & Labbok, M. H. (2008). Breastfeeding in the workplace: Other employees' attitudes towards services for lactating mothers. *International Breastfeeding Journal*, 3(1), 25.
- Tan, A. E., Choong, W. K., Leong, P. Y., Ng, W. M., & Yong, S. L. (2008). Knowledge, Attitudes and Sources of Information on Breastfeeding among Pregnant Mothers. *Medical & Health* 2008, 3, 30-37.
- Tan, K. L. (2007). Breastfeeding Practice in Klang District. *Malaysian Journal of Public health*, 7(2), 10-14.
- Tan, K. L. (2009a). Factors Associated with Non-exclusive Breastfeeding among 4-Weeks Post-partum Mothers in Klang District, Peninsular Malaysia. *Malaysian Journal Nutrition*, 15(1), 11-18.
- Tan, K. L. (2009b). Knowledge, attitude and practice on breastfeeding in Klang, Malaysia. *The International Medical Journal*, Volume 8(1), 17-21.
- Tan, K. L. (2011). Factors associated with exclusive breastfeeding among infants under six months of age in Peninsular Malaysia. *International Breastfeeding Journal*, 6(2), 1-7.
- Tang, L., Lee, A. H., & Binns, C. W. (2015). Factors associated with breastfeeding duration: A prospective cohort study in Sichuan Province, China. *World Journal of Pediatrics*, 11(3), 232-238.
- Teh, S. C., Chong, S. I., Tan, H. H., & Ho, J. (2000). Chinese mothers intention to breastfeed, actual achievement and early postnatal experience. *Medical Journal of Malaysia*, 55(3), 347-351.
- Tengku Alina, T. I., Wan Abdul Manan, W. M., & Mohd Isa, B. (2014). 'Everybody Gives Water to Their Infants': The Barrier for Exclusive Breastfeeding Practice in Kelantan, Malaysia. *Malaysian Journal of Paediatrics and Child Health*, 18(2).

- Tengku Alina, T. I., Wan Abdul Manan, W. M., Zaharah, S., Rohana, A. J., & Nik Normanieza, N. M. (2012). Perceptions and practice of exclusive breastfeeding among Malay women in Kelantan, Malaysia: a qualitative approach. *Malaysian journal of nutrition*, 18(1).
- Tengku Alina, T. I., Wan Manan, W. M., & Mohd Isa, B. (2013). Factors Predicting Early Discontinuation of Exclusive Breastfeeding among Women in Kelantan, Malaysia. *Health and the Environment Journal*, 4(1), 42-54.
- Tengku Alina, T. I., Zaharah, S., Rohana, J., Wan Manan, W. M., & Nik Normanieza, N. M. (2012). Breast milk expression among formally employed women in urban and rural Malaysia: A qualitative study. *International Breastfeeding Journal*, 7(11).
- Tsai, S. Y. (2014). Employee perception of breastfeeding-friendly support and benefits of breastfeeding as a predictor of intention to use breast-pumping breaks after returning to work among employed mothers. *Breastfeeding Medicine*, 9(1), 16-23.
- UNICEF. (2008a). Breastfeeding in Malaysia : Highlights 1970s-2000s *UNICEF Fact Sheet 2008*. Retrieved 9 Desember, 2008
- UNICEF. (2008b). The Challenge. Retrieved 9 Desember, 2008, from <http://www.childinfo.org/breastfeeding.html>
- UNICEF. (2011). The state of the world's children 2011. from Unicef Malaysia Communication, 2011
- UNICEF. (2014). The state of the world's children 2014: UNICEF.
- Voramongkol, N., & Phupong, V. (2010). A randomized controlled trial of knowledge sharing practice with empowerment strategies in pregnant women to improve exclusive breastfeeding during the first six months postpartum. *J Med Assoc Thai*, 93(9), 1009-1018.
- Weber, D., Janson, A., Nolan, M., Wen, L. M., Rissel, C., & Weber, D. (2011). Female employees' perceptions of organisational support for breastfeeding at work: findings from an Australian health service workplace. *International Breastfeeding Journal*, 6(1), 19.
- Wen, L. M., Baur, L. A., Rissel, C., Alperstein, G., & Simpson, J. M. (2009). Intention to breastfeed and awareness of health recommendations: findings from first-time mothers in southwest Sydney, Australia. *International Breastfeeding Journal*, 4(9), 30-38.
- Whaley, S. E., Meehan, K., Lange, L., Slusser, W., & Jenks, E. (2002). Predictors of breastfeeding duration for employees of Special Supplemental Nutrition Program for Women, Infants and Children(WIC). *Journal of American Dietetic Association*, 102(9), 1290-1292.

- WHO. (2001). Report on An Expert Consultation. The optimal duration of exclusive breastfeeding.: Department of Nutrition For Health and Development, Department of Child and Adolescent Health and Development, World Health Organization.
- WHO. (2003). Global Strategy for Infant and Young Child Feeding
World Health Organization
- WHO. (2007). Indicators For Assessing Infant and Young Child Feeding Practices. Conclusions of a consensus meeting November 2007. Retrieved 8 February, 2008, from http://www.who.int/child_adolescent_health/document/pdf
- WHO. (2008). Exclusive Breastfeeding. Retrieved 13, January 2008, from http://www.who.int/nutrition/topics/exclusive_breastfeeding/en/index.html-13)
- WHO, & UNICEF. (1990). Innocenti Declaration, 1990 Retrieved 5 January, 2008 from <http://www.waba.org.my>
- WHO, UNICEF, & WABA. (2005). The Innocenti Declaration 2005. Retrieved 7 February, 2008 from <http://www.innocenti15.net/declaration.pdf>
- Win, N. N., Binns, C. W., Zhao, Y., Scott, J. A., & Oddy, W. H. (2006). Breastfeeding duration in mothers who express breast milk: a cohort study. *International Breastfeeding Journal*, 1(28), 1-5.
- Wu, C. H., Kou, S. C., & Rin, H. R. (2008). Breastfeeding Experiences of Taiwan Nurses on Rotational Shifts. *Journal of Nursing Research*, 16(4), 297-306.
- Xu, F., Qiu, L., Binns, C. W., & Liu, X. (2009). Breastfeeding in China: a review. *International Breastfeeding Journal*, 4(1), 6.
- Yadav, H. (2010). Breastfeeding practices in a rural community in Kedah. *Journal of the University of Malaya Medical Centre (JUMMEC)*, 13(1), 38-44.
- Yotebieng, M., Chalachala, J., Labbok, M., & Behets, F. (2013). Infant feeding practices and determinants of poor breastfeeding behavior in Kinshasa, Democratic Republic of Congo: a descriptive study *International Breastfeeding Journal*, 8(11).
- Zinn, B. (2000). Supporting The Employed Breastfeeding Mother *Journal of Midwifery & Women's Health*, 45(3), 216-225.
- Zulkifli, A., Kyi, D. W., & Abdul Rahman, I. (1996). Breastfeeding and weaning practices in rural communities of Kelantan. *Malays Journal Nutrition*, 2, 148-154.

LIST OF PUBLICATIONS AND PAPERS PRESENTED

Two publications had arisen from the study in which one had been published in 2016 while another publication had been submitted in January, 2017, currently on revision. Four oral presentations and two posters had been presented for conference proceeding for the study as listed below.

Table 8.1 : List of Publications and Papers Presented

Type	Title	Journal/Venue	Status
Publication	Role of Baby Caretakers to Sustain Breastfeeding among Working Mothers	Arts and Social Sciences Journal, 7(1), 1-8.	Accepted and published-2016
Publication	Success Of Working Mothers Combining Work And Exclusive		
Publication	Breastfeeding: Support Of Male Employers, Supervisors And Co-Workers"	Patient Preference and Adherence	Submission-January, 2017
Conference Proceeding (oral presentation)	Are Cultures Of Giving Water Reduce The Exclusive Breastfeeding Practice In Kuala Langat District, Malaysia	6th International Public Health Conference & 2nd National Elderly Symposium, Kuala Terengganu, Terengganu, Malaysia(2016)	
Conference Proceeding (oral presentation)	Employer Support For Breastfeeding At Work : Quantitative And Qualitative Study	5th International Public Health Conference, Kuala Lumpur, Malaysia (2015)	
Conference Proceeding (poster presentation)	Role Of Baby's Carer To Sustain Breastfeeding Among Working Mothers.	4th International Public Health Conference, Putrajaya, Malaysia(2014)	
Conference Proceeding (oral presentation)	Sustaining Breastfeeding Among Working Mothers: Experience Of Breast Milk Expression.	3rd International Public Health Conference & 20th National Public Health Colloquium, Kuching, Sarawak, Malaysia(2013)	

Table 8.1 : List of Publications and Papers Presented (continue)

Type	Title	Journal/Venue	Status
Conference Proceeding (oral presentation)	Worksite Breastfeeding Support Among Employee In Kuala Langat District, Peninsular Malaysia	1st Asia Pacific Clinical Epidemiology & Evidence-Based Medicine Conference, Kuala Lumpur(2012)	
Conference Proceeding (poster presentation)	Employment Status and Breastfeeding Practice in Kuala Langat District, Peninsular Malaysia	1st International Public Health Conference & 18th National Public Health Colloquium, Kuala Lumpur.	

University of Malaya