

**LIFE EXPERIENCE OF MALAY WOMEN WHO  
UNDERWENT INDUCED LACTATION IN  
SELANGOR AND KUALA LUMPUR, MALAYSIA**

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UNDERWENT INDUCED LACTATION IN  
SELANGOR AND KUALA LUMPUR, MALAYSIA**

by

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## TABLE OF CONTENTS

<b>ACKNOWLEDGEMENTS</b> .....	<b>ii</b>
<b>LIST OF TABLES</b> .....	<b>vii</b>
<b>LIST OF FIGURES</b> .....	<b>viii</b>
<b>LIST OF ABBREVIATIONS</b> .....	<b>ix</b>
<b>ABSTRAK</b> .....	<b>xi</b>
<b>ABSTRACT</b> .....	<b>xiii</b>
<b>CHAPTER 1 - INTRODUCTION</b> .....	<b>1</b>
1.1 Background of the study .....	1
1.2 Problem statement .....	4
1.3 Rationale of study .....	6
1.4 Research questions .....	7
1.5 Objectives.....	7
1.5.1 General objective .....	7
1.5.2 Specific objectives .....	8
<b>CHAPTER 2 – LITERATURE REVIEW</b> .....	<b>9</b>
2.1 Introduction .....	9
2.2 Understanding womens’ perception of satisfaction in inducing lactation .....	11
2.3 Emotional aspects of inducing lactation .....	14
2.4 Enabling factors to induce lactation .....	17
2.4.1 Psycho-social factors enabling induce lactation .....	18
2.4.2 Technical factors: Different regimes enabling induce lactation .....	22
2.5 Challenges in inducing lactation .....	25
2.6 Theoretical consideration .....	29
2.6.1 Social cognitive theory .....	30
2.6.1(a) Brief review of the social cognitive theory .....	30
2.6.1(b) Incorporating social cognitive theory with the research .....	31
2.7 Conceptual framework .....	33
<b>CHAPTER 3 - METHODOLOGY</b> .....	<b>35</b>
3.1 Introduction .....	35
3.2 Study design .....	35
3.3 Study location .....	37
3.4 Study population .....	37

3.5 Study duration .....	37
3.6 Informants' criteria.....	38
3.7 Sample size estimation.....	38
3.8 Sampling method .....	39
3.9 Study instrument .....	41
3.10 Pilot test.....	43
3.11 Data collection .....	44
3.12 Data analysis .....	47
3.13 Rigour and trustworthiness .....	49
3.14 Ethical considerations .....	51
<b>CHAPTER 4 - RESULTS.....</b>	<b>52</b>
4.1 Introduction .....	52
4.2 Characteristics of informants, their infants and induced lactation outcome .....	52
4.3 Perception of satisfaction in induced lactation.....	57
4.3.1 Ability to experience motherhood .....	57
4.3.2 Religious factors facilitating the decision.....	60
4.4 Emotions along the process of induced lactation.....	65
4.4.1 Emotions when starting induced lactation .....	66
4.4.2 Emotions when facing challenges during induced lactation.....	70
4.4.3 Emotions when breastmilk yield established.....	72
4.5 Enablers to the satisfaction in inducing lactation.....	75
4.5.1 Self compliant behaviour .....	76
4.5.1(a) Physical .....	76
4.5.1(b) Mental .....	88
4.5.1(c) Spiritual.....	91
4.5.2 Self-efficacy.....	94
4.5.3 Supportive environment.....	98
4.6 Challenges in inducing lactation .....	116
4.6.1 Non-compliant behaviour .....	117
4.6.1(a) Difficulty to adhere to routine consistency .....	117
4.6.1(b) Inefficient stimulation technique .....	121
4.6.2 Personal barriers .....	122
4.6.2(a) Unrealistic expectations about breastmilk yield .....	122
4.6.2(b) Negative thoughts .....	124
4.6.2(c) Aversion to direct breastfeed .....	126
4.6.2(d) Lack of knowledge.....	126
4.6.3 Environmental obstacles .....	128
4.6.3(a) Lack of support .....	128
4.6.3(b) Misleading information.....	133
4.6.3(c) Issues from adopted baby.....	134

4.6.3(d) Difficulty with equipments .....	137
4.6.3(e) Medication side effect .....	139
4.6.3(f) Career obligations .....	143
4.6.3(g) Difficulty with adapting to the new parenthood lifestyle .....	145
<b>CHAPTER 5 - DISCUSSION .....</b>	<b>148</b>
5.1 Introduction .....	148
5.2 Perception of satisfaction in induced lactation.....	148
5.3 Emotions during inducing lactation .....	153
5.4 Enablers in induced lactation .....	154
5.4.1 Compliant behaviour.....	155
5.4.2 Self efficacy .....	157
5.4.3 Environmental support.....	158
5.5 Challenges in induced lactation .....	161
5.5.1 Non-compliant behaviour .....	161
5.5.2 Personal barriers .....	162
5.5.3 Environmental obstacles .....	164
5.6 Methodological reflections.....	173
5.6.1 Strength.....	173
5.6.1(a) Choosing qualitative method to explore the experiences of women who induce lactation.....	173
5.6.1(b) Using phenomenological approach to explore experiences of women who induced lactation.....	174
5.6.1(c) Using semi-structured interview to explore experiences of women who induced lactation.....	175
5.6.2 Limitations .....	176
<b>CHAPTER 6 - CONCLUSION.....</b>	<b>178</b>
6.1 Conclusion .....	178
6.2 Recommendation.....	179
6.2.1 Recommendation for future practice .....	179
6.2.2 Recommendation for future studies .....	182
<b>REFERENCES.....</b>	<b>184</b>

## APPENDICES

Appendix A-Informant information and consent form

Appendix B-Borang maklumat dan keizinan responden

Appendix C-Human research and ethics approval

Appendix D-Ammendment of ethics approval

Appendix E-Extension of ethics approval

## **LIST OF PUBLICATIONS AND PRESENTATIONS**

## LIST OF TABLES

	<b>Page</b>
Table 1.1	Annual number of cases that seek counselling to induce lactation..... 3
Table 2.1	Findings on the perceptions of satisfaction in inducing lactation..... 12
Table 2.2	Findings on the emotional aspects of inducing lactation ..... 15
Table 2.3	Findings on the psychosocial factors enabling induced lactation ..... 19
Table 2.4	Technical factors enabling induced lactation ..... 23
Table 2.5	Challenges in inducing lactation ..... 26
Table 3.1	List of breastfeeding support groups in Selangor and Kuala Lumpur 40
Table 3.2	Interviewer guide ..... 42
Table 4.1	Demography of informants and their adopted child ..... 54
Table 4.2	Methods and outcome of induced lactation ..... 56
Table 4.3	Thematic analysis of perception of satisfaction of women who underwent induced lactation in Selangor and Kuala Lumpur, Malaysia ..... 57
Table 4.4	Thematic analysis of emotions of women who underwent induced lactation in Selangor and Kuala Lumpur, Malaysia ..... 66
Table 4.5	Thematic analysis of enablers of satisfaction in women who underwent induced lactation in Selangor and Kuala Lumpur, Malaysia ..... 75
Table 4.6	Thematic analysis of challenges of women who underwent induced lactation in Selangor and Kuala Lumpur, Malaysia ..... 117



## LIST OF FIGURES

	<b>Page</b>
Figure 2.1	Screening process for the literature review ..... 10
Figure 2.2	Summary of the technical factors that enable a woman to induce lactation ..... 25
Figure 2.3	Social cognitive theory to summarize challenges when inducing lactation ..... 29
Figure 2.4	Social cognitive theory ..... 31
Figure 2.5	Conceptual framework..... 34
Figure 3.1	Data collection using purposive and snow balling technique..... 41
Figure 3.2	Flowchart of interview ..... 45
Figure 3.3	Time spent for each informant (in hours) ..... 46
Figure 5.1	Perception of satisfaction in induced lactation ..... 149
Figure 5.2	Correlation between self efficacy as enabler to induce lactation and Bandura’s self efficacy theory ..... 158
Figure 5.3	Environmental support system as enabler in induced lactation..... 160
Figure 5.4	Relating self-determination theory to psychological growth to achieve religious milk kinship ..... 169
Figure 5.5	Relating self-determination theory to psychological regression to achieve religious milk kinship ..... 169

## LIST OF ABBREVIATIONS

C	child
D	divorced
d	day(s)
DB	double breastpump
DL	direct latching
EM	employed
F	food
HE	hand expression
I	informant
IBY	initial breastmilk yield
IL	induced lactation
LC	lactation counsellor
LM	lactation massage
M	married
m	month(s)
MB	manual breastpump
OD	oral Domperidone

OM oral Maxalon

OY oral Yasmin

P parenteral

RMK religious milk kinship

S supplement

SB single breastpump

SE self-employed

SNS supplemental nursing system

STS skin to skin

UN unemployed

uc uncertain

VSD ventricular septal defect

y year

**PENGALAMAN WANITA MELAYU YANG MELALUI CETUSAN  
LAKTASI DI SELANGOR DAN KUALA LUMPUR, MALAYSIA.**

**ABSTRAK**

Cetusan laktasi adalah penyusuan susu ibu tanpa melalui proses kehamilan. Terdapat kekurangan kajian tentang pengalaman wanita mencetuskan laktasi. Sangat penting bagi informasi berasaskan kajian disebarakan kepada profesional kesihatan dan individu lain di Malaysia. Kajian in bertujuan menerokai pengalaman wanita yang mencetuskan laktasi di Selangor dan Kuala Lumpur, khususnya mengkaji dengan mendalam persepsi kepuasan wanita yang mencetuskan laktasi, mengkaji emosi sepanjang proses cetusan laktasi, mengkaji faktor pendorong dan cabaran yang dilalui sepanjang proses cetusan laktasi. Pemberi maklumat dipilih secara persampelan bertujuan dari senarai kumpulan sokongan penyusuan susu ibu di Selangor dan Kuala Lumpur. Persampelan *snowball* kemudian dilakukan untuk memaksimakan variasi pemberi maklumat. Temubual secara bersemuka dilakukan menggunakan panduan temubual separa berstruktur bersama pemberi maklumat yang memenuhi kriteria kelayakan. Pemberi maklumat ditemubual sehingga ketepuan dicapai. Temubual dirakam dan transkrip disalin kata demi kata. Data kualitatif diurus dan analisa deskriptif dilakukan oleh perisian RQDA. Seramai 20 pemberi maklumat mengambil bahagian dalam kajian ini. Semua pemberi maklumat berbangsa Melayu, beragama Islam, berumur antara 26 hingga 47 tahun, majoriti berpendidikan tinggi (80%), berkahwin (95%) dan bekerja (70%) sewaktu melalui proses cetusan laktasi. Bayi angkat berumur antara satu hingga 21 hari, majoriti bersama ibu angkat sejak pengangkatan (95%) dan majoriti tiada komplikasi sejurus selepas kelahiran (90%). Keputusan analisa tematik dibahagikan kepada empat bahagian iaitu persepsi

kepuasan wanita yang melalui cetusan laktasi, emosi sepanjang proses cetusan laktasi, faktor pendorong membawa kepuasan dalam cetusan laktasi dan cabaran sepanjang cetusan laktasi. Tema-tema terhasil daripada persepsi kepuasan wanita yang mencetuskan laktasi adalah kemampuan merasakan pengalaman keibuan dan faktor keagamaan yang memudahkan keputusan. Tema-tema terhasil daripada emosi sepanjang proses cetusan laktasi adalah emosi sewaktu mula cetusan laktasi, emosi ketika berdepan dengan cabaran sewaktu cetusan laktasi dan emosi sewaktu susu ibu terhasil. Tema-tema terhasil daripada faktor pendorong yang membawa kepuasan dalam cetusan laktasi adalah tingkah laku patuh sendiri, keberkesanan diri dan persekitaran yang menyokong. Tema-tema terhasil daripada cabaran sepanjang cetusan laktasi adalah tingkah laku tidak patuh, halangan peribadi dan halangan persekitaran. Penemuan dari kajian ini membuktikan setiap wanita yang ingin mencetuskan laktasi adalah unik dari pengalaman individu. Persamaan dalam penemuan boleh digunakan sebagai pengetahuan asas untuk merangka garis panduan cetusan laktasi tetapi rancangan pengurusan harus mempertibangkan keperluan dan kesesuaian individu. Menguruskan harapan bersama dengan sistem sokongan yang kukuh penting untuk memastikan wanita yang mencetuskan laktasi mencapai kepuasan. Kajian lanjutan untuk merapatkan jurang pengetahuan dan meneroka penemuan baru kajian ini harus dipertimbangkan.

**Kata kunci:** pengalaman, cetus laktasi, penyusuan anak angkat, kajian kualitatif

**LIFE EXPERIENCE OF MALAY WOMEN WHO UNDERWENT INDUCED  
LACTATION IN SELANGOR AND KUALA LUMPUR, MALAYSIA.**

**ABSTRACT**

Induced lactation is breastfeeding without prior pregnancy. There is lack of studies regarding experiences of women who induced lactation. It is crucial that evidence-based information on experiences of women who induced lactation is available to health professionals and other individuals in Malaysia. This study aims to explore the experiences of women who induced lactation in Selangor and Kuala Lumpur, specifically on the perception of satisfaction, emotions, enablers and challenges in induced lactation. Informants were purposively recruited from a list of breastfeeding support groups in Selangor and Kuala Lumpur. Along the way, snowball sampling was adopted to maximize variation. Face-to-face interviews were conducted using semi-structured interview guide with consented informants that fit inclusion criteria. Informants were interviewed until saturation achieved. Interviews were audio recorded and transcribed verbatim. Qualitative data was managed and thematic analysis conducted using RQDA software. A total of 20 informants participated in the study. All informants were Malay and Muslims with age between 26 to 47 years, majority had tertiary education (80%), married (95%) and employed (70%) during the time of induced lactation. Infants were adopted by infomants between the age of one to 21 days, and majority had no newborn complications (90%). Thematic analysis findings were presented into four sections which included perception of satisfaction of women who induced lactation, emotions along the process of induced lactation, enablers to attain satisfaction in induced lactation and challenges in induced lactation. Themes raised from informants' perception of satisfaction were the ability to

experience motherhood and religious factors in facilitating the decision. Themes emerged from emotions along the process were emotions when starting induced lactation, emotions when facing challenges during induced lactation and emotions when breastmilk yield established. Themes emerged from enablers to satisfaction in induced lactation were self-compliant behaviour, self-efficacy and supportive environment. Themes emerged from challenges in induced lactation were non-compliant behaviour, personal barriers and environmental obstacles. Findings from this study proves each woman seeking to induce lactation will have a unique individual experience. Similarities in findings can be used as basic knowledge to develop induced lactation guideline but management plan should incorporate consideration for individual needs and compatibility. Managing expectations along with a sturdy support system are essentials to ensure women who induce lactation achieve satisfaction according to their personal goals. Further studies bridging knowledge gap and exploring new findings in this study should be considered.

**Key words:** experiences, induced lactation, adoptive breastfeeding, qualitative study

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the study

Induced lactation by definition is breastfeeding without prior pregnancy (Auerbach and Avery, 1981; McManaman and Neville, 2012). In other words it is a process by which a non-puerperal woman is stimulated to lactate (Moran and Gilad, 2007). Induced lactation is described as “the process by which milk or breastmilk is caused to be produced in a mammalian woman, without the benefit of recent pregnancy and birth, and may include the use of herbs, supplements, medications, mechanical/manual stimulation, and/or the offspring or infant, to bring in the milk or breastmilk supply”(Goldfarb, 2010).

The motivation for inducing lactation was to provide nourishment for infants whose mother had either died in childbirth or was unable to breastfeed. Recently, the interest in induced lactation stems from a desire of the adoptive mother to nurture an adopted child at the breast (Biervliet and Atkin, 2012). Breastfeeding the adopted infant is possible and is being practised by increasing numbers of women around the world. Previous researches indicate that breastfeeding is not unique to pregnant women (Jelliffe and Jelliffe, 1972; Auerbach and Avery, 1981; Ryba and Ryba, 1984; Thearle and Weissenberger, 1984; Chaturvedi and Dubey, 1985; Banapurmath *et al.*, 1993; Nemba, 1994; Cheales-Siebenaler, 1999; Gribble, 2003; Bryant, 2006; Ogunlesi *et al.*,



2008; Wittig and Spatz, 2008; Goldfarb, 2010; Szucs *et al.*, 2010; Wahlert and Fiester, 2013; Saari and Yusof, 2015).

From the earliest times, including the time of Hippocrates, it has been thought that lactation may occur in non-puerperal women (Illingworth, 1972). Most documented cases of induced lactation began to appear in the medical literature early in the 20th century. Various religious and folklore studies on breastfeeding from all over the world (Ping-Chen, 1995; Laroia and Sharma, 2006; Bayyenat *et al.*, 2014), which includes Muslim, Hindu and Imperial Chinese has reported breastfeeding as the recommended choice of infant feeding in the form of breastfeeding by biological mother, breastfeeding by wet-nurse or breastfeeding by non-puerperal lactation.

This practice has been encountered in New Guinea (Mobbs and Babbage, 1971) and Zulu tribes in Africa (Slome, 1956). The techniques employed by most of these cultures are suckling, the application of heat and massage of the breast, and drinking coconut milk (Illingworth, 1972). In unprivileged countries, induced lactation is used as an emergency measure, especially by African communities, for preventing neonatal death when certain women fail to breastfeed. In such cases, no pre-partum preparations are possible, but there is high success rate in these settings, probably owing to the many years of traditional experience with induced lactation (Abejide *et al.*, 1997).

The American Academy of Pediatrics (AAP) issued a statement concerning their policy on “Breastfeeding and the use of Human Milk”, which mentioned that pediatricians should counsel adoptive mothers on the benefits of induced lactation

through hormonal therapy or mechanical stimulation and provide professional support and encouragement to adoptive mothers going through induced lactation (Gartner, 2005). When counselling a women who wishes to induce lactation, factors such as motivation and age of the endeavour, support for the endeavour and needs of the infant should be considered (McManaman and Neville, 2012).

The National Lactation Centre of the Ministry of Health Malaysia reported the annual number of cases that seek counselling to induce lactation between the year 2014 and 2020, as summarized in Table 1.1. The average number of cases seeking counselling to induce lactation was 48 cases per year. There was a declining trend in the number of cases seeking counselling from 2014 to 2020. This trend may not indicate that the number of induce lactation cases per year is decreasing because over the years, there has been tremendous growth of sources where mothers can seek counselling to induce lactation like lactation units in private and government hospitals and independent lactation consultants or counsellors.

**Table 1.1: Annual number of cases that seek counselling to induce lactation**  
**Source: National Lactation Centre, Ministry of Health Malaysia**

<b>Year</b>	<b>Number of cases seeking counselling to induce lactation</b>
2014	72
2015	74
2016	57
2017	37
2018	27
2019	18
2020	15

## 1.2 Problem statement

Literature regarding induced lactation remains relatively sparse. Most existing literature in the area of induced lactation are based on anecdotal experience and these few studies that exist have a small number of informants, ranging from one to 37 informants; short-term study period of not exceeding two years and case reports. These studies were conducted in India, Spain, Africa and United States of America. The common findings are that induce lactation is possible with various psychosocial and technical enablers. (Ryba and Ryba, 1984; Banapurmath *et al.*, 1993; Nemba, 1994; Szucs *et al.*, 2010; Wahlert and Fiester, 2013; Wilson *et al.*, 2015; Flores-Antón *et al.*, 2017).

There were two large studies in United States of America which recruited more than 200 informants which explored the experiences of women who induced lactation (Auerbach and Avery, 1981; Goldfarb, 2010). A qualitative study explored the experiences of 240 women who induced lactation by giving informants closed ended questionnaire to fill in the success parameters and technical enablers in adoptive breastfeeding. A mixed method study was conducted with 228 informants, whereby the quantitative section assessed the satisfaction of informants who induced lactation and the challenges they faced during induced lactation and the qualitative section assessed the emotions and enablers in inducing lactation (Goldfarb, 2010). Both studies reported informants feeling “positive” and “satisfied” from experiencing induced lactation without clarification on those terms. Both studies also reported various psychosocial and technical enablers to induce lactation (Auerbach and Avery, 1981; Goldfarb, 2010). Goldfarb *et al* reported regarding challenges of inducing

lactation along with both positive and negative emotions without specifying which at which stage those emotions occur throughout the process of inducing lactation. The knowledge gap to be bridged from the above-mentioned studies is that those studies were conducted in places which are culturally different from our local setting and does not provide in depth description of experiences of women who induce lactation. Auerbach et al used a self-reported questionnaire which has a risk of recall bias (Althubaiti, 2016). Goldfarb et al used quantitative method to assess satisfaction and challenges in induced lactation which does not provide a rich description of the experience (Moustakas, 1994).

Lack of research has been conducted on induced lactation in Malaysia with regards to why women induce lactation and the factors that motivate them to do so. In Malaysia, there were only two published articles regarding induced lactation (Saari and Yusof, 2015; Rahim *et al.*, 2017). Saari et al conducted a cased study which focused on motivation to women to induce lactation. Rahim et al published a review regarding the availability of knowledge regarding induced lactation. None of the above provides a rich description regarding perception of satisfaction, emotions, enablers and challenges regarding induced lactation. A recently published study explored and developed a practice model on induced lactation in Malaysia. This study focused on the experiences of the women who underwent induced lactation, how their support person provided support along the process and identified the various regimes practiced by the practitioners for induced lactation in Malaysia using a longitudinal qualitative case study design (Rahim *et al.*, 2020). The differences between the above-mentioned study with this study is this study focuses on exploring the experiences of women who underwent induced lactation in depth of the womens' perception of satisfaction in

induced lactation, the emotional aspects of induced lactation, enablers and challenges in inducing lactation. This study is focused on exploring the experiences of women who induced lactation using a qualitative phenomenological approach.

### **1.3 Rationale of study**

Rahim et al. (2017) recommended that future projects develop a practical model for induced lactation in Malaysia to explore maternal views related to the mothers' needs, obstacles, experiences, perceptions, and motivations. In consideration of the dire need among Malaysians, it is crucial that evidence-based, accurate and reliable information on induced lactation is made available to professionals and other individuals in this country (Rahim *et al.*, 2017).

This study provides opportunity to capture and document the experiences of women who induced lactation in Selangor and Kuala Lumpur to create a better understanding for lactation professionals and health practitioners to assist women to induce lactation in the years to come. When we understand the experience from the informants themselves and the information can be disseminated to healthcare professionals. Healthcare professionals that understand womens' perception of satisfaction and emotions in inducing lactation can curate a realistic management plan along with managing expectations of these women accordingly. By understanding the enablers and challenges to induce lactation, healthcare professionals can focus on strengthening those enabling factors and assist them to overcome the challenges.

## **1.4 Research questions**

Research questions for this study are:

- i. How do women perceive “satisfaction” in inducing lactation?
- ii. How do women emotionally perceive the experience of inducing lactation?
- iii. What are the enabling factors contributing to satisfaction in inducing lactation?
- iv. What are the challenges faced during inducing lactation?

## **1.5 Objectives**

### **1.5.1 General objective**

To explore the experiences of women who underwent induced lactation in Selangor and Kuala Lumpur.

### **1.5.2 Specific objectives**

- i. To explore the perception of satisfaction in induced lactation among women who underwent the process in Selangor and Kuala Lumpur
- ii. To explore the emotions during inducing lactation among women who underwent the process in Selangor and Kuala Lumpur
- iii. To explore the enablers to induce lactation among women who underwent the process in Selangor and Kuala Lumpur
- iv. To explore the challenges during inducing lactation among women who underwent the process in Selangor and Kuala Lumpur

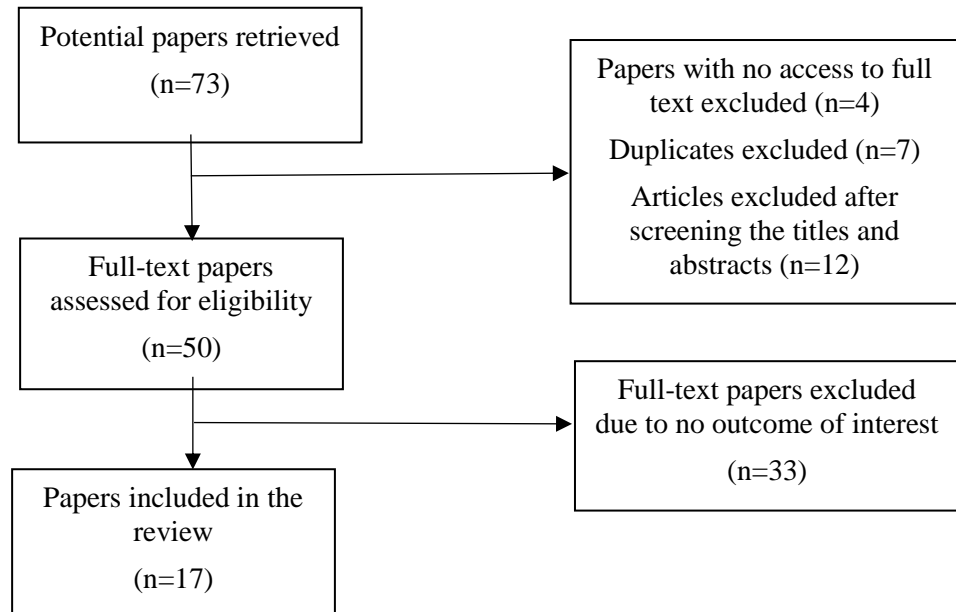
## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter aims to review the literature published over the past five decades related to the experiences of women who underwent induced lactation. A comprehensive electronic search was conducted using PubMed, Library of Congress, Google Scholar, SAGE, and ScienceDirect. The following search keywords were used: adoptive breastfeeding, induced lactation, non-puerperal lactation, extraordinary breastfeeding, and milk kinship. The retrieved articles were compiled and managed using EndNote X8 software according to respective topics. The search was conducted with multiple databases; hence, some duplicate citations were retrieved. The search results were imported using EndNote X8 software to simply delete the duplicates. After deduplication, the search results were screened by title and abstract; this was followed by reading the full texts and removing the articles that did not meet the objective of review. Based on the repetition of the themes that emerged when reading the full texts, four aspects were chosen to be discussed: satisfaction, emotions, enablers, and challenges in inducing lactation. Figure 2.1 shows the flowchart of the screening and reviewing process.





**Figure 2.1: Screening process for the literature review**

A total of 73 potential papers about induced lactation were retrieved. During the screening process, papers that were excluded were those with no access to the full text (n=4), duplicates (n=7), and articles with titles and abstracts that did not match the objective of the review (n=12). Consequently, 50 full-text papers were assessed for eligibility, out of which, full-text papers with no outcome of interest (n=33) were excluded. The papers with content that had no outcome of interest were about folklore, religious views, and galactogogues to induce lactation. Finally, 17 papers were included in the review. Four articles were specifically related to Malaysia and the others were international. There were seven original papers, five reviews, and five case reports. There were no conference proceedings included in the review because of the inability to retrieve full text. Based on the themes that repeatedly emerged when reading the full-text papers, the women's experiences were reviewed based on: (a) understanding women's perception of satisfaction in inducing lactation, (b) emotional

aspects of inducing lactation, (c) enabling factors in inducing lactation, and (d) challenges in inducing lactation.

A total of 17 articles on induced lactation in the last 53 years may suggest that the subject is understudied. This review informs emerging knowledge regarding the experiences of women who induced lactation in terms of the satisfaction, emotions, enablers, and challenges related to inducing lactation.

## **2.2 Understanding womens' perception of satisfaction in inducing lactation**

A study conducted with 240 women who experienced adoptive nursing by asking about the parameters that lead to success in a close-ended, self-report questionnaire reported that most of the women were satisfied with the experiences (Auerbach and Avery, 1981). Another study in which 228 informants were asked how satisfied they were with their effort to induce lactation; most of the women who induced lactation reported being satisfied with the overall experience and, given the opportunity, 83% would repeat the process again (Goldfarb, 2010).

A study conducted in Malaysia reported that most of the informants did not experience pregnancy or childbirth, yet they still wanted to enjoy motherhood by breastfeeding their adopted child. In that study, 67% of the mothers claimed that they enjoyed breastfeeding their child, with the repeated mentions of the words “satisfied”, “relieved”, “enjoy”, “pleasure”, and “indescribable feeling” (Saari and Yusof, 2015). There are two published systematic reviews focusing on pharmacological and non-

pharmacological methods to induce lactation in which some parts focused on understanding the mothers’ perspectives. Both reviews reported that maternal-infant bonding, which resulted from induced lactation, was the main source of satisfaction among the informants despite the rigorous process and their inability to produce adequate milk supply to breastfeed exclusively (Bryant, 2006; Wittig and Spatz, 2008).

Table 2.1 presents a summary of the findings on understanding womens’ perception of satisfaction in inducing lactation in chronological order, based on the year of publication. Based on the publications mentioned above, it is evident that the satisfaction of inducing lactation helps establish the maternal-infant bond, which is promoted by the process of inducing lactation.

**Table 2.1: Findings on the perceptions of satisfaction in inducing lactation**

<b>Author (Year)</b>	<b>Study Design Number of informants/articles</b>	<b>Location of study</b>	<b>Summary of findings on perception satisfaction in inducing lactation</b>
Auerbach et al. (1981)	Original paper (quantitative design) 240 informants	United States of America	The majority of the informants felt that mother-infant relationship was important and 76% evaluated adoptive nursing “positively”. No clarification of the term “positively”.
Bryant (2006)	Review 26 articles as references	United States of America	The primary goal is not milk production; rather, it is establishing an emotional bond with the infant.
Wittig et al. (2008)	Review 18 articles as references	United States of America	Based on information drawn from the articles in the review, it is concluded that most women who induce lactation cannot produce enough breastmilk to exclusively breastfeed their infant, but find satisfaction in this process because of maternal-infant bonding it promotes.

**Table 2.2 Continued**

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Goldfarb (2010)	Original paper (mixed qualitative and quantitative design) 228 informants	United States of America	Reported 76% of the women were “satisfied” with no clarification of the term “satisfied” because that part of the study was quantitative.
Saari et al. (2015)	Original paper (qualitative design) 12 informants	Malaysia	Reported 67% of the mothers enjoyed breastfeeding their child, with repeated mentions of the words “satisfied”, “relieved”, “enjoy”, “pleasure”, and “indescribable feeling”.

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An adoptive mother seeking to induce lactation is a unique client in need of customized and personalized care; hence, it is important to understand the perception of satisfaction in inducing lactation (Wittig and Spatz, 2008). However, the studies reviewed on this subject did not clarify the term “satisfaction” in inducing lactation (Auerbach and Avery, 1981; Bryant, 2006; Wittig and Spatz, 2008; Goldfarb, 2010; Saari and Yusof, 2015).

There are two original papers that reported the outcome of experiences of induced lactation whereas two reviews that reported conclusions drawn by reviewing previous studies (Bryant, 2006; Wittig and Spatz, 2008; Goldfarb, 2010; Saari and Yusof, 2015). Several studies reported that satisfaction in women who induced lactation arises from the bond that is established between the mother and the infant (Auerbach and Avery, 1981; Bryant, 2006; Wittig and Spatz, 2008; Saari and Yusof, 2015) .

Healthcare professionals who are helping mothers induce lactation should ask mothers beforehand about what they perceive as satisfaction in inducing lactation. This should

be practiced so that healthcare professionals can work with these mothers to achieve their goals (Auerbach and Avery, 1981).

### **2.3 Emotional aspects of inducing lactation**

There is a published review regarding the evidence in physiological and behavioral research studies regarding how breastfeeding plays a significant role in developing the attachment relationship between an adopted child and mother. It was reported that breastfeeding an adopted child is an attempt to ensure the quality of attachment between the mother and baby, whereby physical contact between them through breastfeeding enables the baby who is suffering from trauma of separation from his/her birth mother to feel secure (Gribble, 2006).

In the qualitative section of an original paper, the informants were asked to describe how they felt during the process of inducing lactation. The text was analyzed for repeated words, phrases, and themes. The frequent comments were feelings of awe, wonder, and amazement followed by love. Mothers reported healing from grief due to infertility as an important motivation for inducing lactation (Goldfarb, 2010).

A study conducted in Malaysia reported that induced lactation undertaken by informants elicited maternal instincts in adoptive mothers. After experiencing induced lactation, all the informants agreed that it prepared them to be mothers and that breastfeeding is a pleasurable experience. All the informants agreed that breastfeeding

entails affection and touch, which has a positive impact on adoptive mothers and the babies they are nursing (Saari and Yusof, 2015).

Table 2.2 presents a summary of the findings on the emotional aspects of inducing lactation in chronological order, based on the year of publication. There are both positive and negative emotions associated with induced lactation. Positive emotions are viewed as a source of motivation to induce lactation and negative emotions are associated with challenges to inducing lactation (Goldfarb, 2010).

**Table 2.3: Findings on the emotional aspects of inducing lactation**

<b>Author (Year)</b>	<b>Study Design Number of informants/ articles</b>	<b>Location of study</b>	<b>Summary of findings on emotional aspects of inducing lactation</b>
Gribble (2006)	Review 163 articles as references	Australia	Breastfeeding an adopted child is an attempt to ensure the quality of attachment between the mother and baby. Physical contact between the mother and baby through breastfeeding helps a baby who is suffering from the trauma of separation from his/her birth mother feel secure.
Goldfarb (2010)	Original paper (Mixed qualitative and quantitative design) 228 informants	United States of America	Mothers reported that healing from grief due to infertility was the most important motivation to induce lactation.  Positive emotions are related to the mother-infant relationship, whereas negative emotions are related to technical challenges in inducing lactation, such as concerns about breastmilk supply, finding time to pump, and issues related to breast pumps.
Saari et al. (2015)	Original paper (Qualitative design) 12 informants	Malaysia	Induced lactation led to a unique feeling, i.e., maternal instinct in adoptive mothers.  All the informants agreed that breastfeeding prepared them to be mothers and is a pleasurable experience.  All the informants agreed that the affection and touch associated with breastfeeding has a positive impact.

The studies that mentioned the positive emotions associated with inducing lactation reported that it healed grief due to infertility, increased a woman's maternal instincts, and benefited adopted babies by ensuring a secure feeling after the trauma of being separated from their birth mother. Two original papers reported on the outcome of experiences of induced lactation, and a review was published based on the conclusions reported in previous studies (Gribble, 2006; Goldfarb, 2010; Saari and Yusof, 2015).

The emotions reported from the studies mentioned above are timely with the recommendation that is rooted in dependency theory (Attachment Theory), which was developed by John Bowlby and Mary Ainsworth in 1950. According to this theory, a baby's dependency on the mother or mother figure is predicated on acceptance, protection, security, and caring (Bowlby, 1958). Based on these, love between a mother and child can be nurtured as early as the birth of the baby through acts, such as breastfeeding.

Based on the positive effects that inducing lactation can have on the emotions of women, it is recommended that healthcare professionals always take time to ask the women they are assisting about their emotional well-being during different phases of the lactation-inducing process. This not only provides healthcare professionals with an opportunity to document the emotional changes that mothers go through when inducing lactation, it also provides them with more insight about how women feel during different phases of that process. This enables healthcare professionals to better understand how to assist mothers in inducing lactation. The importance of this recommendation can be enhanced by the fact that over the course of 53 years, only three studies have addressed this subject, which suggests that more research on this topic is needed (Gribble, 2006; Goldfarb, 2010; Saari and Yusof, 2015).

Women who induce lactation experience positive and negative emotions. The negative emotions are related to the technical challenges, such as being concerned about breastmilk supply, finding time to pump, and issues related to breast pumps (Goldfarb, 2010). Healthcare professionals can assist women with these aspects by offering regular follow-ups in order to identify the triggers that lead to the negative emotions and discuss a plan to avoid those triggers and reduce or eliminate those emotions. Women going through induced lactation should be well supported emotionally because negative emotions will impair the autocrine process of lactation (McManaman and Neville, 2012). The consultation sessions should also be attended by family members, a friend, a spouse, or a partner, so that they can form a support system for the women that are inducing lactation to help them avoid experiencing emotional breakdowns.

#### **2.4 Enabling factors to induce lactation**

For the purpose of this study, enabling factors are defined as factors that make it possible (or easier) for a woman to induce lactation. With reference to an article, this sub-topic will be divided into the psycho-social factors and the technical enabling factors which includes regimes and tools used to induce lactation (Wittig and Spatz, 2008).



#### **2.4.1 Psycho-social factors enabling induce lactation**

A case report was published regarding premature twins whose adoptive mother induced lactation. Both infants received their adoptive mother's milk exclusively at the age of two months. This reflects careful planning by the adoptive mother beginning in the prenatal period, her active role during the infants' hospital stay, and support she received from healthcare personnel and family members (Szucs *et al.*, 2010).

There are two case reports mentioned that the motivation of mothers was the main factor that enabled them to induce lactation. This was followed by family support. They concluded that a mother who is motivated, confident, and knowledgeable about induced lactation has the best chance to succeed (Nemba, 1994; Lakhkar, 2000). There are two original papers which found that enhancing the bond between the mother and baby is the key factor in breastfeeding an adopted child (Auerbach and Avery, 1981; Goldfarb, 2010).

Women in Malaysia are driven to breastfeed their adopted babies through cultural exposure and religious beliefs to obtain milk kinship. A model for adoptive breastfeeding that integrates both the Fiqh and scientific perspectives of adoptive breastfeeding was developed. It has been reported that the psychosocial enablers to induce lactation help fulfil religious milk kinship (Shariah-based) and, from a humanitarian perspective, they foster compassion (science-based) (Saari and Yusof, 2017). Table 2.3 presents a summary of the findings on the psychosocial factors enabling induce lactation in chronological order, based on the year of publication.

**Table 2.4: Findings on the psychosocial factors enabling induced lactation**

<b>Author (Year)</b>	<b>Study Design Number of informants/ Articles</b>	<b>Location of study</b>	<b>Summary of the findings on the psychosocial enabling factors for inducing lactation</b>
Auerbach et al. (1981)	Original paper (Quantitative design) 240 informants	United States of America	Factors reported as psychosocial enablers for inducing lactation: Mother-infant bonding Fulfil emotional needs of babies Body contact with baby Nutritional benefits of infants Care by the mother Ability to produce breastmilk Breastfeeding as reflection of femininity Mother's physical changes
Nemba (1994)	Case report 37 informants	Africa	A mother who is motivated, confident, and knowledgeable on the topic experiences the best chance of successfully inducing lactation.
Lakhkar (2000)	Case report 23 informants	India	A mother's motivation and family support act as psychosocial enablers to induce lactation.
Gribble (2003)	Review 87 articles as references	Australia	Suggested that adoptive mothers in developing countries may have greater milk production than mothers in Western countries because they are more knowledgeable about breastfeeding, practice frequent breastfeeding, have close physical contact with children, and live in cultures that support breastfeeding.
Goldfarb (2010)	Original paper (Qualitative and quantitative design) 228 informants	United States of America	Inducing lactation fulfills the emotional needs of babies and heals the mother's grief due to infertility.
Szucs et al. (2010)	Case report 1 informant	United States of America	Support from healthcare professionals and family members plays a role in ensuring that premature twins received their adoptive mother's milk exclusively at the age of 2 months.

**Table 2.3. Continued**

<b>Author (Year)</b>	<b>Study Design Number of informants/ Articles</b>	<b>Place of Study</b>	<b>Summary of the findings on the psychosocial enabling factors for inducing lactation</b>
Saari et al. (2015)	Original paper (qualitative design) 12 informants	Malaysia	The themes outlined with regard to these psychosocial factors are: “mahram”, “maternal instinct”, “psychology”, “offspring”, and “obligation”. These are briefly summarized below: “Mahram” and “Obligation”: To establish the religious milk kinship. “Maternal instinct”: To satisfy the maternal instincts of adoptive mothers who have not experienced childbirth. “Psychology”: Fulfill the desire to establish a bond between the adoptive mother and child. “Offspring”: To overcome grief from not being able to conceive.
Saari et al. (2017)	Original Paper (qualitative design) 12 informants	Malaysia	This study developed a Guideline Model of Breastfeeding Adopted Child in accordance to the Fiqh and Science perspective. Psychosocial enablers in inducing lactation were obligation to fulfill religious milk-kinship (shariah-based) and compassion (science-based).

The report regarding the social norms that affect a woman’s ability to induce lactation in a positive manner in developing countries is somewhat similar to breastfeeding in general. In developing countries, mothers are knowledgeable about breastfeeding because they have observed it from a young age (Jelliffe and Jelliffe, 1972; Gribble, 2003). This results in increased confidence in breastfeeding and fewer breastfeeding problems (Hill and Aldag, 1991; McCarter-Spaulding and Kearney, 2001). Some women also have beliefs about child care that optimize breastfeeding. They allow unrestricted breastfeeding and keep their babies in close physical contact, day and night (Lozoff and Brittenham, 1979; Stuart-Macadam, 2017). This maximizes

prolactin secretion and breast emptying, thus accelerating breast development and increasing milk production (Daly *et al.*, 1996).

The informants from two original studies highly value the development of love and an affectionate relationship between an adoptive mother and her adopted child because the adoptive woman did not carry the child in her womb (Auerbach and Avery, 1981; Goldfarb, 2010). Efforts to establish a bond between an adoptive mother and her adopted child is equivocally important as a Muslim in a local community in order to establish a mahram relationship. Both act as psychosocial enablers to induce lactation, albeit from a different perspective. The goal is similar, which is an attempt to accept an adopted child as a part of one's family so there is no issue of segregation even though this is not a biological connection (Saari and Yusof, 2015).

It is recommended that healthcare professionals understand the psychosocial factors that enable women to induce lactation. The reports regarding these psychosocial factors acknowledged their role in enabling induced lactation; however, it is recommended that healthcare professionals seek more in-depth information on this subject throughout the different phases of inducing lactation and during follow ups. Each adoptive mother and breastfeeding baby have their own unique experience, and the psychosocial aspect has been given less priority in comparison to the nutritional and immunity-enhancing aspects of breastfeeding (Gribble, 2006). Seven articles on this subject within the past 53 years suggests that it is very understudied, and deserves further investigation. Gaining insight into the psychosocial enablers in inducing lactation will help healthcare professionals assist women in making practical management plans and managing their expectations (Bryant, 2006).

## **2.4.2 Technical factors: Different regimes enabling induce lactation**

Procedures commonly used to induce lactation include pharmacologic (hormonal stimulation) and non-pharmacologic (breast stimulation) methods, often in combination (Wittig and Spatz, 2008). Regarding non-pharmacologic methods, women may induce lactation via breast stimulation through hand expression or using a breast pump, or via direct suckling at the breast or using the supplemental nursing system (Auerbach and Avery, 1981; Abejide *et al.*, 1997; Wittig and Spatz, 2008; Goldfarb, 2010).

Table 2.4 presents a summary of the technical factors, including the pharmacologic and non-pharmacologic factors that enable women to induce lactation in chronological order, based on the year of publication. Two studies described the various regimes used to induce lactation (Auerbach and Avery, 1981; Goldfarb, 2010). Another study reported that a back massage is a simple method that can be implemented in a regime to induce lactation without straining resources (Patel and Ds, 2013). A case report found that an adoptive mother who produced breastmilk for her infant via various regimes resulted in adequate weight gain for her infant (Cheales-Siebenaler, 1999).

**Table 2.5: Technical factors enabling induced lactation**

<b>Author (Year)</b>	<b>Study Design Number of informants/ articles</b>	<b>Location of study</b>	<b>Summary of the findings on the technical factors enabling induced lactation</b>
Auerbach et al. (1981)	Original paper (quantitative design) 240 informants	United States of America	This paper reported that most of the informants did one or more of the following to induce lactation: Read three or four books about breastfeeding or two or more articles on adoptive nursing before the arrival of their adopted infant Improvement or supplementation of maternal diet Nipple stimulation before or after infant's arrival Occasional use of hormone preparations to simulate pregnancy or increase milk ejection reflex
Abejide et al. (1997)	Case report 6 informants	Africa	All six women in the case study produced breastmilk by breast-suckling alone; however, there was no report of how long they breastfed.
Cheales-Siebenaler et al. (1999)	Case report 1 informant	United States of America	An adoptive mother induced lactation by bilateral pumping, metoclopramide, and oxytocin nasal spray. She did not use hormones to induce lactation. She supplemented her adopted infant at the breast with the help of a supplementary feeding-tube device. She began to produce breastmilk when the infant was 4 months old (suddenly began to express four ounces of breastmilk per breast).The mother stopped her protocol at this time (stopped pumping and taking medications), and proceeded to direct feed her infant without supplementation throughout the fourth and fifth months, with the infant gaining adequate weight.
Wittig et al. (2008)	Review 18 articles as references	United States of America	Procedures commonly used to induce lactation include pharmacologic (hormonal stimulation) and non-pharmacologic (breast stimulation) methods, often in combination.

**Table 2.4 Contineud**

<b>Author (Year)</b>	<b>Study design Number of informants/ articles</b>	<b>Location of study</b>	<b>Summary of the findings on the technical factors enabling induced lactation</b>
Goldfarb (2010)	Original paper (mixed-methods design) 228 respondents	United States of America	<p>This paper described the various regimes and the popularity (by percentage) used to induce lactation, summarized below:</p> <ul style="list-style-type: none"> <li>i. Domperidone (92%)</li> <li>ii. Fenugreek (78%)</li> <li>iii. Birth control pill (63%)</li> <li>iv. Blessed thistle (68%)</li> <li>v. Nothing (6%)</li> <li>vi. Metoclopramide (4%)</li> <li>vii. Expressed breastmilk before infant's arrival via pumping (75%) or hand expression (14%)</li> <li>viii. Pumped after most feeds for 10 minutes (40%)</li> <li>ix. Pumped after baby arrived, but not suckling yet on the breast (32%)</li> <li>x. Put baby to the breast with a supplemental nursing system (51%)</li> </ul> <p>Maximum milk supply was reported by the informants using the following protocols:</p> <ul style="list-style-type: none"> <li>i. Domperidone, birth control, and pumping (45%)</li> <li>ii. Domperidone and pumping (12%)</li> <li>iii. Domperidone and supplemental nursing system (12%)</li> </ul>
Patel et al. (2013)	Original paper (Quantitative design) 220 informants	India	Back massage was effective in improving lactation in all the parameters assessed from the baby's well-being, which was significantly progressive in the study group in comparison to the control group.

Many technical factors should be considered in induced lactation programs, due to variations in the adoptive mothers' religious and ethnic backgrounds, health status, and financial and environmental challenges (Auerbach and Avery, 1981; Abejide *et al.*, 1997; Cheales-Siebenaler, 1999; Wittig and Spatz, 2008; Goldfarb, 2010; Patel and Ds, 2013; Rahim *et al.*, 2017). Figure 2.2 presents a summary of the technical factors that enable a woman to induce lactation.