# Exploring Skin-to-Skin Contact Practices After Vaginal Birth in Saudi Arabia: A Mixed Method Study

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# Table of contents

ABSTRACT	iv
STATEMENT OF AUTHORSHIP	v
COLLABORATION STATEMENT	v
ETHICS STATEMENT	vi
PUBLISHED PAPERS INCLUDED IN THIS THESIS	vi
DISSEMINATION OF STUDY FINDINGS	vii
ACKNOWLEDGEMENTS	ix
DEDICATION	xi
PROLOGUE	vii
ABBREVIATIONS	viii
	wit
	XIV
CHAPTER ONE: INTRODUCTION	1
What is skin-to-skin contact?	2
Why is skin-to-skin contact important?	4
Conclusion	9
CHAPTER TWO: CURRENT PRACTICES OF SKIN-TO-SKIN CONTACT AFTER VAGINAL BIRTH	10
Publication: Worldwide prevalence of mother-infant skin-to-skin contact after vaginal birth: A systematic review (Study I)	11
Skin-to-skin contact practices after vaginal birth	
Health care providers' views about immediate skin-to-skin contact	
Mothers' or parents' views of skin-to-skin contact after vaginal birth	
The research gap	
Conclusion	
CHAPTER THREE: STUDY CONTEXT	48
The Kingdom of Saudi Arabia	48
The health care system in Saudi Arabia	48
The maternity health care system in Saudi Arabia	
Skin-to-skin contact and breastfeeding in Saudi Arabia	52
Conclusion	
CHAPTER FOUR: PURPOSE AND AIM	55
CHAPTER FIVE: THEORETICAL FRAMEWORK	56
An overview of the theoretical frameworks	56
Conclusion	61
CHAPTER SIX: METHODOLOGY	63
An overview of mixed methods design	63

	A convergent parallel design to explore the practice of SSC in Saudi Arabia	64
	Overview of study aims, subjects and methods	67
	Research setting	68
	An observational study of SSC in the first hour of life (Study II)	68
	Health care providers' perceived barriers and facilitators to the implementation of SSC (Study III	!) 74
	Mothers' perceptions and experiences of skin-to skin contact after vaginal birth in Saudi Arabia: cross-sectional study (Study IV)	A 76
	Ethical consideration	78
	Reflexivity	81
	Conclusion	82
CI IN	HAPTER SEVEN: THE CURRENT PRACTICES OF SKIN-TO-SKIN CONT N JEDDAH, SAUDI ARABIA (STUDY II)	'ACT 83
	Publication: Observational study found that skin-to-skin contact was not common after vaginal by Saudi Arabia (Study II)	irth in 83
CI FA SA	HAPTER EIGHT: HEALTH CARE PROVIDERS' PERCEIVED ACILITATORS AND BARRIERS OF SKIN-TO-SKIN CONTACT IN JEDDA AUDI ARABIA (STUDY III)	.H, 107
	Publication: Health care providers' perception of facilitators and barriers for the practice of skin skin contact in Saudi Arabia: A qualitative study (Study III)	1-to- 107
C A	HAPTER NINE: MOTHERS' PERCEPTIONS OF SKIN-TO-SKIN CONTAC FTER VAGINAL BIRTH (STUDY IV)	'Т 118
	Submitted for publication: Mothers' perceptions and experiences of skin-to skin contact after vag birth in Saudi Arabia: A cross- sectional study	inal 118
C	HAPTER TEN: DISCUSSION AND CONCLUSIONS	147
	Publication: It's time for global action to reinforce mother-infant skin-to- skin contact policy (Let Editor)	ter to 147
	Research findings	150
	What happens in the first hour after vaginal birth?	151
	Facilitators, barriers, and implications of immediate skin-to-skin contact after vaginal birth	156
	The organisational challenges	159
	Strategies to implement skin-to-skin contact for healthy newborn infants after vaginal birth	161
	Strengths and limitations	168
	Recommendations	171
	Conclusion	173
El	PILOGUE	175
A	PPENDICES	177
R1	EFERENCES	
- 41		/ 0

# List of Figures

Figure 1. Infographic of breastfeeding and skin-to-skin contact during COVID-19, s	ource
(World Health Organization (WHO), 2020b)	14
Figure 2 A map of the Kingdom of Saudi Arabia, source (Map open source )	29
Figure 3 A framework to implement the practice of SSC after vaginal birth guided b	y the
COM-B theory (Michie et al., 2014)	81

# List of Tables

Table 1 Ten Steps to Successful Breastfeeding, World Health Organization, 2018*	.2
Table 2 Definitions of the nine instinctive behaviour stages*	.5
Table 3 Summary of facilitators, barriers and requirement of practising skin-to-skin	
contact after vaginal birth, studies alphabetically ordered1	9

# ABSTRACT

**Background**: The World Health Organization (WHO) recommends the practice of immediate continuous and uninterrupted Skin-to-Skin Contact (SSC) after birth for its physiological, psychological and social benefits. However, separation of mothers and infants seems to be common practice in many hospitals. In Saudi Arabia, rates of SSC have not been reported. The aim of this thesis was to explore the policies, practices, and health care providers' and mothers' perceptions of SSC after vaginal birth for healthy term newborn infants in two major hospitals in Jeddah, Saudi Arabia.

**Methods**: A mixed methods design was employed, comprising four studies based on a range of data sources. Study I, a systematic review of the prevalence of SSC worldwide; Study II, an evaluation of the current practices of SSC by observing 22 mother-infant dyads after birth; Study III, face-to-face interviews with Health Care Providers (HCPs) (obstetricians, midwives and nurses ), investigating barriers and enablers of SSC with 20 obstetricians, midwives and nurses; and Study IV, a survey exploring the perceptions about SSC with 254 mothers.

**Findings**: The practice of SSC (Study I) varied among the 35 studies representing 28 countries, with no evidence from Saudi Arabia. The observational study (II) found only two mother-infant dyads (9%) had direct SSC, while the majority had the baby placed on their chest/abdomen with a sheet/gown between them (72%). Likewise, the survey data (IV) found 15% had direct SSC and a further 54% had a sheet/gown under the baby. Barriers faced by HCPs to SSC (III) included lack of skills and motivation to implement SSC, time constraints, and a medicalised birth environment. Analysis of the mothers' survey (IV) and HCPs' interviews (III) demonstrated that while mothers held favorable perceptions towards SSC, clinicians were out of step with mothers' desire.

**Conclusion**: The insights gained from this study will enhance the implementation of immediate, continuous and uninterrupted SSC after birth in Saudi Arabia.

# **STATEMENT OF AUTHORSHIP**

Except where reference is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis accepted for the award of any other degree or diploma. No other person's work has been used without due acknowledgement in the main text of the thesis. This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.

Nawal Abdulghani: Nawa A

Date: 21/07/2020

# **COLLABORATION STATEMENT**

All work in this thesis was undertaken by myself, under the guidance of my supervisors,

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This thesis is presented as a thesis with publication, consisting of ten chapters, and incorporating five papers. I am the primary author of all of them. I have made a substantial contribution to all papers, including the development, design, piloting and finalising of data collection tools, data collection, analysis and translation and interpretation throughout the studies. Co-authors on the papers include my three supervisors; all have contributed to the overall study design, intellectual input, drafting and editing of all manuscripts.

# **ETHICS STATEMENT**

All research procedures reported in the thesis were approved by La Trobe Human Research Ethics Committee approval (HEC17-006) on 4 April 2017 and Saudi Arabia Ethics Committee of Directorate of Health Affairs Jeddah (A00461) on 24 April 2017 (See Appendix 1.a &1.b)

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**Abdulghani, N**., Amir, L. H., & Edvardsson, K. (2020). Observational study found that skin-to-skin contact was not common after vaginal birth in Saudi Arabia. *Acta Paediatrica*. doi:10.1111/apa.15232 (See Appendix 2)

**Abdulghani, N**., Edvardsson, K., & Amir, L. H. (2020). Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: A qualitative study. *Midwifery*, 81, 102577. doi:https://doi.org/10.1016/j.midw.2019.102577

**Abdulghani, N**., Amir, L. H., Edvardsson, K., & Cooklin, A. (2020). It's time for global action to reinforce mother-infant skin-to-skin contact policy. *Acta Paediatrica*. doi:10.1111/apa.15369

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# **DISSEMINATION OF STUDY FINDINGS**

# **Oral presentations**

**Abdulghani N**, Edvardsson K, & Amir L H. The prevalence of skin-to-skin contact after normal birth worldwide: A systematic review. Oral presentation, Lactation Consultant Australian and New Zealand Conference (LCANZ), Adelaide, Australia, 5-6 October 2018.

**Abdulghani N**, Amir L H, Edvardsson K & Cooklin A. Current practices and policies of skin-to-skin contact after normal birth in Saudi Arabia. Oral presentation. World Breastfeeding Week Twilight Seminar at the Royal Women's Hospital, Melbourne Australia, 7 August 2019. (Invited speaker)

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**Abdulghani N,** Amir L H, Edvardsson K, Cooklin A. The contemporary practices of skin-to-skin contact after vaginal birth in Jeddah, Saudi Arabia: A mixed methods study. Accepted for oral presentation and workshop, The International Conference on the Theory and Practice of Human Lactation Research and Breastfeeding Management, Deerfield Beach, Florida, USA, January 2021 (Planned, accepted for oral presentation)

# **Poster presentation**

**Abdulghani N**, Amir L H, Edvardsson K. An observational study of skin-to-skin practices in the first hour of life in Saudi Arabia. Poster presentation, Lactation Consultant Australian and New Zealand Conference (LCANZ) Adelaide, Australia, 5-6 October 2018. (see Appendix 3.a)

**Abdulghani N**, Edvardsson K, Amir L H. The prevalence of skin-to-skin contact after normal birth worldwide: A systematic review. Poster presentation, 23rd Perinatal Society of Australia & New Zealand Conference (PSANZ), Gold Coast, Australia, 18-20 March 2019. (Appendix 3.b) **Abdulghani N.**, Amir L H, Edvardsson K. An observational study of skin-to-skin practices in the first hour of life in Saudi Arabia. Poster presentation, 23rd Perinatal Society of Australia & New Zealand Conference (PSANZ), Gold Coast, Australia, 18-20 March 2019.

# **Published conference abstract**

**Abdulghani, N**., Edvardsson, K., & Amir, L. H. (2019). Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: a qualitative study. *Women and Birth*, 32, S22. doi:10.1016/j.wombi.2019.07.213

# **Other presentations**

**Abdulghani N**, Amir L H, Edvardsson K. & Cooklin A. Current practices and policies of skin-to-skin contact after normal birth in Saudi Arabia. Oral presentation. JLC lunch time seminar, Latrobe University, Melbourne, Australia, 5 June 2019.

**Abdulghani** N. One-minute presentation with 21 PhD students interviewed on Triple R radio station's program Einstein A Go-Go, Melbourne, Australia, 8 December 2019.

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# **DEDICATION**

This thesis is dedicated to the following people who influenced and shaped my life tremendously:

To my father

# Gamel Abdulghani (rest in peace)

for his soul and memory, even though he is not with me to witness this accomplishment, he is always in my heart and genuinely in my prayers.

# To my mother

# Hayat Al Khayyat

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And to my husband and children

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# PROLOGUE

As the mother of three beautiful children (Naif, Nouran and Rawan), the birth experience was different each time. One of the moments, which I still remember vividly when I had my daughter Nouran (second child, born September 4, 2014) with emergency caesarean section birth after trying VBAC (Vaginal Birth After Caesarean). I was lucky enough to hold Nouran for 10 minutes, kissed her and took a family photo. After that Nouran stayed with her dad for three hours and I was alone, I felt that something is missing! While waiting in the recovery room to be transferred to the postpartum ward.

The first night with Nouran was hard, she was crying and despite many attempts to feed her, she was unsettled. I was extremely tired and did not know what to do. It was even harder with no support around me. When I could not find any way to comfort her, I took Nouran from the cot undressed her, and placed her on my chest. That moment was really magical because she started to settle down and personally I felt amazing and calmed down too, especially when I can listen to her heart beats, smell and feel her tiny fingers touching my breasts. Truly, it was a great experience. Since then, I was keen to have skin-to-skin contact (SSC) with Nouran every time I fed her.

My passion about SSC did not end with my personal story, it extended to my academic role as a lecturer at the Nursing Faculty in Umm Al-Qura University, Makkah, Saudi Arabia. When I was teaching undergraduate students Maternity and Child Health subject from 2012 to 2015 my role involved supervising undergraduate nursing students on their clinical placements at the birth unit in Maternity Hospital in Makkah. I observed that newborn infants were routinely separated from their mothers and placed under the warmer to receive care including oral and nasal suction, Vitamin K injection and weighing. I was very sad and disappointed to see the babies separated from their mothers and missing that amazing experience of SSC.

My personal and academic experience was the motivation to pursue my study and toknow more about the practices of SSC. I wanted to understand why mothers and babies were separated after birth and how mothers felt about that. Therefore, I decided for my PhD topic to explore the practices of SSC in Saudi Arabia.

# **ABBREVIATIONS**

AAP	American Academy of Pediatrics
ABM	Academy of Breastfeeding Medicine
AC	Amanda Cooklin
AWHONN	Association for Women's Health, Obstetric and Neonatal Nurses
BCW	Behaviour Change Wheel
BFHI	Baby-Friendly Hospital Initiative
COVID-19	Coronavirus Disease
EFCNI	European Standards of Care for Newborn Health Initiative
FGD	Focus Group Discussion
HCPs	Health Care Providers
JBI	Joanna Briggs Institute
KE	Kristina Edvardsson
КМС	Kangaroo Mother Care
KSA	Kingdom of Saudi Arabia
LA	Lisa Amir
МОН	Ministry of Health
NA	Nawal Abdulghani
NICU	Neonatal Intensive Care Unit
РНСС	Primary Health Care Centers
SSC	Skin-to-Skin Contact
RCT	Randomised Controlled Trial
UNICEF	United Nations International Children's Fund
WHO	World Health Organization

# PREFACE

This thesis is an exploration of the practices of Skin-to-Skin Contact (SSC) after vaginal birth in Saudi Arabia. It includes four published papers and a fifth, submitted for publication, has been incorporated into the thesis along with framing chapters. Chapter One provides an introduction to the definition of SSC and the importance of SSC for both mothers and infants. Chapter Two presents a published systematic review (Study I) titled Worldwide prevalence of mother-infant skin-to-skin contact after vaginal birth: A systematic review, an overview of current studies focused on health care providers' and mothers' perceptions of SSC and summarises the research the gap. Chapter Three provides a description of the context of Saudi Arabia and discusses studies that have reported the practice of SSC and breastfeeding in Saudi Arabia. Chapter Four presents the study purpose and aim, and **Chapter Five** provides an overview of the Behaviour Change Wheel that has been used to guide the interview questions and the overall integration and discussion of the thesis findings. Chapter Six presents the methodology of this thesis. Chapter Seven presents the findings of the observational study of the first hour after birth in the two major hospitals in Jeddah Saudi Arabia (Study II), published as a peer reviewed short report titled Observational study found skin-to-skin contact was not common after vaginal birth in Saudi Arabia, as well the original manuscript submitted to Acta Paediatrica. Chapter Eight presents the published qualitative paper that identified Health Care Providers (HCPs) barriers and enablers of SSC titled Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: A qualitative study. Chapter Nine present the findings of the mothers' survey about their perceptions and experiences of SSC, titled Mothers' perceptions and experiences of skin-to skin contact after vaginal birth in Saudi Arabia: A cross-sectional study, which has been submitted for publication. Chapter Ten incorporates a published letter to the Editor titled It's time for global action to reinforce mother-infant skin-to-skin contact policy, and presents the integration of the key finding from the four studies which aligned with the Behaviour Change Wheel framework to suggest strategies that may influence the implementation of SSC the study finding for future studies.

# **CHAPTER ONE: INTRODUCTION**

"Immediate and uninterrupted skin-to-skin contact and initiation of breastfeeding within the first hour after birth are important for the establishment of breastfeeding, and for neonatal and child survival and development"

World Health Organization [WHO], 2018, p.8

Placing the newborn infant in Skin-to-Skin Contact (SSC) with the mother is a priority for mother-infant dyads immediately after birth. The first hour after birth is a crucial time for mother-infant dyads and it is the best time to start breastfeeding and establish a strong relationship between them. The World Health Organization (WHO) and the United Nations International Children's Fund (UNICEF) recommend the practice of SSC immediately after birth regardless of the birth type (World Health Organization [WHO], 2018). Despite this recommendation, separation commonly occurs after vaginal birth and the newborn is removed from their mother and placed under the radiator warmer for routine care. Separation between mother and infant during the first hours after birth disturbs the natural progress that newborn infants make when transitioning to extrauterine life (Buckley, 2015; Widström, Brimdyr, Svensson, Cadwell, & Nissen, 2019).

In Saudi Arabia, there is a paucity of studies about hospital practices after birth, particularly the practice of SSC. Altaweli, McCourt, and Baron (2014) conducted a study in Jeddah, Saudi Arabia to explore the evidence-based practices after birth. Altaweli et al. (2014) interviewed stakeholders in the maternity ward at nine hospitals. Eight out of nine hospitals reported practicing early skin-to-skin between mother and newborn infant (Altaweli et al., 2014). However, this finding reported the practice at the administrative level and does not reflect actual practice. From my clinical experience supervising nursing students in the birth unit in Saudi Arabia, I observed that newborn infants were separated from their mothers and placed under the radiator warmer to receive immediate care including oral and nasal suction, Vitamin K injection and weighing the baby. Thus, the overall aim for the study was to determine the prevalence of SSC worldwide and to explore the current practices of skin-to-skin contact immediately after vaginal birth for healthy term newborn infants in the two largest public hospitals in Jeddah, Saudi Arabia. To address the aim of this doctoral thesis we conducted four sub studies; (i) A systematic review of the prevalence of SSC worldwide, (ii) an observational study of mother-infant dyads investigating the current

practices and policies of SSC during the first hour after vaginal birth; and (iii) interviews with health care providers to identify barriers and enablers to implementing SSC in the two hospitals in Jedda, Saudi Arabia; (iv) a descriptive cross-sectional study of mothers on the postnatal ward. Mothers provided survey data (quantitative) and open-ended data (self-reported qualitative comments).

In this chapter I begin with the definition of SSC and explains why SSC after birth is recommended worldwide as the best evidence-based practice.

# What is skin-to-skin contact?

When the Baby-Friendly Hospital Initiative (BFHI) was established by UNICEF and the WHO in 1989, the practice of SSC was recommended as part of the *Ten Steps to Successful Breastfeeding*. The Ten Steps to Successful Breastfeeding are a summary of policies and procedures designed to assist health care providers to implement breastfeeding as the norm and provide services to encourage mothers and their newborn infants to breastfeed. Step Four aims to facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth (World Health Organization [WHO], 2018). The Ten Steps to Successful Breastfeeding (World Health Organization [WHO], 2018) are outlined in Table 1.

The	The Ten Steps to Successful Breastfeeding							
Crit	Critical management procedures							
1	a) Comply fully with the International Code of Marketing of Breast-milk Substitutes							
	and relevant World Health Assembly resolutions.							
	b) Have a written infant feeding policy that is routinely communicated to staff and							
	parents.							
	c) Establish ongoing monitoring and data-management systems.							
	d) Ensure that staff have sufficient knowledge, competence and skills to support							
	breastfeeding.							
2.	Ensure that staff have sufficient knowledge, competence and skills to support							
	breastfeeding.							
Key	clinical practices							
3	Discuss the importance and management of breastfeeding with pregnant women and their							
	families.							
4	Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to							
	initiate breastfeeding as soon as possible after birth.							
5	Support mothers to initiate and maintain breastfeeding and manage common difficulties.							
6	Do not provide breastfed newborns any food or fluids other than breast milk, unless							
	medically indicated.							
7	Enable mothers and their infants to remain together and to practise rooming-in 24 hours a							
	day.							
8	Support mothers to recognize and respond to their infants' cues for feeding.							
9	Counsel mothers on the use and risks of feeding bottles, teats and pacifiers.							
10	Coordinate discharge so that parents and their infants have timely access to ongoing							
	support and care.							

\*(World Health Organization [WHO], 2018, p. 15)

When the WHO revised the guidelines in 2018, a definition was introduced to explain what they mean by SSC:

"An infant is placed prone on the mother's abdomen or chest with no clothing separating them. It is recommended that skin-to-skin contact begins immediately, regardless of method of delivery. It should be uninterrupted for at least 60 minutes" (World Health Organization [WHO], 2018, p. 23). The term "skin-to-skin contact" is commonly used in the literature; however, in some countries like the United States, the term "Kangaroo Mother Care (KMC)" is often referred to as prolonged skin-to-skin contact with the mother, father and other family members such siblings and grandparents with full-term, preterm and low-birth-weight babies (Abeling & Thacker, 2013; Almutairi & Ludington-Hoe, 2016; Ludington-Hoe, 2011). Whereas, other authors use KMC only in regard to preterm/low-birth-weight infants (Nyqvist, Anderson, Bergman, Cattaneo, Charpak, Davanzo, Ewald, Ibe, et al., 2010; Nyqvist, Anderson, Bergman, Cattaneo, Charpak, Davanzo, Ewald, Ludington-Hoe, et al., 2010). The latest WHO guideline explains that KMC involves "early, continuous, and prolonged skin-to-skin contact between the mother and the baby, and should be used as the main mode of care as soon as the baby is stable (defined as the absence of severe apnoea, desaturation and bradycardia), owing to demonstrated benefits in terms of survival, thermal protection and initiation of breastfeeding" (World Health Organization [WHO], 2018, p. 23).

Breast crawl is another term used in the immediate period after birth. It was first described in Sweden in 1987 by Ann-Marie Widström and colleagues as an instinctive postpartum newborn behaviour. When newborn infants are left undisturbed and skin-to-skin on their mother's trunk following delivery, they move toward the mother's breast for the purpose of location and self-attaching for the first feed (Widström et al., 1987). It was further described and explored by other authors (Gangal, Bhagat, Prabhu, & Nair, 2007; Henderson, 2011; Klaus, 1998; Varendi, Porter, & Winberg, 1994). Heidarzadeh, Hakimi, Habibelahi, Mohammadi, and Shahrak (2016) conducted a study in Iran to compare the 'breast crawl' ability in infants born by vaginal birth with those born by caesarean section. They found infants born vaginally had significantly more success in breast crawl than those born by caesarean section (Heidarzadeh et al., 2016).

In this doctoral thesis, the term SSC is used as defined by the WHO (World Health Organization [WHO], 2018). In the next section, I will explain SSC physiology and benefits for both mothers and newborn infants.

# Why is skin-to-skin contact important?

Immediate, continuous and uninterrupted SSC offers many physical, psychological and behavioural benefits for infants and their mothers (Haxton, Doering, Gingras, & Kelly, 2012; Moore, Bergman, Anderson, & Medley, 2016). Therefore, it is important to

understand how SSC works and what benefits mothers and newborn infant gain from it.

# Skin-to-skin contact physiology

During labour, many physiological and psychological changes occur in both the mother's and infant's bodies. The pituitary gland releases oxytocin into the blood stream, reaching the uterus where it promotes contraction. The strong contractions guide the baby to descend into the mother's pelvis (Myles & Fraser, 2003). When the baby is born, the mother's body releases high levels of oxytocin to assist the uterine contraction which in turn facilitates placental discharge and reduces bleeding (Buckley, 2009; Uvnas-Moberg & Eriksson, 1996; Widström et al., 1987). The oxytocin hormone also reduces stress by centrally activating the parasympathetic nervous system, which promote calmness, bonding, and connection with the baby (Buckley, 2015). The increase of the oxytocin, catecholamine and endorphins stimulate prolactin elevation (Jonas & Woodside, 2016). The increase in prolactin with frequent breastfeeding promotes formation of prolactin receptors in the breast which aid the ongoing milk production (Buckley, 2015; Jonas & Woodside, 2016; Uvnas-Moberg & Eriksson, 1996).

When the naked baby is placed on the mother's bare chest or abdomen immediately after birth the newborn infant progresses through nine instinctive stages aided by the mothers' high oxytocin level, the newborn infant's high catecholamine level and the natural odors from the nipple and areola that attracts the baby to reach and suck the nipple (Uvnas-Moberg & Eriksson, 1996; Varendi et al., 1994). According to Widström and colleagues, every full-term newborn born vaginally progresses through nine instinctive behaviour stages including birth cry, relaxation, awaking, activity, rest, crawling, familiarisation, suckling and sleeping (Widström et al., 2011). Details of the nine instinctive stages are presented in Table 2. A recent study compared Widström's nine stages with data from four countries: Japan, Italy, Sweden and the United States of America (Brimdyr et al., 2020). The authors found that all newborns began with birth cry and then progressed through the other stages and they designed a charting process to guide future studies (Brimdyr et al., 2020). The authors recommended that health care providers protect the first hour of life by facilitating immediate, continuous and uninterrupted skin-to-skin contact and ensuring safety and time to facilitate these essential newborn behaviour stages (Brimdyr et al., 2020).

Table 2 Definitions of the nine instinctive behaviour stages\*

Stages	Behaviours
1. Birth cry	Intense crying just after birth
2. Relaxation	Infant resting/recovering. No activity of mouth, head, arms, legs or body
3. Awakening	Infant begins to show signs of activity. Small thrusts of head: up, down, from side-to-side. Small movements of limbs and shoulders
4. Activity	Infant moves limbs and head is more determined in movements. Rooting activity, 'pushing' with limbs without shifting body
5. Resting	Infant rests, with some activity, such as mouth activity, sucks on hand
6. Crawling	'Pushing' which results in shifting body
7. Familiarisation	Infant has reached areola/nipple with mouth positioned to brush and lick areola/nipple
8. Suckling	Infant has taken nipple in mouth and commences suckling
9. Sleeping	The baby has closed its eyes

*Table source (Widström et al., 2019)* 

Interruption and separation of mother-infant dyads during the first hour after birth reduces the oxytocin surge which leads to an increase in newborn infant stress and stress hormone (Christensson, Cabrera, Christensson, Uvnäs–Moberg, & Winberg, 1995; Crenshaw, 2014). Elevation of these stress hormones increases the risk of neonatal hypothermia, and inhibits the crawling reflex which potentially reduces the time to effective breastfeeding latch and therefore, reduces the chances of early breastfeeding (Crenshaw, 2014; Uvnas-Moberg & Eriksson, 1996).

The separation distress call occurs when the baby is separated from the mother (Christensson et al., 1995). This phenomenon is among several mammalian species and serves to restore proximity to the mother" (Christensson et al., 1995, p. 486). The science behind separation stress which causes babies to cry is due to the absence of the mother's body and the baby losing sensation of the warmth of the mother's body, which in turn helps control the physiology of the baby (Bergman, 2014).

Understanding SSC physiology in the mother and newborn infant provides strong evidence for the importance of immediate, continuous and uninterrupted skin-to-skin contact. The following section will explain further the benefits and risks of SSC after vaginal birth in full term newborn infants.

## Skin-to-skin contact benefits for mothers

There are many short and long-term benefits of SSC for mothers, some of which I introduced above. SSC may also help reduce women's ratings of pain during the episiotomy procedure and suturing when newborn infants are placed on their mothers' chest (Marin Gabriel et al., 2013; Marin Gabriel et al., 2010; Safari, Saeed, Hasan, & Moghaddam-Banaem, 2018). SSC assists the involution of the uterus, reduces the time taken to expel the placenta and decreases the risk of immediate postpartum haemorrhage (Saxton, Fahy, Rolfe, Skinner, & Hastie, 2015). Mothers who experience SSC have less depression symptoms and stress in the postpartum period (Badr & Zauszniewski, 2017; Bigelow, Power, Maclellan-Peters, Alex, & McDonald, 2012) and fewer women have severity of postpartum blues (Saatsaz et al., 2011). Therefore, SSC is recommended to improve maternal psychological health and wellbeing.

As mentioned earlier, when newborn infants are placed on their mothers' chest, they can crawl to the breast and self-attach (Crenshaw, 2014; Widström et al., 2019). SSC has been shown to improve breastfeeding outcomes such enhanced maternal breastfeeding self-efficacy at birth (Aghdas, Talat, & Sepideh, 2014), increase the proportion of infants initiating breastfeeding in the first hour (Essa & Ismail, 2015; Ghanbari-Homayi et al., 2020; Safari et al., 2018), improve breastfeeding rates during maternity hospitalization (Bramson et al., 2010; Şimşek & Karahan, 2017) enhance success of the first breastfeed and continuation of exclusive breastfeeding till one month of age (Mahmood, Jamal, & Khan, 2011) and three months postpartum (Vila-Candel, Duke, Soriano-Vidal, & Castro-Sanchez, 2018).

Mothers further benefit from immediate SSC in the relationship with their newborn as it is associated with positive mother-infant bonding (Young, 2013). The first hour is considered to be a moment of intense mother or father-infant bonding. SSC has been associated with mothers' positive behaviour (bonding and attaching to their infants) and confidence in caring for their babies (Moore, Anderson, Bergman, & Dowswell, 2012). Bonding is important for the newborn's physical, psychological and emotional development (Johnson, 2013). Bystrova et al. (2009) compared possible long-term effects of practices used in delivery and maternity wards, including practices relating to mother-infant closeness versus

separation. It was found that SSC for 25 to 120 minutes after birth, early suckling, or both were associated with positive mother-infant interaction at 1 year (Bystrova et al., 2009).

Mothers experienced SSC as beneficial, which contributes to positive birth experiences (Calais, Dalbye, Nyqvist, & Berg, 2010; Ghanbari-Homayi et al., 2020). The recent study by Brubaker, Paul, Repke, and Kjerulff (2019) investigated the impact of early maternalnewborn contact on mothers' birth experiences. Interestingly, those mothers who saw, held and fed their newborn sooner after birth had more positive childbirth experiences than those who held the baby after the first hour after birth (Brubaker et al., 2019). New mothers, regardless of birth mode, and mothers who had a caesarean section birth and held the baby SSC within the first five minutes had more positive childbirth experiences (Burbaker et al., 2019). The practice of SSC has been seen as an important hospital routine that promotes mother and parent-infants closeness in the first two hours of birth (Niela-Vilén, Feeley, & Axelin, 2017). Thus, SSC is a simple, useful and cost-free method to enhance maternal and parental birth experience and maternal and infant health.

# Skin-to-skin contact benefits for infants

The benefits of early SSC extend to healthy term infants. A number of studies have been conducted to examine the effect of SSC on healthy mothers and infants (Moore et al., 2016; Widström et al., 2011). The systematic review by Moore et al. (2016) assessed the effects of early SSC on breastfeeding, maternal-infant behaviour, and physiological adaptation in healthy mother-infants dyads and found a significant positive effect of early SSC contact on breastfeeding at four months after birth, an increase in breastfeeding duration and better infant cardio-respiratory stability and blood glucose levels (Moore et al., 2016). Another recent systematic review has also provided evidence of mother-infant SSC after birth as having beneficial effects on breastfeeding and can increase the success rate and duration of the first breastfeeding (Karimi, Sadeghi, Maleki-Saghooni, & Khadivzadeh, 2019).

Full-term newborn infants who are placed skin-to-skin with their mothers immediately after birth make the transition from fetal to newborn life with greater respiratory, temperature, and glucose stability and significantly less crying, which indicates decreased stress (Moore et al., 2016; Safari et al., 2018). SSC immediately after birth supports optimal brain development and facilitates attachment, which promotes the infant's self-regulation over time (Moore et al., 2016; Phillips, 2013; Widström et al., 2011; Widström et al., 1987). Newborn infants who experience SSC are exposed to their mother's microbiota which is important for their developing immune system (Ho et al., 2018; Yang et al., 2016). A trial has shown that SSC could be a simple and safe method for treating colicky infants (Saeidi, Abadi, Saeidi, & Robatsangi, 2014). SSC helps reduce the feeling of pain during invasive procedures (Aydin, Sahiner, & Ciftci, 2017; Johnston et al., 2017). A study derived from Colombia also found that SSC is a prevention strategy to reduce newborn infant risk of hospital admission within the first few hours of life (Agudelo et al., 2020).

# Risks of skin-to-skin contact

There are potential risks of SSC which need to be considered. The risk of unexpected infant postnatal collapse during SSC is low but may lead to adverse effects such as sudden death or neuro-disability (Andres, Garcia, Rimet, Nicaise, & Simeoni, 2011; Becher, Bhushan, & Lyon, 2012; Fleming, 2012; Thompson, Matyas, Abate, & Goffredo, 2015). Unexpected postnatal collapse is an episode of accidental asphyxia (Fleming, 2012). The estimated incidence of unexpected postnatal collapse is reported in three countries: Germany, France and the United Kingdom with 2.6, 3.2 and 5 cases per 100 000 births, respectively (Fleming, 2012). Therefore, it is important to ensure that infants are carefully observed by health professionals during SSC immediately post-birth (Thompson et al., 2015). Unexpected postnatal collapse is mostly seen in infants of primiparous mothers who are unobserved by medical or nursing staff during SSC or in situation where mothers have received sedative medication (Becher et al., 2012).

# Conclusion

In this chapter, I provided definitions of SSC and other similar practices, detailed why SSC is important and emphasised the advantages and disadvantages of SSC for both the mothers and newborn infants. The next chapter will present the current rates of SSC worldwide and common barriers to implementing the practice of SSC.

# CHAPTER TWO: CURRENT PRACTICES OF SKIN-TO-SKIN CONTACT AFTER VAGINAL BIRTH

"This unique time for both mother and infant, individually and in relation to each other, provides vital advantages to short- and long-term health, regulation and bonding. However, worldwide, clinical practice lags"

Widström et al. 2019, p.1

After learning about all the benefits of Skin-to-Skin Contact (SSC), I wanted to know how common it is around the world and if the practice has changed over the last 10 years. I found no reports of how soon after birth mother-infant dyads experienced SSC and how long they stayed together. In order to answer all these questions, I conducted a systematic review of the prevalence of SSC after vaginal birth worldwide. The systematic review included 35 research studies, with a total sample of 400,000 women from 28 low, middle, and high-income countries (Abdulghani, Edvardsson, & Amir, 2018). In this systematic review, articles published from January 1, 2007 to October 20, 2017 were reviewed and assessed for eligibility. The systematic review, published in *PLoS ONE*, is included in this chapter (Abdulghani et al., 2018).

In addition, this chapter describes the landscape of SSC policy, including policies from around the world and recent guidelines at the time of the COVID-19 pandemic. Then, I turn to views about SSC, firstly, health care providers' views about the practices of SSC, followed by maternal or parental perceptions about the practice of SSC. Then studies which have evaluated the implementation and application of the SSC after vaginal birth are described. At the end of the chapter, I conclude with current research gaps in this area. This chapter only includes studies about the practice of SSC after vaginal birth for full-term newborn infants. Other studies about the practice of SSC after caesarean section birth and for preterm or low birth weight babies were out of the scope of this review. For example, if studies explored the practice of SSC after both vaginal and caesarean section birth, the findings about vaginal birth only are discussed in this chapter.

# Publication: Worldwide prevalence of mother-infant skin-to-skin contact after vaginal birth: A systematic review (Study I)

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**RESEARCH ARTICLE** 

# Worldwide prevalence of mother-infant skinto-skin contact after vaginal birth: A systematic review

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# Abstract

# Background

Despite the World Health Organization's (WHO) recommendation for immediate skin-toskin contact (SSC) after birth, separation of mothers and infants seems to be common practice in many hospitals. It is unknown how common the practice of SSC is worldwide. Therefore, we aimed to determine the reported prevalence of SSC for healthy mothers and infants immediately after normal birth.

# Methods

We systematically searched CINAHL, Medline, ProQuest Central, PubMed and the Cochrane Library for articles published between January 2007 and October 2017 using the keywords "kangaroo care" or "skin to skin contact" or "breastfeeding initiation" or "breast crawl" or "maternal infant contact" or "maternal newborn contact" or "baby friendly hospital initiative" or "ten steps for successful breastfeeding".

# Results

After an initial screening of 5266 records, 84 full text articles were assessed for eligibility, and 35 of these met the inclusion criteria. The studies were from 28 countries representing all six WHO world regions. There was a wide range in the practice of SSC for mother-infant dyads around the world: from 1% to 98%. Only 15 studies clearly defined SSC. Most of the studies were from high-income countries, and these reported higher rates of SSC than studies from low and middle-income countries.

# Conclusion

There was a great heterogeneity in the definition of SSC as well as study designs, which makes cross-county comparison difficult. National studies reporting SSC rates are lacking. Future studies and guidelines to enhance SSC practice should include a standardised set of indicators and measurement tools that document SSC starting time and duration of SSC.

# Introduction

Skin-to-skin contact (SSC) is defined as placing the naked baby on the mother's bare abdomen or chest immediately or less than 10 minutes after birth or soon afterwards [1]. The World Health Organization (WHO) recommends the practice of SSC for at least one hour after birth, and health care providers should encourage women to recognise when their babies are ready to breastfeed and offer help if needed [1]. Evidence about the benefits of SSC have been compiled for a Cochrane Review and meta-analysis, and these indicate that mothers who had SSC were more likely to be breastfeeding at one to four months after birth, had longer breastfeeding, exclusively breastfeed from hospital discharge to six months after birth and infants who received SSC had higher stability of the cardio-respiratory system, and higher blood glucose levels [2]. Furthermore, protocols and position statements from the Academy of Breastfeeding Medicine (ABM) [3], American Academy of Pediatrics (AAP) [4] and Association for Women's Health, Obstetric and Neonatal Nurses (AWHONN) [5], WHO and United Nations International Children's Emergency Fund (UNICEF) [6] clearly support SSC practices. However, there are no agreed set of standardised universal practice guidelines for SSC care at present.

Despite recommendation for immediate, continuous and uninterrupted SSC, separation of mothers and infants is common in many hospitals and infants are often placed in cots or under warmers [7]. It is not known how common the practice of SSC is worldwide. Therefore, it is timely to identify the prevalence of SSC for mothers and newborn infants. The aim of this review is to systematically describe the reported prevalence of SSC for healthy mothers and infants immediately after vaginal birth, from data published between 2007 and 2017 worldwide, in order to estimate the current practice of SSC.

## **Methods**

## Inclusion and exclusion criteria

Pre-defined inclusion and exclusion criteria were set for the review, including type of participants, type of publication and study designs, and context of studies. The inclusion criteria were:

# Type of participants.

- Adult women aged 18 years.
- Normal birth including instrumental assisted birth.
- Healthy pregnancy.
- Full-term newborn infant.
- Healthy baby not requiring any resuscitation or transfer to Neonatal Intensive Care Unit (NICU).

#### Type of publication and study design.

- Original research: Randomised Control Trial (RCT) (only participants in the control group were included), cohort studies, observational and cross-sectional studies.
- Publication date between January 2007 and October 2017.
- Peer-reviewed journal.
- Published in any language.
- Sample size > 100 participants.

#### Context.

• Worldwide.

The exclusion criteria were:

## Type of participants.

- Studies focused on women with medical complication such as diabetes, high blood pressure, or HIV/AIDS.
- Multiple gestation.
- Subgroups of the population not representative of the general population at large, for example, adolescent mothers or particular ethnic groups.
- Preterm babies born before 37 completed weeks of gestation.
- Low-birth-weight baby less than 2500 grams.
- Babies with deformity or health conditions required admission to NICU.

#### Type of publication and study design.

- Review articles.
- · Letters to the editor, conference proceedings, and abstracts.
- Studies measuring SSC from an administrative level.
- Low quality studies according to Joanna Briggs Institute (JBI) assessment of methodological quality checklist [8] with more than three questions rated No or Unclear.

## **Study outcomes**

The primary outcome for this review is the prevalence of skin-to-skin contact for healthy newborn infants > 37 weeks of gestation after normal birth. Secondary outcomes are starting time for SSC and duration of SSC.

#### Search strategy

The following databases were searched: CINAHL, Medline, ProQuest Central, PubMed and the Cochrane Library using the keywords "kangaroo care" or "skin to skin contact" or "breast-feeding initiation" or "breast crawl" or "maternal infant contact" or "maternal newborn contact" or "baby friendly hospital initiative" or "ten steps for successful breastfeeding". A full electronic search strategy for the CINAHL database is presented in (<u>S1 Table</u>). Articles published from January 1, 2007 to October 20, 2017 were reviewed and assessed for eligibility. This time frame was selected to estimate the current reported prevalence of SSC worldwide. The PRISMA-P 2015 protocol for systematic reviews and meta-analyses was used to guide this review (<u>Fig 1</u>) [9].

#### Search outcomes

As shown in the PRISMA flowchart (Fig 1), the literature search resulted in a total of 5266 records. After removal of duplicates, 2267 records remained. Following screening of titles and abstracts, a total of 84 full articles were assessed further for eligibility. Forty-three studies were excluded because the sample size were less than 100, the practice of SSC were reported from



Fig 1. PRISMA flowchart. Lit: Literature review, C/S: Caesarean Section, KC: Kangaroo care, NICU: Neonatal Intensive Care Unit, BFHI: baby friendly hospital initiative, Admin: Administration.

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administrative level or information about SSC were insufficient. After rating the quality of the remaining 41 studies using the JBI assessment of methodological quality checklist tool [8], six

studies were excluded because of insufficient clarity. Thirty-five studies remained and were included in the review.

### Assessment of methodological quality

The JBI critical appraisal checklist was chosen because it is designed to appraise studies reporting prevalence data [8]. The JBI tool consist of ten questions about the study sample adequacy and appropriateness (questions 1, 2, 3 and 4), the validity and reliability of data collection methods (questions 5, 6 and 7), and the analysis of outcome measurement and response rate (questions 8 and 9). The appraisal process was independently undertaken by two reviewers and any disagreement was resolved by a third reviewer. Reviewers looked for the strengths and weaknesses, and validity and biases of each study by answering a standardised 'Yes, No, Unclear or Not applicable'. If any study had more than three No or Unclear responses, the reviewers excluded the study. Forty-one studies were assessed for their quality; six studies were excluded because of lack description of methods or ambiguous data. The quality indicator for the 41 studies are presented in <u>S2</u> <u>Table</u>, Joanna Briggs Institute (JBI) assessment of methodological quality tool check list.

# **Data extraction**

Data abstracted included (1) year of publication; (2) country of study; (3) aim of the study; (4) study design; (5) numbers and characteristics of participants; (6) SSC definition; (7) proportion of SSC; (8) starting time of SSC; (9) and duration of SSC were available. In some studies, the number of and percentage of SSC practice were reported for both vaginal and caesarean section birth combined. The first author therefore contacted the author of each of these studies to request data about vaginal births only. In total, 33 authors were contacted regarding data presented in 30 studies. Three reminders were sent, and if no response was received, the study was excluded if the quality indicator using the JBI critical appraisal checklist tool was not met. The literature search included all languages, and two studies in French and Finnish were included. Accredited translators assisted to translate these two papers.

## Data synthesis

The total population from all 35 studies was 429,222 mothers or hospital records about SSC practice, whether mothers had SSC after normal birth or not. Due to the studies heterogeneity, it was not possible to perform meta-analyses. Narrative synthesis with tabulation of studies and graphical explanation were used to summarise data. The review reports the proportion of SSC immediately after normal birth, and the starting time and duration of SSC where available for research published during the period between 2007 and 2017.

## Results

## Description of the included studies and context

The included studies were diverse in methods and focus. Only three studies focused specifically on SSC practices after birth [10-12]. Six studies focused on breastfeeding and SSC [13-18]. The remaining studies focused on other aspects related to maternal care during and after birth, breastfeeding and evaluation of the Baby Friendly Hospital Initiative (BFHI).

The included studies represented 28 low, middle and high-income countries: Australia (n = 5), Brazil (n = 2), Cambodia (n = 1), Canada (n = 2), Croatia (n = 1), Denmark (n = 1), Ethiopia (n = 1), Finland (n = 1), France (n = 1), India (n = 1), Italy (n = 1), Japan (n = 1), Mexico (n = 1), Nepal (n = 1), New Zealand (n = 1), Philippines (n = 1), Singapore (n = 1), Sri Lanka (n = 1), South Korea (n = 1), Spain (n = 2), Switzerland (n = 1), Taiwan (n = 1),

Tanzania (n = 1), Tunisia (n = 1), United Kingdom (n = 1), United States of America (n = 1), Yemen (n = 1), and a multisite study covered Bangladesh, India, and Nepal.

### **Definition of SSC practice used in the studies**

Although the practice of SSC is defined by the WHO, the definition varied among the included studies. Some studies reported SSC practice without defining it, and only 15 studies defined the practice of SSC. The definitions of SSC reported in the included studies are presented in Table 1. Most of the definitions articulated in included studies were with emphasis on the newborn infant with or without clothes, newborn infant position on the mother's chest or abdomen and duration of infant-mother SSC. Four studies defined SSC as the placing of the naked baby on the mother's chest or abdomen [14, 16, 18, 19], whereas another study allowed the baby to wear cap, diaper and socks [13]. Two studies mentioned in their definition of SSC that both the mother and the infant need to be covered with a warm blanket or dry towel to stabilise the infant [17, 18] Four studies explained in their definitions of SSC, that the newborn infant's position should be placed prone on the mother's bare chest or abdomen [16, 18–20]. Three other studies stated the time that the newborn infant stayed SSC with the mother for 30 minutes [16], first hour [11] or two hours [21].

## Primary outcome: The global prevalence of skin-to-skin care

<u>Table 2</u> presents the 35 included studies arranged according to the six WHO world regions. Our search of the databases revealed that the highest number of studies were from The

Author/s SSC definition			
Andersson et al (2016) [21]	" close contact between the mother and newborn infant established within the first 2 hours after the child born"p.598		
Brodribb et al (2013) [22]	" the first contact"p.686		
Callaghan-Koru et al (2016) [13]	"The baby is naked with the exception of cap, diaper and socks" p.e569		
Chalmers et al (2010) [23]	Mother was naked at first contact with baby" p.47		
Hongo et al (2015) [ <u>19</u> ]	"Mother holding the baby prone against her chest within 5 min of birth, sustaining that position for more than 30 min, and being offered help with breastfeeding by staff" p.1245		
Chiou et al (2014) [ <u>14</u> ]	" baby was put on her chest immediately after a vaginal birth or within 1 hour after a caesarean delivery" p.34		
Fritz et al (2017) [ <u>24</u> ]	" immediate contact between mother and child after birth" p.6		
Haiek (2012) [25]	"Naked baby on mother's naked body" p.896		
Kalmakoff et al (2017) [ <u>26</u> ]	" place the baby skin-to-skin within 5 min of birth for at least one hour" regardless of birth type"p.2		
Kim (2016) [ <u>16</u> ]	"Placing of the naked baby prone on the mother's bare chest within 30 minutes after delivery" p.3		
Lau et al (2017) [ <u>17</u> ]	"Placement of naked infants on mothers' bare skin; the exposed side or back of infants is covered by dry towels or blankets"p.2		
Martinez-Galiano and Delgado Rodriguez (2014) [ <u>11</u> ]	"To place new-born on the mother's lap after delivery for the first hour of life"p.720		
Redshaw et al (2014) [ <u>12</u> ]	"Was your baby straight on your skin and not wrapped, dressed or in a nappy?"p.e179		
Saxton et al (2015) [ <u>18]</u>	"The naked healthy newborn baby is placed prone on the mother's bare abdomen/ chest immediately after birth in a position where the baby has ready access to the maternal nipple. Both mother and baby should be covered with a warmed blanket"p.1111		
Suarez-Cortes et al (2015)[ <u>20</u> ]	"Placement of the infant in the prone position in direct contact with the mother"p.522		

Table 1. Skin-to-skin contact definitions in included studies where defined (alphabetical) by author/s name.

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## Table 2. Summary of included studies categorised by WHO regions.

Continent/	Author/s	Design	Sample	Methods of data collection	Proportion of SSC % (n/N <sup>a</sup> )	Type of birth % (n)		
Country						Vaginal	C- section	
African Region								
Ethiopia	Callaghan-Koru et al (2016) [13]	Intervention study	218 women	Pre-intervention baseline survey, collected between 1–7 months after birth, about SSC, breastfeeding and other newborn care practices	9.2% (20/217)	NG		
Tanzania	Penfold et al (2010) [ <u>42]</u>	CSS & RS	22,243 women <sup>c</sup>	Questionnaire given at home visits, about newborn care practices <sup>DCNS</sup>	Less than 1% (144/22,243) <sup>c</sup>	NG		
Region of Ame	ricas							
Brazil	Bladisserotto et al (2016) [ <u>37]</u>	RS	4,156 women	National survey "Birth in Brazil", electronic survey administered face- to-face to women within the first 24 months	34.1% (1,413/ 4,145)	73.5%) 3,055( Ins.D. 4.2% (173)	22.3% (928)	
Brazil	Moreira et al (2014) [ <u>38]</u>	RS	18,639 women	National survey "Birth in Brazil", electronic survey administered face- to-face to women within the first 24 months	41.9% (3,799/ 9,082)	69.6% (6,324) <sup>c</sup>	72.3% (6,911) °	
Canada	Chalmers et al (2010) [23]	National survey	6,421 women	Computer-assisted telephone interviews between 5–10 months after birth about labor, birth, mother- infant contact, and breastfeeding. experiences	50.2% (2,811/5,600)	73.7% (4,734)	26.2% (1,687)	
Canada	Haiek (2012) [25]	Mixed method	176 women	Telephone interview at an average of two months after birth by using BFHI-40 Assessment Tool	81% (121/150)	100% (150)		
Mexico	Fritz et al (2017) [24]	RCT	641 women	Pre-training program baseline data from birth observations about birth practices	9% (29/323)	100% (323)		
USA.	Bramson et al (2010) [ <u>10]</u>	PR cohort	21,842 women	Survey and interview after birth about SSC and breastfeeding	17.3% (3,749/ 21,842)	69.8%) 15,876 (°		
South-East Asi	a Region	1						
India	Upadhyay et al (2012) [ <u>41]</u>	CSS	415 women	Interview with mothers at 1 to 2 months at home visit about cord care, breastfeeding, thermal care, baby handling and health care seeking	14.5% (60/415)	94.7% (393)		
Nepal	Cederfeldt et al (2016) [44]	CSS	164 women	Self-administered questionnaire completed by mothers after birth at labour ward about intrapartum care	16.5% (27/164)	75% (124)		
Sri Lanka	Senarath et al (2007) [ <u>39]</u>	Interventional study	892 women	Pre-intervention Interview at time of hospital discharge about newborn care practices	50.4% (185/367)			
Nepal Bangladesh and India	Crowe et al (2015) [40]	RCT	8,939 births records from Eastern India (E.I) and 27,553 births records from Bangladesh (B)	Survey after birth about newborn care practices <sup>DCNS</sup>	E.I = 15% (1,341/8,939) B = 30% (8,266/27,553)			
European Regi	on			1				
Croatia	Zakarjia-Grovic et al (2017) [34]	PR, longitudinal study	1,115 women	Survey completed at postnatal ward about BFHI Step 3	97.8% (573/586) <sup>b</sup>	100% (586)		
Denmark	Andersson et al (2016) [21]	Nationwide, RT	269,597 births records	Data from Danish Medical Birth Registry	95.9% (36,046/ 37,584) <sup>b</sup>			

(Continued)

### Table 2. (Continued)

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Continent/	Author/s	Design	Sample	Methods of data collection	Proportion of SSC % (n/N <sup>a</sup> )	Type of birth % (n)	
Country						Vaginal	C- section
Finland	Hakala et al (2017) [ <u>15]</u>	CSS	111 mothers	Questionnaire completed at birth room about SSC	89% (99/111)	100% (111)	
France	Callendret et al (2015) [29]	PR Cohort	993 mother-child pairs	Observation at birth about BFHI practices	64.9% (612/942)	NG	15.4% (151)
Italy	Lauria et al (2016) [ <u>35]</u>	Population based follow-up study	4,500 women	Interviews with women after giving birth about breastfeeding	80.4% (3,620/ 4,500) <sup>b</sup>		
Spain	Martinez-Galiano and Delgado- Rodriguez (2014a) [11]	Observational study	520 primiparous women	Clinical charts data at birth about birth practices	29.1% (113/389) <sup>b</sup>	74.34% (84), Ins.D. 7.08% (8)	18.58% (21)
Spain	Suarez-Cortes et al (2015) [20]	CSS	9,303 births records	Data from hospital records about the current situation of the delivery and birth plan <sup>DCNS</sup>	27.4% (2,549/ 9,303)	73.8% Ins.D. 23.9%	2.3%
Switzerland	Gubler et al (2013) [27]	RS study	1,893 birth records	Data were divided according to three parameters maternal, infant and postpartum. <sup>DCNS</sup>	95.4% (1,806/ 1,893)	53.8% (1019) Ins.D. 11.1% (211)	35% (663)
UK	Macfarlane et al (2014) [ <u>36</u> ]	Intervention study	259 women	Telephone surveys six weeks after birth about mother's experience of midwifery care	64.4% (65/101)	100% (101)	
Eastern Medite	erranean Region	·	·				
Tunisia	Bouanene et al (2010) [ <u>43</u> ]	CSS	354 women	Interviews at six months child vaccination about the knowledge and practices of breastfeeding	63.8% (226/354)		
Yemen	Kemp et al (2010) [45]	Qualitative	220 women	Questionnaire after birth about women's authority at birth.	7.8% (17/220)		
Western Pacifi	c Region	·	·				
Australia QLD	Brodribb et al (2013) [22]	RT Cohort	6,752 women	2010 Having a Baby QLD Survey posted at 4 months postpartum	72.2% (4,874/ 6,752)	65.5% (4,422)	34.5% (2,330)
Australia QLD	Keemer (2013) [ <u>30</u> ]	RS	128 women	Breastfeeding Self-Efficacy Scale- short form (BSES-SF) in day 7 after birth	93% (119/128)	41% (53) Ins.D. 12% (15)	47% (60)
Australia NSW	Ogbo et al (2016) [28]	RS	17,564 birth records	Perinatal data on all live births in 2014	88.3% (11,489/ 13,003)	77.0% (10,017) Ins.D. 11.3% (1472)	11.6% (1514)
Australia QLD	Redshaw et al (2014) [ <u>12]</u>	Secondary analysis of survey	4,574 women	2010 Having a Baby QLD Survey posted at 4 months postpartum	93% (2,979/ 3,189)	100% (3,189)	
Australia NSW	Saxton et al (2015) [18]	RS	7,548 birth records	Audit via the electronic data base ObstetriX	94.5% (7,133/7,548)	77.6% (5,855)	
Cambodia	Sandin-Bojo et al (2012) [ <u>32</u> ]	CSS	177 women	Survey used the Bologna Score collected by midwives after each birth about birth care	74% (107/144)	100% (144)	
Japan	Hongo et al (2015) [19]	CSS	363 breastfeeding mothers	Self- administered questionnaires at infant's 4-month health checkup about mother's breastfeeding satisfaction	20% (71/363)	85% (310)	
New Zealand	Kalmakoff et al (2017) [26]	RS	1,530 birth records	Maternity Plus (2011) electronic data collection system	69.5% (1,063/ 1,530) <sup>b</sup>	70.5% (1,080)	29.4% (450)

(Continued)

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#### Table 2. (Continued)

Continent/ Country	Author/s	Design	Sample	Methods of data collection	Proportion of SSC % (n/N <sup>a</sup> )	Type of birth % (n)	
						Vaginal	C- section
Philippines	Sobel et al (2011) [33]	Observational study	481 mothers-baby pairs	Intrapartum assessment tool about newborn care practices	9.6% (46/481)	76.3% (367) Ins.D. 1.5% (7)	C/S 22.2% (107)
South Korea	Kim (2016) [ <u>16</u> ]	RS	366 women	Medical record audit about factors influenced breastfeeding	76.3% (184/241)	70.9% (171)	
Singapore	Lau et al (2017) [ <u>17</u> ]	CSS	915 women	Structured questionnaire completed in delivery ward to assess intrapartum and SSC in relation to breastfeeding	91.9% (677/737)	80.5% (737)	19.4% (178)
Taiwan	Chiou et al (2014) [14]	National surveys	12,455 women	Telephone interview with women using structured questionnaire at 6 months postpartum about skin-to- skin contact, rooming-in, and breastfeeding:	63.8% (4,995/ 7,828) <sup>b</sup>	63.5% (7,911)	

<sup>a</sup> Denominator is the number of women/records used in our calculation.

<sup>b</sup> Data provided by author/s

<sup>c</sup> Data as presented in the study

DCNS: Data Collection time Not Stated, CSS: Cross-sectional study, NG: Not given, RS: Retrospective study, RCT: Randomised Control Trial, PR: Prospective Study, Ins. D: Instrumental delivery, BFHI: Baby Friendly Hospital Initiative

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Western Pacific Region (n = 12), followed by European Region (n = 9), Region of the Americas (n = 6), South-East Asia Region (n = 4), African Region (n = 2) and Eastern Mediterranean Region (n = 2). It is important to note that the included studies may not be representative of each country. These studies were the most recent resource that reported the practice of SSC. Most of the included studies have indicated that women reported the practice of SSC. Several studies reported data from midwifery/ perinatal registration [11, 16, 18, 20, 21, 26–29].

**Western Pacific Region.** The Western Pacific Region provided most evidence for this review with 12 included studies. These studies varied in both design and location. Five studies were conducted in Australia and one study was conducted each in the following countries: Cambodia, Japan, New Zealand, Philippines, South Korea, Singapore, and Taiwan. In Australia, three studies were conducted in Queensland [12, 22, 30] and two studies in New South Wales [18, 28]. Two of these studies conducted in Queensland used the 2010 Having a Baby in Queensland Survey [31]. The proportion of SSC in Queensland ranged from 72% to 93%, and in New South Wales from 88% to 95%. Therefore, the practice of SSC in these Australian studies was estimated to be between 72% and 95%.

A recent study conducted in Singapore determined that 92% of mothers had immediate SSC after normal birth [17]. In South Korea, a retrospective study reported that 76% mothers experienced SSC for the first 30 minutes after normal and caesarean section births (the normal birth rate was in this study 71%) [16]. A cross-sectional study conducted in Cambodia reported that 74% of mothers had SSC with their infants for at least 30 minutes [32].

In New Zealand, a retrospective study examined 1530 electronic records of healthy term infants and their mothers in 2011 to identify the predictors for supplementation for breastfed babies in a Baby Friendly Hospital. It was found that 69% had SSC after normal birth [26]. A national study conducted in Taiwan involving 12,455 women, examined the practice of early SSC and rooming in and their association with breastfeeding in 2004 and 2011. Data from

2011 was included only because it reflects the most recent prevalence estimate and represents the same population in Taiwan; the rate of SSC after vaginal birth was 64% in that year [14]. The remaining two studies in the Western Pacific Region were conducted in Japan [19], and the Philippines [33], and they reported a low proportion of SSC with 20% among Japanese mothers (reported at four months health checkups), and 10% among mothers in the Philippines.

**European Region.** In Europe, the included studies were conducted in eight countries including Croatia, Denmark, Finland, France, Italy, Spain, Switzerland and the UK. A recent study in Croatia identified hospital practices and breastfeeding rates before and after BFHI implementation [34]. A total of 773 mothers were included in the pre-BFHI group. In this study the data of SSC and vaginal birth data were reported separately [34]. The author of the study provided information following a request from the authors of this review, which indicated that 98% of mothers had SSC after vaginal births among the pre-BFHI group.

A national study in Denmark aimed to measure the quality of care provided during births [21]. Data on women and newborns representing 269,597 births was obtained from the Danish Medical Birth Registry, showing that 96% of women had SSC after normal birth [21]. In a cross-sectional study that described breastfeeding initiation and SSC implementation in eight maternity hospitals in Finland [15], 111 mothers were surveyed about their experience of breastfeeding and SSC. In this study, data of SSC and vaginal birth were reported separately. The authors of the study estimated that SSC among women who had a vaginal birth was 89% [15]. In a population-based study conducted in Italy, 80% of women reported at discharge that they had SSC and initiated breastfeeding within the 1<sup>st</sup> hour postpartum [35].

Even though the sample sizes and contexts of the studies differed, two studies conducted in France and UK reported similar percentage of SSC at 64% [29, 36]. In Switzerland, a study analysed postpartum parameters including time to first SSC, time of first suckling and length of rooming-in [27]. Within the first hour, a total of 95% of mothers experienced SSC [27]. In two Spanish studies where practices after birth were observed [11, 20], the proportion of SSC were similar at 27% and 29%, respectively [11, 20].

**Region of the Americas.** In North America, two studies were conducted in Canada, one in the USA and one in Mexico. A national study in Canada surveyed 5600 women in relation to the development of a computer-based tool that measures policies and practices outlined in the BFHI. Fifty percent of women in this study reported that they had SSC experience in 2010 [23]. The second study from Canada reported a higher percentage of SSC practice at 81% in 2012 [25].

A prospective cohort study was conducted in Southern California, USA, aiming to promote the development of newborns through early mother-infant SSC during the first 3 hours after birth [10]. Of the 70% who had a vaginal birth, only 17% mother-infant dyads had SSC within the first hour, and 60% mother-infant dyads had SSC within three hours [10]. In Mexico, a recent RCT evaluated the impact of simulation and team-training program (PRONTO) on the performance of evidenced-based practice in normal birth [24]. In this RCT, the data collection was undertaken at four time points: at baseline, 4, 8 and 12 months after training. Only baseline data were included in this systematic review. The authors defined SSC as the immediate contact between mother and child after birth, and this practice was only reported to occur in 9% of births [24].

Two studies were conducted in South America, in Brazil, and both studies obtained data from "*Birth in Brazil*", a nationwide hospital-based survey of 23,894 representative mothers and their newborns undertaken in 2011 and 2012 [<u>37</u>, <u>38</u>]. In the study by Bladisserotto et al., SSC immediately after normal birth was reported by 34% mothers [<u>37</u>], and in the study by Moreira et al, by 42% of mothers after birth [<u>38</u>]. Although the data for both studies were from
the same survey, the percentages of SSC were slightly different and so were the sample sizes (4,145 vs. 9,082). The reason behind these differences are likely due to the application of inclusion criteria in the study by Bladisserotto et al., which included postpartum women classified as low risk during pregnancy, who experienced either spontaneous or induced labor and whose birth had occurred in the Southeast region of Brazil [37].

**South-East Asia Region.** In the South-East Asia Region, four studies were conducted in Bangladesh, India, Nepal, and Sri Lanka. The study conducted in Sri Lanka reported the highest rate of SSC in this region at 50% [39]. The study evaluated the effectiveness of a training program aimed at improving the practice of essential newborn care, and half of the women interviewed before the start of the training program reported that they had SSC after birth [39]. A multisite study in Bangladesh, Eastern India and Nepal aimed to understand trends in birth care practices [40]. The practice of SSC was estimated to be 30% in Bangladesh, 15% in Eastern India, and no SSC data was available from Nepal [40]. The proportion of SSC reported in Eastern India [40] was similar to the proportion of SSC reported in another Indian study at 15% [41]. Both studies lacked a clear definition of SSC practice.

African Region. In Africa, two studies included in the review were from Tanzania and Ethiopia. The Tanzanian study had a large sample size of 22,243 women, however, the authors did not provide a definition for the practice of SSC [42]. Less than 1% of Tanzanian women reported SSC [42], the lowest percentage amongst all studies included in this review. The proportion of women in Ethiopia who had SSC after normal birth was also low at 9% [13].

**Eastern Mediterranean Region.** The only countries reported in this review for this region were from Tunisia and Yemen. The authors of a cross-sectional study in Tunisia interviewed 354 women attending primary health centres for their child's 6 months vaccination [43]. More than half of the women interviewed (64%) reported that they had SSC after birth. In Yemen, only 8% of women reported SSC. These studies from Tunisia and Yemen lacked clear definition of SSC and were based on small samples.

#### Secondary outcomes: Starting time of skin-to-skin

The starting time of SSC was documented in 14 studies. <u>Table 3</u> summarises the SSC starting time for these studies. The information is summarised according to Agudelo et al. categorisation of the time of initiation of SSC [46]: "*At birth or immediately*" when contact is made within the first minute of birth; "*Very early*" when contact made within the first 30 to 40 minutes after birth and after the mediate and immediate neonatal adaptation interventions have been carried out; and "*Early*" at any time between the first hour and 24 hours of life [46]. In this review, the "*Very early*" category extended to 60 minutes. The starting time for SSC within the 14 studies ranged from the first minute to 29 minutes. Several studies reported that SSC practice started immediately from the first five minutes [23, 26] or at an average of nine minutes after birth [16]. Most of studies that reported the starting time of SSC also defined SSC and measured SSC immediately or within five minutes. None of the 14 studies indicated that SSC began after the first hour.

#### Secondary outcomes: Duration of skin-to-skin contact

The duration of SSC was documented in only eight of the included studies. Table 4 presents the duration of skin-to-skin contact as reported in these studies. Most of the studies reported that the practice of SSC lasted at least for the first hour. Five studies indicated that the practice of SSC continued for two hours [10, 16, 23, 26, 27], and three studies measured the practice up to three hours after birth [10, 23, 27]. All studies that reported the duration of SSC showed that



	1				
Author/s	Country	Sample N	Immediate within first min	Very early within the first 60 min	Early at any time after 1st hour to 24h
Bramson et al (2010) [ <u>10</u> ]	USA	21,842	4.9%		
Callendret et al (2015) [29]	France	942	64.9%		
Chalmers et al (2010) [ <u>23</u> ]	Canada	5,600	Immediate or within 5 min =	85.7%	
Chiou et al (2014) [ <u>14</u> ]	Taiwan	7,828	63.8%		
Fritz et al (2017) [24]	Mexico	323	8.9%		
Gubler et al (2013) [ <u>27</u> ]	Switzerland	1,893	< 5 min = 58.5%	-	
Haiek (2012) [ <u>25</u> ]	Canada	150		5 min = 99%	
Hakala et al (2017) [ <u>15</u> ]	Finland	111		5–21 min = 62%	
Kalmakoff et al (2017) [ <u>26</u> ]	New Zealand	1,530	< 5 min = 62.8%, > 5 min = 37.2%		
Kim (2016) [ <u>16]</u>	South Korea	241	1–29 min = 76.3%		
Redshow et al (2014) [ <u>12</u> ]	Australia	3,189	< 5 min 95.5%		
Saxton et al (2015) [ <u>18]</u>	Australia	7,548	94.5%		
Senarath et al (2007) [ <u>39</u> ]	Sri Lanka	367	50.4%		
Suarez-Cortes et al (2015) [ <u>20]</u>	Spain	9,303	Immediate 27.4%		

#### Table 3. Timing of starting skin-to-skin contact as reported in included studies (alphabetical) by author/s name.

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the practice of SSC was high immediately after birth and then the percentage gradually reduced except for two studies undertaken in USA and New Zealand. In the American study, 60% of the women reported they had SSC after the first hour to three hours post-birth. Across the eight studies, the duration of SSC practices was reported to be between less than five minutes and three hours.

The global prevalence of SSC based on World Bank classification by country income level is presented in Fig 2, and grouped as following: high-income countries (n = 15), upper-middle income countries (n = 3), low-middle income countries (n = 7) and low-income countries (n = 3). The practice of SSC was relatively high among high-income countries and reached a high of 96% in Denmark [21]. At the same time, high-income countries such as Japan and Spain indicated low levels of SSC practice after normal birth with 20% and 29% respectively [19, 20]. Among the upper-middle income countries, the trend of SSC ranged between 9% in Mexico and up to 98% in Croatia. The study conducted in Croatia reported the highest rate of SSC among all countries with almost 98%. In low-middle income countries the practice of SSC varied, and a range between 8% to 74% was documented across studies. Low-income countries including Tanzania, Ethiopia and Nepal had reported beneath 20% the practice of SSC after normal birth.

Author/s	Country	Sample Size	SSC practice duration per minutes							
			<5	5	10	15	30	60	120	180
Bramson et al (2010) [10] USA		21,842	4.9%		1	2.4%	60.4	%		
Chalmers et al (2010) [23]	Canada	5,357	85.7% 10.5%			2.2%	0.29	%		
Gubler et al (2013) [27]	Switzerland	1,893	58.5% 38.1%			3.59	%			
Haiek (2012) [25]	Canada	150	66%							
Hakala et al (2017) [ <u>15</u> ]	Finland	111	62%							
Kalmakoff et al (2017) [26]	New Zealand	1,530	29%		40.1%	30.9%				
Kim (2016) [ <u>16</u> ]	South Korea	241	76.3%							
Redshaw et al (2014) [12]	Australia	3,189	94.5 61.		61.1%	)				

Table 4. Duration of skin-to-skin contact as reported in included studies (alphabetical) by author/s name.

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#### Discussion

This study is the first systematic review to our knowledge that attempts to report the worldwide prevalence of SSC after normal birth, using available information from low, middle and high-income countries. We addressed several aspects of SSC practice including the proportion of SSC, starting time and duration.

In this review we found a wide range in the overall prevalence of SSC immediately after birth from a low of 1% in Tanzania [42] to a high of 98% in Croatia [34]. The disparities in our review can be explained in a number of ways. Firstly, the observed differences across countries could be attributed to the lack of agreed definition used in the included studies. The authors of the studies defined SSC in different ways, for instance, "naked baby on mother's naked body" [25] "first contact" [22], "immediate contact between mother and newborn" [24] and "close contact"[21], which makes comparisons difficult. Furthermore, the criteria for starting SSC, baby position, and duration of SSC were not well described.

The WHO has released a new guideline "Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services" in 2017 [1]. In this guideline, WHO provided a definition of SSC: "when the infant is placed prone on the mother's abdomen or chest in direct ventral-to-ventral skin-to-skin contact. Immediate skin-to-skin contact is done immediately after delivery, less than 10 minutes after birth. Early skin-to-skin contact was defined as beginning any time from delivery to 23 hours after birth. Skin-to-skin contact should be uninterrupted for at least 60 minutes" p.5 [1]. Prior to this definition by the WHO, there was no standardised definition of SSC, and this may be one contributing factor to the wide disparities in the definitions used across studies.

The heterogeneity of definition is somewhat similar to what was reported in a systematic review of Kangroo Mother Care (KMC) in different settings, where SSC was the core

component of KMC [47]. The authors highlighted the need to standardise the definitions of KMC and SSC, and to differentiate between these practices [47]. Thus, it is highly recommended to standardise the definition of SSC in all future studies according to the WHO definition [1].

Secondly, methodological differences among studies including different study designs may also have contributed to the variation in documented SSC. Observational studies appears to have low rates of SSC; from 9% in the Philippines to 29% in Spain [11, 33], whereas cross-sec- tional studies and retrospective studies reported higher level of SSC practice; in Singapore and Australia 92% and 95%, respectively [17, 18]. Therefore, there is a need for future observa- tional studies because of its valid design reflecting the actual practice. A novel algorithm was recently published that systematically analyses and measures the practice of SSC in relation to the best practice of immediate, continuous, and uninterrupted SSC [48]. This algorithm, if effectively adopted would improve the practice of SSC and enhance the development of strate- gies to implement the practice of SSC at the WHO standard of immediate, continuous and uninterrupted SSC [49].

Thirdly, the timing of data collection is also important, as there is a risk for recall bias if the mother is not surveyed soon after birth when she have better recollection of the birth experience. In Canada, two studies collected data about SSC at two different times; one study interviewed women at two months after birth, with a reported 81% SSC [25], while the other interviewed women five to ten months after birth, with a reported rate of SSC of 50% [23]. Even though the studies were based on different samples, these two figures indicate that timing of data collection could possibly influence the reported rate of SSC. Furthermore, there was a lack of description across all studies with regards to who was actually reporting the practice of SSC the mother herself, hospital staff or researcher. It is important to identify the reporting person to increase study validity.

Fourthly, another possible explanation for the variation of reported SCC is the level of country income. Most studies from high-income countries such as, Denmark, Switzerland, Australia, Finland and Singapore, and upper-middle income countries as Croatia, reported high levels of SSC practice (Fig 2)Some high-income countries reported low practice of SSC such as Japan with 20% [19] and Spain with an average of 29% [11, 20]. In South California, USA, where one study indicated that only 17% mother-infant dyads practiced SSC within the first hour after normal birth however, the practice was significantly higher within three hours after birth: 60%. A national survey of 10,000 women was published in the UK in 2014 [50]. This study which was not included in our systematic review as it was not identified in our search strategy, however it reported that 85% of women experienced SSC, which is considerably higher than the 64% identified in our only UK study of 111 women. This illustrates that conclusions about SSC practices from the studies included in our review cannot be made as they were not based on national representative samples.

Another factor to consider is change over time, however, when looking at the average SSC rate per year, there are no indications of change over the ten year period (2007 to 2017), and thus, the data do not support that improvements have been made in relation to SSC practices worldwide. The most recent studies published in 2016 and 2017 still reported a low proportion of SSC practices in Brazil (34%) [37], Ethiopia (8%) [13], and Mexcio (10%) [24].

Finally, despite the lack of common definitions and variety of study designs in the included studies, we can conclude that the level of SSC differs greatly across the globe. The fact that only three of the 35 included studies, representing 28 countries, focused specifically on assessing the practice of SSC indicates the need for more research on this practice. According to the 2017 WHO guideline, there is a need for more research on the time of initiation of SSC and the long term effects on infant neurodevelopment and health outcomes [1].

#### What did we find in this systematic review?

- Among the included studies there was a lack of agreed definition about skin-to-skin contact.
- There was a wide variation of the actual practice among countries from 2007 and 2017 and no change was identified overtime.
- Few studies were conducted with the primary aim to measure the practice of SSC worldwide.
- There is a lack of studies about SSC from low income countries.
- Few studies reported starting time and duration of SSC practice after normal birth.

#### Strength and limitation

This review had a broad scope and included studies were based on different methodologies, including RCTs, secondary analyses, and routine data to extract of SSC outcomes regardless of the study aim. This enabled us to report the practice of SSC from countries distributed across the WHO world regions. We limited the search to studies published within the last ten years in order to reflect the current practice of SSC. The data extraction and selection of studies was precise and based on a thorough quality assessment to eliminate low quality studies.

Our review also has number of limitations. Although we identified a considerable number of studies for this systematic review, most were not designed to measure the prevalence of SSC and were not based on national samples. Generalizability of the result is therefore limited, particularly due to the fact that many studies were based on small samples not representative of the country. Other major limitations were the lack of a common SSC definition and heterogeneity of study design.

#### Recommendations

We highly recommended a standardised use of the definition of SSC according to the suggestion by the WHO [1] for all studies focused on the practice of SSC. More robust studies or observational studies about the practice after normal birth are needed to estimate the prevalence of SSC. Future studies and guidelines to improve immediate, continuous and uninterrupted SSC should include a standardised set of indicators and measurement tools that document SSC starting time and duration. A tool that suggests the appropriate time to ask questions about the experience about SSC, or an observation checklist tool that can assist nurses or midwives when observing the practice would also be helpful. Ideally data should be collected through observation of the birth or a self-reported questionnaire for the mother shortly after birth. There is a need to translate the research into practice by evaluating interventions to improve SSC. More high-quality research is needed in relation to the practice and implementation of SSC. Inclusion of SSC in the governmental perinatal data collections, including initiation time and duration, would allow for a more accurate estimation of the prevalence of SSC at population levels.

#### Conclusion

There is a strong evidence to support the benefits of skin-to-skin contact after normal birth and this review attempted to describe the available data about the practice of SSC worldwide. The study indicates that the practice of SSC varies substantially across the world, from a reported 1% to 98%, also with varying starting times and durations. However, limitations

including lack of nationally representative studies and common definitions of SSC, which prevents us from drawing firm conclusions. Future studies need to standardise the definition of SSC to enable measurement of the prevalence of immediate, continuous and uninterrupted SSC and facilitate the implementation of this important practice.

## Supporting information

**S1 Table. CINAHL search strategy.** (DOCX)

S2 Table. Joanna Briggs Institute (JBI) assessment of methodological quality tool check list.

(DOCX)

**S3 Table. PRISMA checklist.** (DOC)

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#### References

- 1. World Health Organization (WHO). Protecting, Promoting and Supporting Breastfeeding in Facilities Providing Maternity and Newborn Services 2017. Available from: <u>http://apps.who.int/iris/bitstream/handle/10665/259386/9789241550086-eng.pdf?sequence=1</u>.
- Moore ER, Bergman N, Anderson GC, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database of Systematic Reviews. 2016; 11:CD003519. <u>https://doi.org/10.1002/14651858.CD003519.pub4</u> PMID: <u>27885658</u>
- Academy of Breastfeeding Medicine Protocol Committee. ABM clinical protocol#7: model breastfeeding policy (revision 2010). Breastfeeding Medicine. 2010; 5(4):173–77. Available from: <u>http://www.sabctx.org/assets/protocol-7-model-hospital-policy-(2010-revision).pdf. https://doi.org/10.1089/bfm.2010.9986</u> PMID: 20590476
- American Academy of Pediatrics. Breastfeeding and the use of human milk. Pediatrics. 2012; 129(3): e827–e41. Available from: <u>http://pediatrics.aappublications.org/content/129/3/e827.full#content-block.</u> <u>https://doi.org/10.1542/peds.2011-3552</u> PMID: 22371471
- Association for Women's Health Obstetric and Neonatal Nurses. Breastfeeding. Journal of Obstetric, Gynecologic, & Neonatal Nursing. 2015; 44(1):145–50. Available from: <u>http://www.jognn.org/article/S0884-2175(15)31769-X/pdf</u>.

- World Health Organization (WHO) and UNICEF. Baby-friendly hospital initiative: revised, updated and expanded for integrated care2009. Available from: <u>http://apps.who.int/iris/bitstream/handle/10665/ 43593/9789241594998\_eng.pdf?sequence=7</u>.
- 7. Ferrarello D, Hatfield L. Barriers to skin-to-skin care during the postpartum stay. MCN: The American Journal of Maternal/Child Nursing. 2014; 39(1):56–61.
- Munn Z, Moola S, Riitano D, Lisy K. The development of a critical appraisal tool for use in systematic reviews addressing questions of prevalence. International Journal of Health Policy and Management. 2014; 3(3):123–28. <u>https://doi.org/10.15171/ijhpm.2014.71</u> PMID: <u>25197676</u>
- 9. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. Systematic Reviews. 2015; 4(1):1.
- Bramson L, Lee JW, Moore E, Montgomery S, Neish C, Bahjri K, et al. Effect of early skin-to-skin mother-infant contact during the first 3 hours following birth on exclusive breastfeeding during the maternity hospital stay. Journal of Human Lactation. 2010; 26(2):130–7. <u>https://doi.org/10.1177/</u> 0890334409355779 PMID: 20110561
- 11. Martinez-Galiano JM, Delgado-Rodriguez M. Influence of an education program of pregnant women on delivery. Journal of Maternal-Fetal & Neonatal Medicine. 2014; 27(7):719–23. <u>https://dx.doi.org/10.3109/14767058.2013.836486</u>.
- Redshaw M, Hennegan J, Kruske S. Holding the baby: Early mother—infant contact after childbirth and outcomes. Midwifery. 2014; 30(5):e177–87. <u>https://doi.org/10.1016/j.midw.2014.02.003</u> PMID:\_ <u>24680108</u>
- Callaghan-Koru JA, Estifanos AS, Sheferaw ED, de Graft-Johnson J, Rosado C, Patton-Molitors R, et al. Practice of skin-to-skin contact, exclusive breastfeeding and other newborn care interventions in Ethiopia following promotion by facility and community health workers: results from a prospective outcome evaluation. Acta Paediatrica. 2016; 105(12):e568–e76. <u>https://doi.org/10.1111/apa.13597</u> PMID: <u>27644765</u>
- Chiou S-T, Chen L-C, Yeh H, Wu S-R, Chien L-Y. Early skin-to-skin contact, rooming-in, and breastfeeding: A comparison of the 2004 and 2011 National Surveys in Taiwan. Birth: Issues in Perinatal Care. 2014; 41(1):33–8. <u>https://doi.org/10.1111/birt.12090</u> PMID: 24654635
- **15.** Hakala M, Kaakinen P, Kääriäinen M, Bloigu R, Hannula L, Elo S. The realization of BFHI Step 4 in Finland—Initial breastfeeding and skin-to-skin contact according to mothers and midwives. Midwifery. 2017; 50:27–35. <u>https://doi.org/10.1016/j.midw.2017.03.010</u> PMID: <u>28384552</u>
- Kim BY. Factors that influence early breastfeeding of singletons and twins in Korea: a retrospective study. International Breastfeeding Journal. 2016; 12:4. <u>https://doi.org/10.1186/s13006-016-0094-5</u> PMID: <u>28074106</u>
- Lau Y, Tha PH, Ho-Lim SST, Wong LY, Lim PI, Citra Nurfarah BZM, et al. An analysis of the effects of intrapartum factors, neonatal characteristics, and skin-to-skin contact on early breastfeeding initiation. Maternal & Child Nutrition. 2017:e12492. http://dx.doi.org/10.1111/mcn.12492.
- Saxton A, Fahy K, Rolfe M, Skinner V, Hastie C. Does skin-to-skin contact and breast feeding at birth affect the rate of primary postpartum haemorrhage: Results of a cohort study. Midwifery. 2015; 31 (11):1110–7. <u>https://doi.org/10.1016/j.midw.2015.07.008</u> PMID: <u>26277824</u>
- Hongo H, Nanishi K, Shibanuma A, Jimba M. Is Baby-Friendly breastfeeding support in maternity hospitals associated with breastfeeding satisfaction among Japanese mothers? Maternal & Child Health Journal. 2015; 19(6):1252–62. <u>https://doi.org/10.1007/s10995-014-1631-8</u>. PMID: <u>25366103</u>
- Suarez-Cortes M, Armero-Barranco D, Canteras-Jordana M, Martinez-Roche ME. Use and influence of Delivery and Birth Plans in the humanizing delivery process. Revista Latino-Americana de Enfermagem. 2015; 23(3):520–6. https://doi.org/10.1590/0104-1169.0067.2583 PMID: 26155015
- Andersson CB, Flems C, Kesmodel US. The Danish National Quality Database for Births. Clinical Epidemiology. 2016; 8:595–9. <u>https://doi.org/10.2147/CLEP.S99492</u> PMID: <u>27822105</u>
- Brodribb W, Kruske S, Miller YD. Baby-Friendly Hospital accreditation, in-hospital care practices, and breastfeeding. Pediatrics. 2013; 131(4):685–92. <u>https://doi.org/10.1542/peds.2012-2556</u> PMID:\_ <u>23478863</u>
- 23. Chalmers B, Kaczorowski J, Darling E, Heaman M, Fell DB, O'Brien B, et al. Cesarean and vaginal birth in Canadian women: a comparison of experiences. Birth. 2010; 37(1):44–9. <u>https://doi.org/10.1111/j. 1523-536X.2009.00377.x</u> PMID: 20402721
- Fritz J, Walker DM, Cohen S, Angeles G, Lamadrid-Figueroa H. Can a simulation-based training program impact the use of evidence based routine practices at birth? Results of a hospital-based cluster randomized trial in Mexico. PLoS ONE. 2017; 12(3):e0172623. <u>https://doi.org/10.1371/journal.pone.</u> 0172623 PMID: 28319122

- Haiek LN. Measuring compliance with the Baby-Friendly Hospital Initiative. Public Health Nutrition. 2012; 15(5):894–905. <u>https://doi.org/10.1017/S1368980011002394</u> PMID: <u>22014501</u>
- Kalmakoff S, Gray A, Baddock S. Predictors of supplementation for breastfed babies in a Baby-Friendly hospital. Women and Birth. 2017. <u>https://doi.org/10.1016/j.wombi.2017.08.131</u> PMID: 28888864
- Gubler T, Krähenmann F, Roos M, Zimmermann R, Ochsenbein-Kölble N. Determinants of successful breastfeeding initiation in healthy term singletons: a Swiss university hospital observational study. Journal of Perinatal Medicine. 2013; 41(3):331–9. <u>https://doi.org/10.1515/jpm-2012-0102</u> PMID: <u>23104852</u>
- Ogbo FA, Eastwood J, Page A, Arora A, McKenzie A, Jalaludin B, et al. Prevalence and determinants of cessation of exclusive breastfeeding in the early postnatal period in Sydney, Australia. International Breastfeeding Journal. 2016; 12:16. <u>https://doi.org/10.1186/s13006-017-0110-4</u> PMID: <u>28405212</u>
- 29. Callendret M, Gelbert-Baudino N, Raskovalova T, Piskunov D, Schelstraete C, Durand M, et al. Observance des pratiques professionnelles recommandées en maternité et réduction du risque de sevrage de l'allaitement maternel dans les six premiers mois de vie [Hospital practices and breastfeeding cessation risk within 6 months of delivery]. Archives de Pediatrie. 2015; 22(9):924–31. <u>https://doi.org/10.1016/j.arcped.2015.06.017</u>
- Keemer F. Breastfeeding self-efficacy of women using second-line strategies for healthy term infants in the first week postpartum: an Australian observational study. International Breastfeeding Journal. 2013; 8:18. <u>https://doi.org/10.1186/1746-4358-8-18</u> PMID: <u>24359640</u>
- **31.** Miller Y, Thompson R, Porter J, Prosser S. Findings from the having a baby in Queensland survey, 2010. Brisbane: Queensland Centre for Mothers & Babies, The University of Queensland. 2011.
- Sandin-Bojö AK, Hashimoto M, Kanal K, Sugiura Y. Intrapartum care at a tertiary hospital in Cambodia: A survey using the Bologna Score. Midwifery. 2012; 28(6):e880–5. <u>https://doi.org/10.1016/j.midw.2011.</u> <u>10.014</u> PMID: <u>22172744</u>
- Sobel HL, Silvestre MA, Mantaring JB 3rd, Oliveros YE, Nyunt US. Immediate newborn care practices delay thermoregulation and breastfeeding initiation. Acta Paediatrica. 2011; 100(8):1127–33. <u>https:// doi.org/10.1111/j.1651-2227.2011.02215.x</u> PMID: 21375583
- Zakarija-Grkovic I, Boban M, Jankovic S, Cuze A, Burmaz T. Compliance with WHO/UNICEF BFHI standards in Croatia after implementation of the BFHI. Journal of Human Lactation. 2017. <u>https://doi.org/10.1177/0890334417703367</u> PMID: <u>28602147</u>
- Lauria L, Spinelli A, Grandolfo M. Prevalence of breastfeeding in Italy: a population based follow-up study. Annali Dell'Istituto Superiore di Sanita. 2016; 52(3):457–61. <u>https://doi.org/10.4415/ANN\_16\_03\_18</u> PMID: <u>27698305</u>
- Macfarlane AJ, Rocca-Ihenacho L, Turner LR. Survey of women's experiences of care in a new freestanding midwifery unit in an inner city area of London, England: 2. Specific aspects of care. Midwifery. 2014; 30(9):1009–20. <u>https://doi.org/10.1016/j.midw.2014.05.008</u> PMID: <u>24929271</u>
- Baldisserotto ML, Theme Filha MM, da Gama SG. Good practices according to WHO's recommendation for normal labor and birth and women's assessment of the care received: the "birth in Brazil" national research study, 2011/2012. Reproductive Health. 2016; 13(Suppl 3):200–6. <u>https://dx.doi.org/ 10.1186/s12978-016-0233-x</u>.
- Moreira ME, Gama SG, Pereira AP, Silva AA, Lansky S, Souza Pinheiro R, et al. Clinical practices in the hospital care of healthy newborn infant in Brazil. Cadernos de Saude Publica. 2014; 30 Suppl 1:S1–12.
- Senarath U, Fernando DN, Rodrigo I. Effect of training for care providers on practice of essential newborn care in hospitals in Sri Lanka. JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing. 2007; 36(6):531–41. <u>https://doi.org/10.1111/j.1552-6909.2007.00183.x</u> PMID: <u>17973696</u>
- 40. Crowe S, Prost A, Hossen M, Azad K, Kuddus A, Roy S, et al. Generating insights from trends in newborn care practices from Prospective Population-Based Studies: examples from India, Bangladesh and Nepal. PLoS ONE. 2015; 10(7):e0127893. <u>https://doi.org/10.1371/journal.pone.0127893</u> PMID: <u>26176535</u>
- Upadhyay RP, Rai SK, Anand K. Community neonatal practices and its association with skilled birth attendance in rural Haryana, India. Acta Paediatrica. 2012; 101(12):e535–9. <u>https://doi.org/10.1111/j. 1651-2227.2012.02833.x</u> PMID: <u>22928520</u>
- 42. Penfold S, Hill Z, Mrisho M, Manzi F, Tanner M, Mshinda H, et al. A large cross-sectional communitybased study of newborn care practices in southern Tanzania. PLoS ONE. 2010; 5(12):e15593. <u>https:// doi.org/10.1371/journal.pone.0015593</u> PMID: <u>21203574</u>
- Bouanene I, ElMhamdi S, Sriha A, Bouslah A, Soltani M. Connaissances et pratiques des femmes de la région de Monastir (Tunisie) concernant l'allaitement maternel [Knowledge and practices of women in Monastir, Tunisia regarding breastfeeding]. Eastern Mediterranean Health Journal. 2010; 16(8):879– 85. PMID: <u>21473131</u>
- Cederfeldt J, Carlsson J, Begley C, Berg M. Quality of intra-partum care at a university hospital in Nepal: A prospective cross-sectional survey. Sexual & Reproductive Healthcare. 2016; 7:52–7. <u>https:// dx.doi.org/10.1016/j.srhc.2015.11.004</u>.

- **45.** Kempe A, Noor-Aldin Alwazer FA, Theorell T. Women's authority during childbirth and Safe Motherhood in Yemen. Sexual & reproductive healthcare: official journal of the Swedish Association of Midwives. 2010; 1(4):129–34. <u>https://dx.doi.org/10.1016/j.srhc.2010.07.001</u>.
- **46.** Agudelo S, Gamboa O, Rodriguez F, Cala S, Gualdron N, Obando E, et al. The effect of skin-to-skin contact at birth, early versus immediate, on the duration of exclusive human lactancy in full-term newborns treated at the Clinica Universidad de La Sabana: study protocol for a randomized clinical trial. Trials [Electronic Resource]. 2016; 17(1):521. <a href="https://dx.doi.org/10.1186/s13063-016-1587-7">https://dx.doi.org/10.1186/s13063-016-1587-7</a>.
- Chan GJ, Valsangkar B, Kajeepeta S, Boundy EO, Wall S. What is kangaroo mother care? Systematic review of the literature. Journal of Global Health. 2016; 6(1):010701. <u>https://doi.org/10.7189/jogh.06.</u> 010701 PMID: <u>27231546</u>
- Brimdyr K, Cadwell K, Stevens J, Takahashi Y. An implementation algorithm to improve skin-to-skin practice in the first hour after birth. Maternal & Children Nutrition. 2017;e12571. <u>https://doi.org/10.1111/</u> mcn.1257149 Crdwil
- Cadwell K, Brimdyr K, Phillips R. Mapping, Measuring, and Analyzing the Process of Skin-to-Skin Contact and Early Breastfeeding in the First Hour After Birth. Breastfeed Med. 2018; 13(7):485–92. <u>https:// doi.org/10.1089/bfm.2018.0048</u> PMID: <u>30036081</u>
- 50. Redshaw M, Henderson J. Safely delivered: a national survey of women's experience of maternity care 2014. National Perinatal Epidemiology Unit, Oxford. 2015.

#### Further evidence since publication

I acknowledge that the systematic review was undertaken in 2017 and I have included a number of more recent articles in the thesis, for example, (Alenchery et al., 2018; Allen et al., 2019; Brubaker et al., 2019; Ho et al., 2018; Mbalinda et al., 2018; Mukherjee, Chandra Shaw, Venkatnarayan, & Dudeja, 2019; Safari et al., 2018; Şimşek & Karahan, 2017; Widström et al., 2019). I performed an additional search in July 2020 using the PubMed database for peer reviewed articles published between 2017 and 2020, using the keywords ("skin-to-skin contact" AND "Saudi Arabia") and ("skin-to-skin contact" AND "Middle East"). The search yielded 11 articles, and of those four articles were excluded because they were not relevant to the practice of SSC, or focused on premature babies in the neonatal intensive care unit. Three new studies, conducted in Iran and Turkey, have been incorporated into the thesis (Aydin et al., 2017; Çalik, Karabulutlu, & Yavuz, 2018; Zarshenas, Zhao, Binns, & Scott, 2019).

The seven studies included in this summary, three of those conducted in in Iran and Turkey (Aydin et al., 2017; Çalik, Karabulutlu, & Yavuz, 2018; Zarshenas, Zhao, Binns, & Scott, 2019). In Iran, the study aimed to report the prevalence and determinants of delayed breastfeeding, traditional prelacteal foods, and use of infant formula in hospital (Zarshenas et al., 2019). A total of 700 women participated in face-to-face interviewer administered questions (Zarshenas et al., 2019). Only third of the women breastfeed their infants within the first hour of birth, 40% gave prelacteal foods and 34% of the infants received formula in hospital (Zarshenas et al., 2019). SSC was experienced by only 17 % of mother-infant dyads. Delayed breastfeeding was associated with infants who did not experience SSC (Zarshenas et al., 2019).

The other two studies were from Turkey (Aydin et al., 2017, & Çalik et al., 2018). In Aydin et al., (2017) the practice of SSC was used as a non-pharmacological method to reduce the pain in newborn infants during invasive procedure. Whereas Claik et al (2018) conducted a cross-sectional study measuring the effect of intervention during birth on 351 mothers' satisfaction. The average score of mothers' satisfaction was low and several interventions were performed during and after birth of those SSC was not practiced in 86% (Çalik et al., 2018).

The remaining four studies were our own publications (Abdulghani, Amir, & Edvardsson, 2020; Abdulghani, Amir, Edvardsson, & Cooklin, 2020; Abdulghani et al., 2018; Abdulghani, Edvardsson, & Amir, 2020). This show the impact of this doctoral research which is already bridging the knowledge gap in the literature about SSC in the Middle East.

#### Skin-to-skin contact practices after vaginal birth

#### The recommendation for skin-to-skin contact after birth

The WHO and UNICEF recommends immediate continuous and uninterrupted SSC after birth (World Health Organization [WHO], 2018). The WHO established a global standard of "at least 80% of mothers of term infants report that their babies are placed in skin-toskin contact with them immediately or within five minutes after birth and this contact lasted one hour or more, unless there were documented medically justifiable reasons for delayed contact" (World Health Organization [WHO], 2018, p. 24).

In addition, there are other protocols and position statements which recommend and support immediate and uninterrupted SSC practices. For example, since 2010 the Academy of Breastfeeding Medicine (ABM) has encouraged the practice of uninterrupted SSC and advised delaying immediate weighing, measuring, administering eye prophylaxis and Vitamin K, and an early initial bath, all of which interfere with early and continued skinto-skin and breastfeeding initiation (Academy of Breastfeeding Medicine [ABM], 2010). In 2012, the American Academy of Pediatrics (AAP) also recommended SSC immediately after birth. In 2016, the AAP published a report that encouraged SSC and rooming-in immediately after birth and postpartum period for full-term infants to increase exclusive breastfeeding, safer and healthier transitions, and improved maternal-infant bonding (Feldman-Winter, Goldsmith, AAP Committee on fetus and newborn, & AAP Task force on sudden infnat death syndrome, 2016). Furthermore, the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) in the USA also explained the importance of SSC and recommended the practice of SSC after birth regardless of type of birth (Association of Women's Health Obstetric and Neonatal Nurses [AWHONN], 2016). All these policies and protocols clearly support SSC practices, yet there are no agreed set of standardised universal practice guidelines for SSC care at present.

In addition to the previous recommendations, some countries have developed certain guidelines to support the practice of SSC, for example in Australia, the most recent Australian National Breastfeeding Strategy recommends that mother and babies stay together as much as practical, and clinicians should enable babies to be held SSC for the majority of the day (*The Australian National Breastfeeding Strategy: 2019 and Beyond*, 2019). BFHI Australia has also developed an audit tool to facilitate the practice of SSC and to analyse SSC data to ensure compliance with the BFHI policy (BFHI Australia, 2019). Maternity hospital staff complete the tool for mothers who have vaginal birth, caesarean section birth and mothers who plan on artificial feeding. The tool has nine yes/no questions that evaluate the practice of SSC. However, there is no explanation in the tool on how to record if SSC was interrupted and resumed, and if mothers refused to have SSC or whether there was any education given to mothers.

In the United States, the BFHI guidelines have proposed that certain procedures such as assessments and Apgar scores should be done with the infant SSC with the mother and other procedures requiring separation of the mother and infant (bathing, for example) should be delayed until after this initial period of SSC (Baby-Friendly USA, 2019). In addition, the Healthy Children Project in the United States, which was established in 1993 as a non-profit research and educational institution dedicated to improving child health outcomes in partnership with public, private and non-profit agencies, have organised and conducted many collaborative studies to Implement SSC worldwide, for example in Uganda (Nissen et al., 2019) and in Egypt (Healthy Children Project; Samra, Taweel, & Cadwell, 2013).

In Europe, the European Standards of Care for Newborn Health is an interdisciplinary collaboration to develop standards of care for key topics in newborn health (EFCNI et al., 2018). This organisation advocates and recommends the practice of SSC for mother-infant dyads as early and as continuously as possible and encourages father's involvement to ensure continuous SSC when the mother is not able to hold the baby (EFCNI et al., 2018). In 2018, they published a standard for healthcare professionals, neonatal units, hospitals, and health services to implement SSC between mother or father and newborn infants (EFCNI et al., 2018).

As previously mentioned, the practice of SSC is recommended for all healthy full-term infants unless there is a medical reason to delay the contact. SSC practices during the current situation of the coronavirus (COVID-19) pandemic has been a controversial topic. The WHO encouraged maternity services to manage care of mothers with suspected or

confirmed COVID-19 to enable them to remain together and practice SSC immediately after birth and breastfeed due to the benefits that substantially outweigh the potential risks for transmission (World Health Organization (WHO), 2020a). UNICEF also recommends clinicians to protect, promote and support optimal breastfeeding and SSC if the mother has respiratory symptoms. It is recommended that the mother uses a face mask when near her child, if possible, perform hand hygiene before and after contact with the child, and routinely clean and disinfect surfaces with which the symptomatic mother has been in contact (UNICEF, 2020). Figure 1 shows an interesting infographic of the WHO recommendation for SSC during the COVID-19 pandemic. Despite the WHO and UNICEF recommendations, some countries such as China, Philippines, Indonesia, Thailand, India, Malaysia, Japan and United States have implemented infection control prevention and separated mothers from their infants immediately after birth and discouraged breastfeeding (Tomori, Gribble, Palmquist, Ververs, & Gross, 2020).

A systematic review by Walker et al. (2020) estimated the risk of the transmission of COVID-19 by mode of delivery, type of infant feeding, and mother infant interaction. In this systematic review 49 studies were included with a total sample of 666 neonates and 655 women with COVID-19. Only 4% (n=28) of neonates had confirmed COVID-19 infection postnatally and of those 7 were breastfed, 3 formula fed, 1 was given expressed breast milk and the other 17 were not reported. The authors of the review concluded that neonatal infection is uncommon and the level of infection is not greater when the baby is born vaginally, breastfeed or allowed contact with their mother (Walker et al., 2020).



*Figure 1. Infographic of breastfeeding and skin-to-skin contact during COVID-19, source (World Health Organization (WHO), 2020b)* 

Taken together, the global COVID-19 data are suggestive of potentially lower susceptibility to infection transmission among children, thus, policies and guidelines should recommend clinicians to facilitate SSC practice after birth and educate mothers about benefits of SSC and potential risks of separation. I wrote a letter to the Editor of *Acta Paediatrica* highlighting the need to reinforce a global mother-infant SSC policy. The letter was published during the pandemic in 2020 (Abdulghani, Amir, Edvardsson, et al., 2020), and is included in Chapter Ten: Discussion and conclusion.

While policies and guidelines are the first steps, health care providers have the responsibility to facilitate the practice and encourage mothers to experience SSC. The following section describes the health care providers' perceptions and views toward the practice of SSC.

#### Health care providers' views about immediate skin-to-skin contact

A number of studies have explored health care providers' experiences about SSC and the barriers and enablers to implement the practice of SSC after vaginal birth in India, Iran, Uganda and United States (Alenchery et al., 2018; Ferrarello & Hatfield, 2014; Koopman, Callaghan-Koru, Alaofin, Argani, & Farzin, 2016; Mbalinda et al., 2018; Nahidi, Dorri, Ravari, & Akbarzade, 2011; Vittner, Xiaomei, Ludington-Hoe, & McGrath, 2017). The findings from these studies, including facilitators and barriers identified, are summarised in Table 3.

The study conducted in India by Alenchery et al. (2018) was based on in-depth interviews and focus group discussions with 41 consultants and residents/postgraduates (n = 19), pediatricians (n = 14), and nurses (n = 8) in the labour room. Barriers perceived by clinicians to SSC at birth were lack of staff, time constraint and safety concerns. Solutions suggested included staff training, assigned staff for SSC and teamwork as the key interventions likely to improve SSC at birth (Alenchery et al., 2018). Although the study identified important findings, there was a lack of explanation around the procedure for participant recruitment selection (Alenchery et al., 2018). Furthermore, the authors did not provide any reasons for the low number of nurses' participation (Alenchery et al., 2018). In addition, there was lack of transparency as the authors did not explain their own role, potential bias and influence during the data collection since the two investigators who conducted the interviews were from the same hospitals (Alenchery et al., 2018). In Iran, Nahidi, Tavafian, Haidarzade, and Hajizadeh (2014) surveyed 292 midwives from 18 hospitals to investigate their opinions of factors enabling SSC immediately after birth. They found that midwives believed that hospital policies needed updating to support the practice of SSC (90%), antenatal education (96%); private spaces and physical resources were also needed. This study used a convenience sample of midwives, which may entail a risk of bias since some people might be chosen for certain characteristics and not others (Polit & Beck, 2018). The survey design may not have allowed for exploration of the full range of opinions and views. Qualitative interviews would encourage participants to discuss a topic spontaneously, enable them to tell their story in their own words and to express their perceptions about a specific topic (Polit & Beck, 2018; Schneider et al., 2016).

Three studies conducted in the United States included clinicians' views about SSC (Ferrarello & Hatfield, 2014; Koopman et al., 2016; Vittner et al., 2017). The first study utilized a mixed methods design to explore nurses' and mothers' barriers to SSC on the postnatal ward (Ferrarello & Hatfield, 2014). In this study, a total of 14 nurses and 15 mothers completed the survey questions related to their beliefs about barriers of SSC (Ferrarello & Hatfield, 2014). A further two nurse groups (n = 3-5) and one mothers group participated in Focus Group Discussions (FGD), however the actual number of mothers involved in the study was not given. The study findings identified that nurses valued the practice of SSC, but nurses found factors interrupting SSC were visitors in the mother's room and perceived that mothers lack of awareness about SSC (Ferrarello & Hatfield, 2014). The small sample size was a major limitation of the study.

The second study from the United State (Koopman et al., 2016) was based on in-depth interviews with clinicians about factors influencing uninterrupted early SSC after vaginal and caesarean section birth of healthy full-term infants. The sample consisted of 11 clinicians including doctors and nurses from obstetric units and neonatal intensive care unit (Koopman et al., 2016). The findings were categorised into institutional, familial and implementation factors. Institutional factors identified were inadequate staffing and education of clinicians on early skin-to-skin contact, and at the familial level parental education and motivation were identified as key factors (Koopman et al., 2016). Barriers identified by clinicians to the implementation included the absence of a clinical algorithm and unclear definitions for newborn infants eligible for SSC (Koopman et al., 2016). This study provided valuable data on clinicians' views of the practice, however, the sample size of the participants is considered to be a limitation.

The third study from the USA explored perinatal nurses' knowledge, attitudes and practices of SSC (Vittner et al., 2017); 101 perinatal nurses completed a survey. Nurses in this study agreed on their responsibilities to advocate for SSC. They believed that resistance to change the practice was affected by nurses' years of experience. Nurses in the study wanted additional training dedicated for the practice of SSC (Vittner et al., 2017).

In Uganda, Mbalinda et al. (2018) conducted a qualitive study using FGDs and individual interviews to identify health care professionals' barriers and enablers to implement uninterrupted SSC in the first hour. This study was funded by the Swedish Research Council as a part of intervention package that aimed to promote and sustain the practice of SSC in Uganda (Mbalinda et al., 2018). The authors identified that barriers to SSC included medical events, psychosocial issues, standard midwifery practice, and economic constraints in the hospital. The only enabling factor was the staff involvement (Mbalinda et al., 2018).

Positive aspects of clinicians' views that have been shown to facilitate SSC after vaginal birth include health care providers' belief in the importance of SSC (Ferrarello & Hatfield, 2014), encouragement and support from HCPs, partners, and family to the mother (Alenchery et al., 2018) and clinicians' knowledge about the practice of SSC (Alenchery et al., 2018; Koopman et al., 2016; Vittner et al., 2017).

On the other hand, barriers to implementing the practice of SSC identified by HCPs include lack of knowledge about SSC, insufficient staff and time constraints (Alenchery et al., 2018; Koopman et al., 2016), and concerns about infant safety (Ferrarello & Hatfield, 2014). HCPs also perceived that mothers were not interested in SSC and want their baby to be cleaned before they hold their baby (Ferrarello & Hatfield, 2014; Koopman et al., 2016; Mbalinda et al., 2018).

The studies presented in this section showed diverse opinions of health care providers about barriers and enablers to the implementation of immediate SSC after vaginal birth. However, there is still a lack of studies to systematically understand the barriers and enablers of SSC at the practice, individual, organisational levels. Moreover, there is a paucity of rigorous qualitative studies exploring health care providers' perception across the range of relevant clinicians – obstetricians, nurses and midwives – toward the practice of SSC.

SSC is a practice that requires multidisciplinary team collaboration involving obstetricians,

midwives, nurses, paediatricians and anaesthetists. Parents also play an important role in assisting clinicians to implement SSC. Studies that focused on mothers and fathers' views about the practices of SSC will be discussed in the following section.

Author/s	Aim	Study design	Main findings related to SSC			
(year), country			Facilitators	Barriers	Proposed solutions/ requirement	
Alenchery et al. (2018), India	Determine the barriers, enablers, and potential solutions to implementation of SSC at birth in healthy newborn infants in a level III neonatal-care facility	Qualitative study used in-depth interviews with obstetricians (n = 19), pediatricians (n = 14) and nurses in labour room (n = 8)	-Motivation by pediatricians -Maternal acceptance -Clinicians perceived the practice positive	<ul> <li>-Lack of staff (nurses)</li> <li>-Time constraint</li> <li>-Difficulty in deciding on SSC eligibility</li> <li>-Safety concerns</li> <li>- Interference with routine practice</li> <li>-1 hour is not practical</li> <li>-Gender bias</li> <li>-Newborn cultural practices</li> </ul>	-Dedicated staff bystander -Allowing family support during labour -Antenatal education -Audiovisual aids or poster reminders -Training of new nurses and postgraduates -Inclusion SSC topic in medical and nursing curriculum -Interprofessional collaboration	
Ferrarello and Hatfield (2014), US	Determine mothers' and nurses' understanding of barriers to SSC during the postpartum hospital stay	Mixed methods used FGD with two groups of nurses (three and five members) and one group of mothers Survey completed by 15 mothers and 14 nurses	Nurses: -Understanding the importance of SSC	Mothers: -Visitors in the room -Others wanting to hold the baby -Safety concerns -Feeling tired and pain from birth Nurses: -Visitors in the room - Mothers unaware of SSC benefits -Mothers concerned about modesty		

Table 3 Summary of facilitators, barriers and requirement of practising skin-to-skin contact after vaginal birth, studies alphabetically ordered

				-Mothers refuse to feed or hold the baby	
				-Mothers find SSC	
Koonman et al	Provide insight into	Exploratory	-Antenatal education	-The absence of clear	
(2016) US	clinician perspectives	qualitative study	and discussion about	protocol on clinical	
(2010), 05	on uninterrupted early	using semi-	SSC	eligibility of the mother and	
	SSC and its facilitating	structured	-Education of clinicians	infant	
	factors and barriers	interviews	-Clinicians readiness to	-Competing priorities	
	after vaginal and		do SSC	-Inadequate staffing	
	caesarean delivery of		-Parental education and	-Education needed for	
	healthy full-term		motivation	clinicians	
	infants			-Mothers not interested	
				-Mothers want baby cleaned	
				before practicing SSC	
Nahidi et al.	Determine opinions of	Descriptive	-Antenatal education	-Lack of resources	-The necessity for SSC
(2014), Iran	the midwives about	quantitative survey			policy and practice plan
	enabling factors of	design was			-Need for private space
	SSC immediately after	completed by 292			
	birth	midwives			
Mbalinda et al.	Identify barriers and	Qualitative method	-Staff involvement	-Medical events interrupting	
(2018), Uganda	enablers to conducting	using FGD and	-Reduced workload	the practice	
	safe uninterrupted SSC	individual	-SSC was practicing as	-Psychosocial issues	
	in the first hour after	interviews with 81	pain relief during	-"Standard midwifery	
	birth in a low-resource	health professionals	suturing	practice"	
	setting and to evaluate			-Economic constraints	
	how health care			-Barriers perceived by staff	
	professionals coped			and family such as lack of	
	with the identified			knowledge, lather not	
	completion of on			presenting at oirth, and staff	
	intervention package			solf latch	
	intervention package			sen-laten	

				-Mothers transfer to	
				postnatal ward	
				-Mothers unwilling to keep	
				the baby	
Vittner et al.	Explored perinatal	Descriptive cross-	-Nurses advocate for		-Training is needed
(2017), US	nurses' knowledge,	sectional survey	SSC		
	attitudes and practices	design was	-Staff education level		
	of SSC	completed by 101	-Staff's years of		
		perinatal nurses	experiences		

Abbreviation: SSC=Skin-to-skin contact, FGD= Focus Group Discussion

## Mothers' or parents' views of skin-to-skin contact after vaginal birth

Recently, researchers have shown an increased interest in mothers' views and perceptions about SSC practices. Researchers have interviewed mothers in Australia, India, Norway, Sweden, Uganda and the United Kingdom to explore mothers views and practices of immediate SSC (Allen et al., 2019; Biro, Yelland, & Brown, 2015; Byaruhanga, Bergström, Tibemanya, Nakitto, & Okong, 2008; Calais et al., 2010; Dalbye, Calais, & Berg, 2011; Mukherjee et al., 2019; Redshaw, Hennegan, & Kruske, 2014). These studies aimed to understand mothers' experiences and attitudes about providing SSC to their newborn infants after vaginal birth using quantitative and qualitative methods (Biro et al., 2015; Byaruhanga et al., 2008; Calais et al., 2010; Dalbye et al., 2011; Ferrarello & Hatfield, 2014; Mukherjee et al., 2019; Redshaw et al., 2014).

In the study by Byaruhanga et al. (2008) where 30 mothers participated in FGDs, SSC was perceived in a positive light because participants felt that SSC was part of normal birth and they were happy to be close to their babies. Similarly, women in Norway and Sweden believed that SSC was natural and instinctive (Dalbye et al., 2011). In these studies mothers appreciated the encouragement and support from health care providers to practice SSC (Byaruhanga et al., 2008; Calais et al., 2010; Dalbye et al., 2011). A woman in Dalbye et al's study was motivated to practice SSC because of the support she received from her midwife: the mother said "A midwife, a really substantial woman said (laughter): "no, the baby should be naked, when you breastfeed you should just have her in a diaper" and that has stuck in my mind" (Dalbye et al., 2011, p. 109). However, the findings of Dalby's study could be biased because the investigators who interviewed the women were midwives from the hospital which could have influenced the participants' responses about the care they received.

On the other hand, in some settings mothers have described a number of factors that inhibited the SSC including mothers' lack of knowledge and awareness as reported by mothers in India (Mukherjee et al., 2019), and in Australia where mothers felt that more antenatal information is needed to remind them about removing the clothes prior to birth (Allen et al., 2019). In the study by (Allen et al., 2019), women reported the reason for not practicing SSC was because babies were wrapped up in a cloth and the mothers were wearing clothes.

Mothers described barriers to SSC to include the fear that their baby may fall or of infant sudden death syndrome (Dalbye et al., 2011; Ferrarello & Hatfield, 2014), interruption by routine procedures taking place immediately after birth (Biro et al., 2015; Dalbye et al., 2011) and interruptions from visitors or family members who wanted to hold the baby (Calais et al., 2010; Ferrarello & Hatfield, 2014). A summary of the mothers' and parents' experiences indicating facilitators and barriers of providing SSC after vaginal birth is presented in Table 4.

An Australian observational study aimed to describe the timing, type and duration of initial infant contact and to investigate the impact of early contact on breastfeeding (Redshaw et al., 2014). The data were collected from women birthing in Queensland, Australia (Redshaw et al., 2014). Women who had an unassisted vaginal birth held their infant sooner, and for longer than women who had an assisted vaginal birth or caesarean birth, and were more satisfied with their early contact (Redshaw et al., 2014). Furthermore, women who had a vaginal birth and early skin-to-skin contact, and a longer duration of initial contact, had higher rates of breastfeeding initiation and breastfeeding at hospital discharge than other women who did not have SSC or shorter SSC, but not of breastfeeding at 13 weeks (Redshaw et al., 2014).

A systematic review conducted by Anderzen-Carlsson, Lamy, & Eriksson in two parts (2014) aimed to describe parental experiences of SSC with their newborn infants. The review included studies about parents' experiences irrespective of infant age and hospital setting. In their review, two themes described the practice of SSC as "restoring experiences" because parents felt good, it was a rewarding and natural experience, they felt in control, it improved their self-esteem and they felt that it was important for their infant (Anderzen-Carlsson, Lamy, & Eriksson, 2014). The second theme was an "energy- draining" experience because mothers felt exposed during providing SSC to their infants, SSC was a physical and emotional burden, parents were uncertain about their own skills in providing SSC and they felt inattentive towards the family because they were occupied with their infants. This review included studies in three languages – English, Portuguese and Japanese - representing geographical and cultural diversity. The studies included were conducted in Brazil, Denmark, England, Japan, Norway, South Africa, Sweden, Uganda, and United States. However, there were no studies included from Asia or Middle Eastern counties, possibly due to the lack of research in these settings at the time of conducting the review (Anderzen-Carlsson, Lamy, Tingvall, & Eriksson, 2014).

Table 4 Summary of studies describing mothers' or parents' views about facilitators and barriers of providing SSC after vaginal birth, studies alphabetically ordered

Author/s	Aim	Study design	Main findings related to SSC		
(year), country			Facilitators	Barriers	
Allen et al. (2019), Australia	Determine the incidence of immediate, uninterrupted SSC and breastfeeding after birth and factors are associated with them	Cross-sectional e-survey completed by 1200 postpartum women	-Known midwife during labour and birth	<ul> <li>-Lack of antenatal education about SSC</li> <li>-Babies wrapped in cloth</li> <li>-Women wearing clothes</li> <li>-Non-urgent procedure that interrupted</li> <li>SSC</li> </ul>	
Biro et al. (2015), Australia	Describe women's experiences of initial parental contact with their newborns (including infants admitted to a neonatal unit)	Secondary analysis of a population-based survey of 4341 women		-Babies admitted to SCN/NICU -Primiparous -Interruption during SSC -Public model of care apart from midwifery care	
Byaruhanga et al. (2008), Uganda	Explore mothers' perceptions of skin-to-skin contact and newborn baby care	Qualitative method using FGD with 30 mothers	-Accepting SSC -Feel close to their babies -Helped initiate breastfeeding	-Lack of knowledge -Birth fluid seen as dirty and infectious -Health care dominant role -Social, cultural and economic factors	
Calais et al. (2010) Norway and Sweden	Explore factors that promote or hinder SSC during the first days after birth between parents and healthy full-term infants	Quantitative survey design was completed by 117 postnatal mothers and 107 fathers/partners	-Previous knowledge about SSC - Support from clinicians in postnatal care	-Visitors in the room	
Dalbye et al. (2011) Norway and Sweden	Explore experiences of skin-to-skin care in healthy mothers of healthy, full- term infants in the first days after birth	Phenomenology design used 20 interviews with mothers	-Staff encouragement and education to the mothers about SSC -Mothers find SSC to be natural, logical, self-explanatory and instinctive	-Safety concerns -Practical tasks interrupted SSC	

			-Mothers find SSC increases the	
			bonding between herself and her	
			baby	
			-Babies are perceived to be calm,	
			satisfied, and safe	
Finigan and	To explore the experiences	Mixed methods design	-Contextualizing body fluid at birth	-Mother have phobia from blood
Long (2014),	of women from three	with 22 English, Pakistani	-Being able to feel, smell and touch	
UK	population groups of	and Bangladeshi women	baby	
	immediate SSC with their			
	newborn babies			
Mukherjee et	Estimate the prevalence of	Cross-sectional,		-Policy and procedure were not explicit
al. (2019) India	SSC among mother-infant	observational study for		-The birth room atmosphere
	dyads in the first hour after	164 mother-infant dyads		-Lack of mothers' awareness about the
	vaginal delivery			practice
				-Shortage of the staff
	Identify factors affecting			-Safety concern
	adherence of SSC after			-Insufficient education from staff to
	vaginal delivery			mothers

## The research gap

Taken together the findings from my systematic review (Abdulghani et al., 2018) and the research identified in this chapter indicate the following knowledge gaps:

- A lack of agreed definition about skin-to-skin contact in published studies.
- Few studies were conducted with the primary aim of measuring the practice of SSC.
- Few studies reported starting time and duration of SSC practice after normal birth.
- There is a lack of studies about SSC from Middle Eastern countries.
- There is a need for rigorous qualitive theory-based research to addresses health care providers' perception toward SSC.
- There is a lack of rigorous studies exploring mothers' experiences of SSC in Middle Eastern countries.

## Conclusion

This chapter presented a published systematic review titled *Worldwide prevalence of mother-infant skin-to-skin contact after vaginal birth: A systematic review*. This review provided evidence of the lack of studies conducted about the practice of SSC worldwide and particularly in the Middle East. Challenges for HCPs and mother were discussed in this chapter and research gaps within the area of SSC after vaginal birth for full-term newborn infants were highlighted. The following chapter presents the setting and context of the study.

## **CHAPTER THREE: STUDY CONTEXT**

## The Kingdom of Saudi Arabia

#### **Characteristics**

The Kingdom of Saudi Arabia (KSA) is a Middle Eastern country that has a population of 34,8 million people and extends over an area of about 2,250,000 square kilometers in southwest Asia (General Authority for Statistics (GAS), 2019). The country is the largest in the Arab peninsula and is divided into 13 provinces, each one having its own unique environment: Al-Bahah, Al-Jawf, Aseer, Eastern, Ha'il, Jizan, Madinah, Makkah, Najran, Qassim, Riyadh, and Tabouk (The Saudi Arabia Tourism Guide, 2019). A map of Saudi Arabia showing the provinces can be seen in Figure 2.

The main religion in Saudi Arabia is Islam and the teaching of the prophet Muhammad (peace be upon on him). To some extent, the principles of Islam and Saudi Arabian traditions influence the culture of organizations within the country (Al-Shahri, 2002; Al Asmri, Almalki, Fitzgerald, & Clark, 2020). English is the second most widely spoken language that is used in health care facilities and governmental sectors (Al-Shahri, 2002).

#### Health care indicators

According to the Saudi Arabian Ministry of Health (MOH) statistics the fertility rate was 3.2 live children for Saudi women and the birth rate was 14.3 per 1000 population in 2019 (Ministry of Health [MOH], 2019). The Maternal Mortality Rate MMR has decreased from 24 per 100,000 women giving birth in 2010 to 12 in 100,000 in 2019 per (Ministry of Health [MOH], 2019). The Infant Mortality Rate also decreased from 10.4 per 1,000 live births in 2010 to 6 per 1,000 live births in 2019 (Ministry of Health [MOH], 2019). These statistics reflect improvement in the maternity health care system in Saudi Arabia and the support provided by the MOH to access timely medical services, proficient obstetric services and the population acceptance of medical advice (Al-Suleiman et al., 2004).

## The health care system in Saudi Arabia

The health care system in KSA is mostly governed and financed by the MOH (Al Asmri et al., 2020). It includes public and private sectors, in which the public sector is managed by the MOH and other governmental bodies (Almalki, FitzGerald, & Clark, 2011). Most health

care services in KSA are free of cost to patients and everyone living in KSA is presumed to have equal access to health care. Expatriates, who form 30% of the population, have an additional private health cost to access care (Al Asmri et al., 2020).

The health care system has three levels: primary, secondary, and tertiary (Almalki et al., 2011). Primary Health Care Centers (PHCC) provide basic, preventive and curative care and refer patient cases that need advanced management (Almalki et al., 2011). The secondary and tertiary care systems are designed for complex management that requires diagnostic, curative services through emergency departments, outpatient clinics, hospitalization, minor surgeries or rehabilitation (Almalki et al., 2011). Al Asmri et al. (2020) added a fourth level for "medical cities" that provide the same care as the tertiary hospitals with additional facilities for research and teaching centres and admission to these facilities is very limited.



Figure 2 A map of the Kingdom of Saudi Arabia, source (Map open source)

## The maternity health care system in Saudi Arabia

The childbirth experience in Saudi Arabia has changed significantly during the last few decades. In the 1980s, women gave birth at home with the attendance of family members and the traditional midwife, known in Arabic as Dayah or Qabelah (al-Sekait, 1989; Rasheed & Khan, 1990). The shift to more births taking place in hospital because of increased maternal mortality rate in the 1990s (al-Sekait, 1989; Rasheed & Khan, 1990). This shift to medicalised birth in hospital was due to the lack of high quality midwifery services, since, there was no formal education and training for midwives (Altaweli, McCourt, & Baron, 2014). Moreover, these changes to the maternity health care system were greatly influenced by the American model of care in which obstetricians played a dominant role over midwives or nurses (Altaweli et al., 2014).

In 1991, the first national survey was conducted in Saudi Arabia to assess the utilisation, coverage and quality of maternal and child health care (Al-Mazrou, Farag, Baldo, Al-Shehri, & Al-Jefry, 1995; Baldo, Al-Mazrou, Farag, Aziz, & Khan, 1995). The survey was completed by 6306 Saudi women who gave birth in hospital or at home. Women also reported their preference for attending antenatal and postnatal care. The survey results indicated that 86% of women attended antenatal care and most of these visits were with obstetricians (85%). In addition, 86% of births were handled in hospitals and 90% were attended by obstetricians or nurses, while 88% of postnatal care was reported to have been provided by physicians and few women were cared for by nurses and midwives (Baldo, Al-Mazrou, Farag, Aziz, & Khan, 1995).

The last twenty years, revealed that the majority of women in KSA gave birth in hospital settings where the birth environment is highly medicalized with numerous interventions and the rate of caesarean section rate was 22% in 2007 (Altaweli et al., 2014; Ministry of Health [MOH], 2007). Many interventions that are not recommended for routine care, including continuous Electronic Fetal monitoring (EFM), intravenous (IV) infusion and episiotomy, were commonly practiced (Altaweli et al., 2014). Furthermore, Saudi women wanted explanations about these interventions and why they were needed (Jahlan, Plummer, McIntyre, & Moawed, 2016). Women expressed the importance of a relationship with care providers during birth exemplified by support, respect, trust, and empowerment (Jahlan et al., 2016).

## Skin-to-skin contact and breastfeeding in Saudi Arabia

As mentioned earlier, Saudi Arabia is an Islamic country and it is believed that breastfeeding is fundamental practice which is recommended and encouraged in the holy Quran: "*Mothers may breastfeed their children two complete years for whoever wishes to complete the nursing period*" Surah Al-Baqarah [2:233] (Quran Translation). However, there were no policies in Saudi Arabia supporting breastfeeding indicating breastfeeding rates in Saudi Arabia are suboptimal and the early initiation of breastfeeding in the first hour is poorly documented (Al-Jawaldeh & Abul-Fadl, 2018).

Most studies conducted in Saudi Arabia have focused on rates of breastfeeding initiation and the definition or the timing of initiation was not reported. For instance, two national surveys aimed to assess infant breastfeeding patterns, were published in 2006 and 2009 (Al-Jassir, El-Bashir, Moizuddin, & Abu-Nayan, 2006; El Mouzan, Al Omar, Al Salloum, Al Herbish, & Qurachi, 2009). According to Al-Jassir et al. (2006), 92% (n = 4307 / 4872) of the mothers initiated breastfeeding. Similarly, El Mouzan et al. (2009), reported the prevalence of breastfeeding initiation as 91.6% (n = 4889 / 5339) and was delayed beyond 6 hours after birth in 28.1% of the infants (El Mouzan et al., 2009). The rate of any breastfeeding attwo months was 36% (n = 1541), four months 20.5% (n = 876), six months 10% (n = 435) and at 12 months 2% (n = 76) (El Mouzan et al., 2009). In this study, 51% of infant were introduced to infant formula by one month of age (n = 2174 / 4260) and 90% by six months of age (n = 3831 / 4260) (El Mouzan et al., 2009). In both national surveys, the item breastfeeding was not clearly defined, so it is unclear if it included expressed breast milk or formula and breastmilk combined. Since then, only one recent national study has been conducted and it will be discussed later in this section.

In 2014, (Al Juaid, Binns, & Giglia) published a review about breastfeeding in Saudi Arabia. In their review of 17 studies, only five studies had defined breastfeeding categories (Al-Hreashy et al., 2008; Amin, Hablas, & Al Qader, 2011; El-Gilany, Shady, & Helal, 2011; Eldeek, Tayeb, & Habiballah, 2012). Infants' ages in included studies ranged from less than six months up to five years (Al Juaid et al., 2014). Breastfeeding initiation rates were mostly above 90%, but low rates of timely initiation (within the first hour) were reported in a few studies (Al Juaid et al., 2014). There was a great discrepancy in the exclusive breastfeeding rate and this was not accurately measured due to the differences in the definition of exclusive breastfeeding in each study; the rate ranged from 0.8% to 43.9%

(Al Juaid et al., 2014). The partial (mixed) feeding method was most common and the category of 'any breastfeeding' had generally high rates (Al Juaid et al., 2014). Mean breastfeeding duration over time decreased from 13.4 months in 1987 to 8.5 months in 2010 (Al Juaid et al., 2014).

In 2015, the Ministry of Health funded the National Breastfeeding Strategy and as a result a national committee was formed to identify acceptable medical indications for the use of breastmilk substitutes and published the World Breastfeeding Trends Initiative report (World Breastfeeding Trends Initiative (WBTi), 2015). The official figure for breastfeeding initiation within the first hour was 11.7% (World Breastfeeding Trends Initiative (WBTi), 2015). In this report, there was an evidence of low rates of early initiation of breastfeeding but no recommendations about the practice of SSC.

Alzaheb (2017b) reviewed factors associated with the timely initiation of breastfeeding and exclusive breastfeeding in the Middle East. In this review, 19 studies were identified in the following countries: Egypt (2), Iran (3), Kuwait (1), Lebanon (1), Qatar (1), Saudi Arabia (7), Syria (1), Turkey (2), and United Arab Emirates (1). Around 34.3% (95% confidence interval [CI]: 20.2% - 51.9%) of Middle Eastern newborns received breastfeeding initiated within an hour of birth. Only 20.5% (95% CI: 14.5% - 28.2%) had exclusive breastfeeding for the first 6 months. Among the 19 studies, only 8 studies identified factors associated with a low initiation rate such delivery mode, maternal employment status, rooming-in, and prelacteal feeding (Alzaheb, 2017b). It is unknown whether the reason behind the absence of SSC practice in this review was because the authors did not identify SSC as an important factor related to timely initiation of breastfeeding or due to the lack of studies conducted in the Middle East reporting SSC practice. This shows a knowledge gap in the literature that needs to be addressed.

Several studies have been conducted about breastfeeding in which SSC was not identified nor reported: in *Eastern region* (Al-Madani & Abu-Salem, 2017; Amin et al., 2011; El-Gilany, Sarraf, & Al-Wehady, 2012; El-Gilany et al., 2011; Rehmani et al., 2013), *Najran region* (Al-Qahtani, Mohamed, & Ahmed, 2020), *Makkah region* (Albokhary & James, 2014; Alsulaimani, 2019; Azzeh et al., 2018; Hegazi et al., 2019; Mosalli et al., 2012), *Riyadh region* (Al-Mutairi, Al-Omran, & Parameaswari, 2017; Alshebly & Sobaih, 2016; Alwelaie et al., 2010; Mosher et al., 2016), and *Tabuk* region (Alzaheb, 2016, 2017a; Khresheh & Ahmad, 2018). Among all these studies, only Albokhary and James (2014)

investigated the association between type of birth and breastfeeding outcomes. Albokhary and James (2014) surveyed 60 mothers in which 63% (n=19/30) reported experiencing SSC after vaginal birth and 13% (n=4/30) after caesarean birth. However, the practice of SSC was not accurately measured, and the result was limited to the study setting due the small sample size.

The most recent national cross-sectional study was conducted in Saudi Arabia by Ahmed and Salih (2019). The study surveyed 1700 mothers of children aged less than 24 months to assess the pattern and determinants associated with early and delayed initiation of breastfeeding in different regions in Saudi Arabia. While 97% of mothers reported initiating breastfeeding (1559 / 1700) only 43.6% (742) started breastfeeding within the first hour of birth and 27% initiated between 1 and 24 hours (Ahmed & Salih, 2019). The rate of early initiation of breastfeeding in the Northern region was 26% (79 / 300), Eastern regions was 49% (148 / 300), Southern region was 63% (188 / 300), Western region was 45% (135 / 300), and the Central region was 38% (192 / 500) (Ahmed & Salih, 2019). The authors highlighted the lack of SSC that interfere with timely initiation of breastfeeding (Ahmed & Salih, 2019).

In summary, although several studies have been published in Saudi Arabia about breastfeeding and have provided some insights into breastfeeding practices, no study has explored the current practice of SSC in Saudi Arabia.

## Conclusion

This chapter has provided an overview of the context of Saudi Arabia, the health care system in general and the maternity care system in particular. In this chapter I discussed the studies conducted in Saudi Arabia related to breastfeeding and highlighted the dearth of studies exploring the practice of SSC in Saudi Arabia. Therefore, the next chapter presents the purpose and the aim for this doctoral thesis, which addresses this gap.

## **CHAPTER FOUR: PURPOSE AND AIM**

The overall purpose of this thesis is to contribute to a better understanding of the practice of how to achieve optimal outcomes for mothers and their infants through implementing immediate, continuous and uninterrupted SSC after birth. This includes exploring the current practices and policies of SSC in Saudi Arabia with the ultimate goal to contribute to policy and practices that support and improve mother and infants' health outcomes.

The overall aim of this doctoral thesis is to determine the prevalence of SSC worldwide and to explore the current practices of skin-to-skin contact immediately after vaginal birth for healthy term newborn infants in the two largest public hospitals in Jeddah, Saudi Arabia.

In order to address the aim of thesis the following research questions were addressed:

- **I.** What is the prevalence of skin-to-skin contact for healthy newborn infants > 37 weeks of gestation after normal birth?
- **II.** What are the current policies and practices of SSC within the first hour of an infant's life in the two public hospitals in Jeddah, Saudi Arabia?
- III. What are the barriers and facilitators for health care providers (HCPs) to implement SSC after birth for healthy term newborn infants in the two public hospitals in Jeddah, Saudi Arabia?
- **IV.** What are the mothers' perceptions and experiences of immediate SSC after vaginal birth in the two public hospitals in Jeddah, Saudi Arabia?

# CHAPTER FIVE: THEORETICAL FRAMEWORK

"There's nothing as practical as a good theory"

(Lewin, 1975)

The purpose of this chapter is to describe the theoretical frameworks used in this thesis. In this chapter I will discuss the Behaviour Change Wheel (BCW) Framework and the Theoretical Domains Framework (TDF) that were used to guide the design of health care providers' interview questions in Chapter Six: Methodology. These Frameworks were also used to align the key findings from this thesis with selected domains and constructs of the BCW and TDF to develop a guide that could be used to implement the practice of immediate, continuous and uninterrupted SSC after vaginal birth in Chapter Ten: Discussion and conclusion.

## An overview of the theoretical frameworks

A key concept for improving the implementation of evidence-based practice is to target a behaviour that needs to be changed (Michie, van Stralen, & West, 2011). A behaviour change intervention is "an activity or coordinated set of activities that aims to get an individual or population to behave differently from how s/he or they would have acted without such an action" (Michie et al., 2011, p. 234). To make a change in a behaviour, this requires us to understand the behaviour by defining it clearly, and understanding the benefits of implementing this targeted behaviour (Michie et al., 2011). To identify what needs to be changed in a behaviour, it is important to identify and understand the barriers and enablers for change (Michie et al., 2005). Hence, when an evidence-based practice such as the implementation of immediate, continuous and uninterrupted SSC demonstrates numerous physiological, social and psychological benefits for both mother and infants, it is important to understand the barriers and enablers to successful implementation and sustainability.

The BCW provides "a systematic way of characterising interventions that enables their outcomes to be linked to mechanisms of action, and it can help to diagnose why an intervention may have failed to achieve its desired goal" (Michie et al., 2014, p. 16). The key value of using the BCW is that it aids intervention designers to consider the full range of options and choose those that are most appropriate through a systematic evaluation of theory and evidence (Michie et al., 2014). The BCW consists of three layers (see Figure 3). The first layer is the centre of the wheel which identifies the 'sources of the behaviour' that are essential components for any 'behaviour' to occur. It uses the COM-B model which stands for 'capability', 'opportunity', 'motivation' and 'behaviour'. The second layer entails nine intervention functions to choose from depending on the particular COM-B analysis. Then the third outermost layer, the rim of the wheel, shows seven types of policies that one can use to deliver these intervention functions (Michie et al., 2014).

The components of COM-B can be further described by 14 TDF domains to understand barriers and enablers to the targeted behaviour (Figure 4) (Michie et al., 2014; Michie et al., 2005). The TDF is an integrative framework, synthesising key theoretical constructs used in relevant theories and was developed by a collaboration between psychologists and implementation researchers. The framework consists of 14 domains: knowledge, skills, memory, attention and decision processes, behavioural regulation, social/professional role and identity, beliefs about capabilities, optimism, beliefs about consequences, intentions, goals, reinforcement emotion, environmental context and resources, and social influences. The explanation and definition of the 14 domains and their component constructs are listed in Table 5 (Michie et al., 2014; Michie et al., 2005).


Figure 3 The Behaviour Change Wheel (Michie et al., 2014)



*Figure 4 TDF domains linked to COM-B components (Michie, Atkins, & West, 2014)* 

*Table 5 TDF domain definitions, theoretical constructs and example questions*\* (*Michie et al., 2014, p. 88*)

Domain definitions	Theoretical constructs	Example of interview
	represented within each	questions
	domain	
Knowledge	Knowledge (including	Do you know about
An awareness of the existence of	knowledge of condition /	<i>x</i> ?
something	scientific rationale); procedural	
	knowledge; knowledge of task	
	environment	
Skills	Skills; skills development;	Do you know how
An ability or proficiency acquired	competence; ability;	to do x?
through practice	interpersonal skills; practice;	
	skill assessment	
Memory, attention and decision	Memory; attention; attention	Is x something you
processes	control; decision making;	usually do?
The ability to retain information, focus	cognitive overload / tiredness	
selectively on aspects of the		
environment and choose between two		
or more alternatives		
Behavioural regulation	Self-monitoring; breaking	Do you have systems
Anything aimed at managing or	habit; action planning	that you could use for
changing objectively observed or		monitoring whether or
measured actions		not you have carried x?
Social/professional role and identity	Professional identity;	Is doing x compatible
A coherent set of behaviours and	professional role; social	or in conflict with
displayed personal qualities of an	identity; identity; professional	professional
individual in a social or work setting	boundaries; professional	standards/identity?
	confidence; group identity;	
	leadership; organisational	
	commitment	
Beliefs about capabilities	Self-confidence; perceived	How difficult or easy is
Acceptance of the truth, reality, or	competence; self-efficacy;	it for you to do x?
validity about an ability, talent, or	perceived behavioural control;	
facility that a person can put to	beliefs; self-esteem;	
constructive use	empowerment; professional	
	confidence	
Optimism	Optimism; pessimism;	How confident are you
The confidence that things will happen	unrealistic optimism; identity	that the problem of
for the best or that desired goals will		implementing x will be
be attained		solved?
Beliefs about consequences	Beliefs; outcome expectancies;	What do you think will
	characteristics of outcome	happen if you
		do x?

Acceptance of the truth, reality, or	expectancies; anticipated	
validity about outcomes of a	regret; consequents	
behaviour in a given situation		
Intentions	Stability of intentions; stages	Have they made a
A conscious decision to perform a	of change model;	decision to do x?
behaviour or a resolve to act in a	transtheoretical model and	
certain way	stages of change	
Goals	Goals (distal / proximal); goal	How much do they want
Mental representations of outcomes or	priority; goal / target setting;	to do x?
end states that an individual wants to	goals (autonomous /	
achieve	controlled); action planning;	
	implementation intention	
Reinforcement	Rewards (proximal / distal,	Are there incentives to
Increasing the probability of a	valued / not valued, probable /	do x?
response by arranging a dependent	improbable); incentives;	
relationship, or contingency, between	punishment; consequents;	
the response and a given stimulus	reinforcement; contingencies;	
	sanctions	
Emotion	Fear; anxiety; affect; stress;	Does doing x evoke an
A complex reaction pattern, involving	depression; positive / negative	emotional response?
experiential, behavioural, and	affect; burn-out	
physiological elements, by which the		
individual attempts to deal with a		
personally significant matter or event		
Environmental context and	Environmental stressors;	To what extent do
resources	resources / material resources;	physical or resource
Any circumstance of a person's	organisational culture /	factors facilitate or
situation or environment that	climate; salient events / critical	hinder x?
discourages or encourages the	incidents; person x	
development of skills and abilities,	environment interaction;	
independence, social competence, and	barriers and facilitators	
adaptive behaviour		
Social influences	Social pressure; social norms;	To what extent do
Those interpersonal processes that can	group conformity; social	social influences
cause individuals to change their	comparisons; group norms;	facilitate or hinder x?
thoughts, feelings, or behaviours	social support; power;	
	intergroup conflict; alienation;	
	group identity; modelling	

Table source, (Michie et al., 2014, p. 88)

# Conclusion

In this chapter I explained the details of the theoretical frameworks that I used in this thesis to assist the development of the study design and content for my research, including interview

questions and prompts, which will be further explained in the next chapter. The COM-B and the TDF have also helped to provide a comprehensive meaning for the key findings of this thesis, to guide recommendations about the successful implementation of immediate, continuous and uninterrupted SSC after vaginal birth future research which will be discussed in Chapter Ten: Discussion and conclusion.

# **CHAPTER SIX: METHODOLOGY**

This chapter provides a description of the methodology selected for this doctoral thesis and the rationale for those choices. It describes the foundation of the mixed methods approaches chosen for the four studies. This chapter, explains the study design, selection of participants, recruitment procedure, data collection, data analysis and ethical issues anticipated and encountered and how they were addressed for each study.

# An overview of mixed methods design

In 1959, two psychologists named Cample and Fiske established the approach of mixed methods and they inspired other researchers at that time to employ mixed methods approaches in their research (Creswell & Creswell, 2018). Mixed methods is "a procedure for collecting, analysing and mixing or integrating both quantitative and qualitative data at some stage of the research process within a single study" (Creswell & Creswell, 2018, p. 43). Prior to that, there had been a debate about the practicality of using quantitative and qualitative research methods in the same research as they were perceived as incompatible approaches to integrate and mix the data types. This debate created a "paradigm war" which positioned the two different types of research methods as dichotomous and contradictory. Traditional quantitative researchers defended their positivist approaches, arguing that knowledge is generated in a scientific objective way, in contrast to the constructivist approaches in qualitative studies, in which knowledge is formed thorough reflection on personal experiences (Johnson, Onwuegbuzie, & Turner, 2007). This debate was questioned by Schwandt (2006) and Twinn (2003) who advocated for overall understanding in human inquiry and were against the unnecessary division between the two methods. Twinn (2003) promoted mixed methods as a new and innovative approach to address complex research questions to achieve depth and breadth of understanding phenomena.

Mixed methods have become popular in health sciences because researchers have realised the compatibility of integrating both qualitative and quantitative methods to address the research questions (Creswell & Creswell, 2018; Tashakkori & Teddlie, 2003). Mixed methods research design is an appropriate approach when researchers need to incorporate inductive and deductive reasoning techniques to answer research questions that cannot be entirely answered by single method (Denzin & Lincoln, 2000). There are two characteristics for mixed methods; first, the process of data management, collection, analysis and interpretation has to be rigorous and compatible (Hesse-Biber, 2010). Secondly, it encompasses the integration of qualitative data and quantitative data in methods to provide the researcher with an opportunity to efficiently generate an understanding of the phenomenon of interest (Creswell & Creswell, 2018; Tashakkori & Teddlie, 2003).

Several researchers and authors have defined and discussed the primary designs of mixed methods research (Creswell & Creswell, 2018; Leech & Onwuegbuzie, 2009; Tashakkori & Teddlie, 2003). In addition, they described mixed method in four designs: convergent parallel, exploratory sequential, explanatory sequential and embedded (Creswell & Clark, 2017). These four designs differ in the ordering of data collection, degree of dependency between the two approaches, and the point of integration of findings. The convergent parallel a design merges quantitative and qualitative data to provide a comprehensive analysis of the research problem and the data collection are performed independently, at the same time, and their results are brought together in the overall interpretation (Creswell & Creswell, 2018). The exploratory sequential design starts with qualitative data collection and analysis followed by the collection of quantitative data to test or generalise the initial qualitative results (Creswell & Creswell, 2018; Tashakkori & Teddlie, 2003). In the explanatory sequential design, the researcher collects the quantitative data and analyse it followed by the collection of qualitative data, which are used to explain the initial quantitative results (Creswell & Creswell, 2018; Tashakkori & Teddlie, 2003). The embedded design involves either the convergent or sequential use of data, but the main idea is that either quantitative or qualitative data is embedded within a larger design (e.g., an experiment) and the data sources play a supporting role in the overall design (Creswell & Creswell, 2018; Tashakkori & Teddlie, 2003). The convergent parallel design was selected for this study and the next section explains the reasons for this choice.

# A convergent parallel design to explore the practice of SSC in Saudi Arabia

Different names have been given to describe this design such as simultaneous triangulation, parallel design, convergent model and concurrent triangulation (Creswell & Clark, 2017). In a convergent parallel design, also known as "triangulation", two or more different methods are used to obtain triangulated results for a single topic (Creswell & Clark, 2017). This design was considered appropriate to explore the practice of SSC for healthy newborn

infants after vaginal birth from different perspectives. The convergent parallel mixed methods design used in this study, along with the weighting afforded to each phase, is presented in Figure 5. Convergent parallel design based on Creswell and Clark (2017), is applied in the current study.

A mixed methods approach was considered the most suitable for the following reasons: firstly, triangulation of survey data from mothers about their perceptions towards SSC and the qualitative data from HCPs about barriers and facilitators to implementing SSC may provide insights about the practices in Saudi Arabia. In addition, it was also necessary to investigate the current policies and observe the current practices of SSC to identify the gaps between the hospital policy and its implementation following birth. Secondly, observing the practice of SSC enables the researcher to generate a comprehensive description the practice and to contrast the findings from the HCPs' interviews and the mothers' surveys. Lastly, the dearth of previous qualitative and quantitative studies related to SSC published in the Middle East in general and in Saudi Arabia (as found in Study I), which highlights a significant gap in the research.



Figure 5 Convergent parallel design based on Creswell and Plano-Clark (2017), as applied in the current study

# **Overview of study aims, subjects and methods**

An overview of the original research studies involved in this research project are presented in Table 6. The explanation for Study I, the systematic review of the prevalence of SSC worldwide, was described in Chapter 2.

Study	Aim	Study design	Study population	Data Analysis
Π	The primary aim was to investigate the current practices and policies about SSC by observing mother- infant dyads in the first hour after normal birth. The secondary aim was to observe infants' nine instinctive behaviour stages and breastfeeding initiation in the first	Non-participant observation design using modified version of the Birthing Room Observational Tool designed by Cantrill, Creedy, Cooke, and	Mothers and their infants (n = 22)	Categorical and numerical data were described using appropriate summary descriptive statistics including proportions, frequency, and mean. The findings also displayed graphically for each infant Field notes and data collected from examining policy and procedure documents were qualitatively analysed by using content analysis approach
	hour	Dykes (2014)		(Schreier, 2014)
Ш	To identify Health Care Providers' (HCPs') perceived facilitators, barriers and requirements for implementing the practice of SSC immediately after vaginal birth	Qualitative, semi- structured interviews	Obstetricians, midwives, and nurses who had worked in the birth unit within the previous 12 months (n = 20)	Thematic analysis (Braun & Clarke, 2006) guided by theoretical frameworks (Grol & Wensing, 2004; Michie et al., 2014)
IV	To estimate the rate of SSC and describe mothers' perceptions and experiences of SSC after vaginal birth in the two largest public hospitals in Jeddah, Saudi Arabia	Quantitative cross- sectional descriptive study using a self- administered survey	Mothers at postnatal wards who gave birth vaginally to full-term healthy newborn infants (n = 254)	Descriptive analyses for categorical and numerical data including proportions, frequency, mean and standard deviation Open-ended responses from mothers were qualitatively analysed by using content analysis approach (Bengtsson, 2016)

Table 6 Overview of original studies involved in this research

# **Research setting**

This study was conducted in Jeddah (located in Makkah region, Western of Saudi Arabia), the second largest city in Saudi Arabia with a population of over four million people ("Jeddah Population," 2017). Two public hospitals (A, B) were selected based on their high number of births, with approximately 7000 and 6000 births per year, respectively. Both hospitals have birth units and postpartum units. The hospitals have an average of six birthing rooms each. After birth, mothers and infants remain in the birthing unit for up to two hours until they are transferred to the postpartum unit.

In hospital B, family members (husband, grandmother, or sister) are permitted to attend the birth, but in hospital A this is not permitted. Following vaginal birth, women usually stay at the hospital 24-48 hours for observation, and this is extended to 2-3 days following Caesarean section, or longer if women need extra care or develop any complications. At the time of the study, around 112 obstetricians were rotated through labour and delivery, gynaecology, antenatal and postnatal wards at the two hospitals, and this number included consultants, registrars, residents and rotating medical intern students. At the time of data collection, approximately 82 midwives and nurses were working in the birth units at the two hospitals combined.

# An observational study of SSC in the first hour of life (Study II)

# Design

An observational design was selected to investigate the current practices and policies about SSC by seeing mother-infant dyads and their health care providers in the first hour after normal birth. Marshall and Rossman (2014) defined observation as the systematic description of events, behaviours, and artefacts in the social setting chosen for study. Bloomer, Cross, Endacott, O'Connor, and Moss (2012) also described observation as a systematic method of data collection that allows the researcher to see events in person and collect data through their insights within the real-world context. Furthermore, observation can reveal important clues to "fitting the puzzle together" when exploring a specific phenomenon. This method can also provide the researcher with another's perspective and reveal how they see the world (Morse, 2003). Observation also allows the researcher to see how participants work within their actual environment. Therefore, it is an ideal method for learning about participants' social and health care practices, because the data come from

seeing what participants actually do, rather than listening to what they report, which makes it useful for the researcher's development of knowledge and theory (Schneider et al., 2016). In this study, I used the position as an 'insider researcher' with a deep understanding of the study context, to undertake observations to address the research aim, and to gather information about the care mothers and newborn infants received during the first hour of the baby's life.

There are several types of observation that can be used. One of these types is nonparticipant observation which involves observing participants without actively participating in the event, processes or activities under study. This type of observation is used to understand a phenomenon by being in its naturalistic setting, while staying separate from the activities being observed (Schneider et al., 2016). In this study, non-participant observation was used to explore how obstetricians, midwives and nurses implement SSC and breastfeeding after vaginal birth and what kind of activities they engage in the birth room within the first hour of the baby's birth. My role in this approach is as an independent and non-judgemental outsider who is not involved in any direct or indirect care activity within the group under observation and sitting tightly out of action but can slightly interact and communicate with the group if needed (Schneider et al., 2016). This allowed me to observe the fine details of the participants' activity and limit the need for interaction with the participants, which means that during the observation I was not involved in any direct or indirect care for the mother and newborn infant.

In study II, field notes were created before, during and after each observation for the purpose of reflection and to help me debrief and collect data which were not part of the observation tool (see below). Field notes are the researchers' private, personal thoughts, and ideas that aid in the constructing of thick and rich descriptions of the study context (Phillippi & Lauderdale, 2018). The field notes also provide the researcher with prompts to assist close observation and interaction. I used field notes in Study II to reflect and identify any biases when reporting the actual observations, as well as to increase my understanding of the birth context.

In the two selected hospitals, policies related to the practices of SSC were collected. In hospital A, the policy and guidelines document were available in hard copy for all staff and visitors to read. I read a hard copy of the policy in the head nurse-midwife's office and took notes of the information related to the practice of SSC. In hospital B, the policy was

available online and staff and intern students have access to them. I obtained permission from the head nurse-midwife to review the policy and I was given a temporary access to review the policy documents.

In both hospital documents reviewed, the practice of SSC was mentioned under the antepartum and postpartum immediate care policy. The notes taken from electronic and printed documents were analysed and interpreted using a content analysis approach (Bengtsson, 2016). Both hospital documents reviewed briefly described the practice of SSC. In order to understand the documents, a content analysis approach was used to become familiar with the data, appraise the data and make sense of it, and includes case example to uncover meaning, develop understanding, and discover insights relevant to the research problem (Bengtsson, 2016; Bowen Glenn, 2009)

In the following sections, participants, recruitment protocol, data collection and analysis are described in brief. A more detailed outline of the observational study method is presented in Chapter Seven 'The current practice of skin-to-skin contact in Jeddah, Saudi Arabia'.

# **Participants**

The inclusion criteria for women included in the study were:

- Healthy women > 18 years of age, able to hold a baby without assistance,
- Low-risk, singleton, term pregnancy, and
- Healthy pregnancy, with no major antenatal complications.

There were no specific inclusion criteria for obstetricians, midwives, and nurses. Anyone who gave consent to participate in the study was observed. To increase the chance of having diverse clinicians included in Study II, I aimed for clinicians with different nationalities, and differing and levels of experience and seniority.

# Data collection

#### Recruitment

A preliminary meeting was held with the antenatal unit Charge Nurse to discuss recruitment strategies (in June 2016). She advised to recruit women from the labour room because most women who are giving birth in the public hospital attend private clinics during pregnancy, and attend the hospital for the birth only. Tracking women's medical records from antenatal

care to the labour ward would have been difficult due to the lack of continuity in the public system (Alanazy, Rance, & Brown, 2019). Therefore, a decision was made to recruit women from the labour room. The labour rooms at both hospitals are designed for women who are in the early stages of active labor. Usually 4-6 women are admitted to this room under the supervision and care of two midwives and when women are progressing in labour and have reached 6 cm cervical dilation, they are transferred to the birth room to give birth. In both hospitals, the birth room is separate and private with it is own bathroom.

A study flyer (see Appendix 4) was placed on memo boards to inform clinicians and women about the study. The title of the study appeared as "Exploring hospital practices immediately after birth", with no statement about SSC to avoid any potential change in actual practice. Midwives in the labour room invited women to participate in the study and If women were interested to hear more about the study, I personally approached the women and invited them to participate. I handed the Participant Information Statement (PIS) (Appendix 5.a & b) to women willing to participate in the study. Women were given time to think about participation in the study and to discuss participation with their husbands or family members if they were around. When consent was obtained from a woman (Appendix 6.a & b) consent was also sought from the assigned clinician and were given a consent form to sign if they were happy to be observed (Appendix 6.c).

In this study, I recruited 30 women who agreed to participate and of those, 22 women were observed for the first hour after birth.

# Tool for observational data collection

A modified version of the Birthing Room Observational Tool designed by (Cantrill et al., 2014) (Appendix 8) was used during observations. This tool records the minute-by-minute practices, specifically related to SSC, of the obstetricians and midwives caring for the woman immediately after giving birth. The Tool has four sections:

- 1) Practice of SSC and events related to SSC occurring immediately after birth,
- 2) Nine instinctive newborn behaviours in the first hour (Widström et al., 2019),
- 3) Maternal experience of initiating breastfeeding, and
- 4) The assistance they received to breastfeed.

# The validity of the Birthing Room Observational Tool

Validity is an important element to check when adopting any instrument. A valid tool is one which determines the extent to which the tool assesses the concept it is designed to examine (De Vaus, 2016; Salmon, 2015). The Birthing Room Observational Tool, during its development, went through rigorous review of the literature about the newborn behaviour, and how mothers' respond to their infant, and was confirmed by panel of experts included midwives and International Board Certified Lactation Consultant (IBCLC), who reviewed the tool and provided a critical review of it (Cantrill et al., 2014).

# Piloting the observational tool

To ensure the practicality and feasibility of using this tool I attended four births prior to the actual data collection as practice sessions. Two births were at the Royal Women's Hospital in Melbourne, Australia and two births in Hospital (A) in Jeddah, Saudi Arabia. During the pilot observation, I attempted to use the Birthing Room Observational Tool designed by Cantrill et al. (2014). However, I found it was difficult to know where to write in the tool format, and this interrupted my focus on the observation. Thus, taking field notes (informed by the tool content) helped me in the process of more detailed documentation. After each observation, I completed the structured tool with the required detailed information, and this was my protocol for the actual observational Study.

# Data collection procedure

When the birth was imminent (as notified by the assigned midwife or nurse), I entered the room to re-check the mother's approval for me to attend the birth and to find a spot in the room that would allow me clearly observe the mother and the baby. I was equipped with a clipboard, a stopwatch, and a pen. The data collection procedure started by taking field notes before, during and after each birth to become familiar with the study context and increase my awareness of what was happening in the birthing room.

In the field notes I documented basic information, characteristics of mothers and clinicians, and who was present in the room with the mothers, such as clinicians managing or attending the birth, medical interns, students or support persons (Phillippi & Lauderdale, 2018). Basic information such as the observer's name, time and the time of data collection, and whether the women was booked for birth. Furthermore, I noted contextual factors which may affect the access to health care, such as when the observations took place. For example, in June, it was the end of the holy month of Ramadan where Muslims celebrated Eid Al-Fitr. It was quiet in the birth units and this slightly slowed the speed of the recruitment process. However, the women and births I observed at this time were in rooms that were less crowded with fewer staff or interns and students to attend the birth. The setting details

recorded included the physical location of the mother's bed and the warmer radiator or portable cots, the number of people in the room, the role and responsibility of people in the room and how busy the birth unit was on that day. I also took field notes about the mothers, clinicians and support persons such as the nationality, and cultural background (as much as could be identified from the language spoken), appearance, mother's dress or gown worn at birth and mothers expressions and feelings during the practice of SSC and when the baby was separated from the mother. These field notes were not recorded in all births due to the different contexts of each birth.

At the moment of birth, I pressed the stopwatch, recorded the time of birth and practices observed in the first hour after birth as guided by the Birthing Room Observation Tool (Appendix 8). I sat tightly in a place where I could scan the room and be able to see the mother and the newborn infant. At some points when mothers and their infant were separated, I moved towards the baby to be able to closely observe what care the newborn received and how that influenced the provision of SSC.

When the observations were completed after one hour, or sometimes for longer in some birth when SSC or breastfeeding occurred, I wrote reflections on the birth to increase the rigour and the transparency of the collected data (Phillippi & Lauderdale, 2018). The field notes that related to practice of SSC were included in this thesis for analysis and interpretation.

# Data management and analysis

A total of 22 mother-infant pairs were observed. All data from observations were managed using EpiData 4.0.2.101 (Christiansen & Lauritsen, 2010). The findings from the observations were descriptively analysed and displayed graphically for each infant. *The qualitative field notes were analysed by using content analysis (Bengtsson, 2016). This approach consists of four stages: decontextualization, recontextualization, categorisation and compilation. Decontextualization refers to the process where the researcher becomes familiar with the data and identifies meaning units in the data. Recontextualization refers to checking that all aspects of the content have been covered in relation to the scope of the study, and that the researchers are deeply involved with the data and include all important data related to the aims of the study in analysis. The categorisation means that the data is categorised in groups and meanings are condensed together. Compilation refers to the process where the researchers find the underlining meaning of the text and draw a realistic* 

conclusion (Bengtsson, 2016).

# Health care providers' perceived barriers and facilitators to the implementation of SSC (Study III)

# Design

In this study, semi-structured face-to-face interviews were conducted with obstetricians, midwives, and nurses providing care to women in the two study hospital sites. The aim of the interviews was to identify Health Care Providers' (HCPs') perceived facilitators, barriers and requirements for implementing the practice of SSC immediately after vaginal birth. Qualitative interviews encourage participants to discuss a topic spontaneously, enabling them to tell their story in their own words and to express their perceptions about a phenomena (Polit & Beck, 2018; Schneider et al., 2016). Individual interviews also provide the researcher with more flexibility to ask more questions to clarify any misunderstandings or to gain a deep understanding of an answer (Wood & Ross-Kerr, 2010). There are three essential types of research interviews: structured, semi-structured and unstructured (Wood & Ross-Kerr, 2010). Semi-structured interviews are often used in health science research as they provide participants with some direction on what to talk about, but also offer flexibility in the discussion (Polit & Beck, 2018; Schneider et al., 2016).

For more information about participants, recruitment, data collection and analysis refer to Chapter Eight: Health care provider's perceived facilitators and barriers of skin-to-skin contact (Study III).

### **Participants**

In this qualitative study, a purposive sampling strategy was used to intentionally select individuals who were considered knowledgeable about the issue under study (Creswell & Creswell, 2018; Polit & Beck, 2018). Purposive sampling engages a wide array of participants with diversity in views and experiences of the topic (Polit & Beck, 2018). This study included a purposive sample of 20 obstetricians, midwives, or nurses who had worked in the birth unit within the previous 12 months and who had diverse roles, positions and experience.

# Data collection

#### Recruitment

An introductory meeting was held with birth unit Managers and Charge Nurses to get their permission to commence data collection and to explain the research. A flyer about the project was placed on the notice board in the birth unit in both hospitals. The interviews took place after the observations (Study II) to avoid any bias or change to practices of SSC during the observations. Clinicians who showed interest in participating in the interviews were provided with a written PIS (Appendix 5.c) and were asked to complete a consent form (Appendix 6.d).

#### Semi-structured interview guide questions

A total of 20 semi-structured interviews with HCPs were conducted. An interview guide was developed based on the literature review and the expertise of the research team. The questions were guided through the lens of the Theoretical Domain Framework (TDF) (Michie et al., 2014) as described in Chapter Five. The interview guide was translated from English to Arabic by accredited Arabic translators (see Appendices 9.a & 9.b). The interviews were conducted in English or Arabic according to the participant's preference. Each interview lasted 25-60 minutes (mean duration 38 minutes). No new barriers or enablers were raised in the last two interviews indicating data saturation.

#### Data management and analysis

A systematic approach was undertaken for the analysis of interviews informed by Braun and Clarke (2006) and guided by the framework of Grol and Wensing (2004) and (Michie et al., 2014) as follows:

1) The interviews were transcribed.

2) The interviews were read several times to get a general sense of the content and transcripts were coded to capture key thoughts and concepts related to barriers and enablers for practicing SSC.

3) Codes were translated to English and checked by two English–Arabic researchers and the co-investigators.

4) Codes with shared conceptual content were sorted into broad content areas and subsequently abstracted into categories.

5) The content of each category was checked by co-investigators and validated against the original data by the two English–Arabic researchers.

6) A model by Grol and Wensing (2004) was used to sort categories into a theoretical

scheme. This multilevel model proposes factors to be identified at the level of the practice (SSC), the individual (HCPs), the patient (Mother-infant dyads), the social context, organisational context, and the economic and political context (Grol & Wensing, 2004). 7) Factors related to the individual HCPs were sub-categorised according to the Theoretical Domains Framework (TDF) (Michie et al., 2014).

# Mothers' perceptions and experiences of skin-to skin contact after vaginal birth in Saudi Arabia: A cross-sectional study (Study IV)

# Design

The aim of the survey was to estimate the rate of SSC and describe mother's perceptions and experiences of immediate skin-to-skin contact after vaginal birth in the two largest public hospitals in Jeddah, Saudi Arabia. A quantitative cross-sectional research design offers structured questions for data collection with the intention of generalisation from a sample to a population (Creswell & Creswell, 2018; Schneider et al., 2016). Survey research provides a quantitative or numeric description of trends, attitudes or views of a population by studying a sample of the specific population. Surveys are also referred to as a research approach that encompasses systematic observation or systematic exploring and interviewing to describe a population and draw a pattern of influence in the findings of the research (Sapsford, 2007). Further information about participants, recruitment, data collection and analysis are presented in Chapter Seven: a cross-sectional study of mothers' perceptions and experiences of skin-to skin contact after vaginal birth in Saudi Arabia: (Study IV).

# **Participants**

A non-probability sampling method was selected, where convenience sampling was used to recruit postpartum mothers to participate in the study. The inclusion criteria for eligible women at the postnatal ward were:

- Gave birth normally to full-term healthy newborn infant(s) with no complications after birth,
- No medical condition which interfered with breastfeeding or ability to handle the newborn, and
- Had sufficient Arabic or English to communicate and to complete the survey.

# Data collection

#### Recruitment

Prior to the commencement of recruiting the women from the postnatal wards in the two hospitals, the researcher had a meeting with postnatal Head Nurses to discuss the recruitment and data collection process and to ensure that recruitment was efficient and safe. Participants were identified by checking the daily postnatal admission book in both hospitals between June and September 2016. A total number of 287 mothers met the inclusion criteria over three months and were approached by me and invited to participate. Mothers who were interested in knowing more about the study were given a PIS in English and Arabic (Appendices 4.d & e). The PIS clearly stated that participation was voluntary. Completing the survey was taken as providing informed consent. Furthermore, instructions were given to mothers about what they should do if they had any complaints about the researcher or about the study. No complaints were lodged during or after the completion of data collection.

# Mothers' perceptions, attitudes and experiences survey

In this study, a self-administered survey was used. The survey was developed by the research team based on the existing literature and their expertise. The aim of the survey was to explore mothers' perceptions, attitudes and experiences of skin-to-skin contact in the immediate post-birth period (first 2-3 days) (see Appendices 10.a, 10.b).

The survey had 36 items distributed over six content areas representing the following:

- Mothers' demographic characteristics,
- Mothers' description of the timing and nature of contact with their infant following birth,
- Breastfeeding outcomes and infant feeding,
- Mothers' perceptions about SSC,
- Sources of information and support for SSC offered/received by mothers, and
- Free text comments about mother's thoughts and experiences of SSC.

The survey was translated to Arabic and back-translated to English by an accredited translator. A total of 254 / 287 surveys of mothers on postnatal wards were completed, with a final response rate of 92%.

## Pilot testing the survey

Pilot testing of the survey was conducted twice with mothers with similar demographic

characteristics as those eligible for the survey to ensure the survey's quality and to determine the appropriateness of the content for postnatal mothers. This approach was used to identify any problems prior to data collection, to ensure content validity and overall questionnaires quality (Polit & Beck, 2018). The survey was piloted for the first time with 10 Saudi mothers who gave birth in Saudi Arabia and lived in Melbourne for study purposes or to accompany their husbands. The second pilot testing was with 10 Saudi and non-Saudi mothers who had recently given birth and who were still in the postnatal ward in hospital (A) Jeddah, Saudi Arabia. This generated valuable suggestions and comments about two questions that were not clear and needed rewording and based on this I revised these items in the questionnaire.

# Data management and analysis

A codebook was developed prior to the data analysis. This codebook listed all variables names and codes to ensure the data were coded in a proper and consistent way. All data from the survey were entered to EpiData 4.0.2.101 (Christiansen & Lauritsen, 2010) for cleaning purposes. Data were then transferred to Stata 15 program (StataCorp, 2017) for descriptive analyses. Categorical and numerical data were described using appropriate summary descriptive statistics including proportions, frequency, mean, and standard deviations (SD). The Likert scale questions with 5 points response categories '1—Strongly agree, 2—Agree, 3—Uncertain, 4—Strongly disagree, 5—Disagree' were grouped into three categories: '1—Agree, 2—Uncertain, 3—Disagree'.

The qualitative, open-ended responses were analysed by using content analysis (Bengtsson, 2016). This approach consists of four stages: decontextualization, recontextualization, categorisation and compilation. That have been explained earlier in this chapter. Withi the compilation phase an English-Arabic researcher checked the coding, themes and categorisation of the texts. All authors checked the translated codes and formed categories and themes independently. These were later merged and discussed iteratively until consensus was obtained about the presentation of findings.

# **Ethical consideration**

Ethical approvals were obtained for the three original studies (II-IV) from La Trobe University Human Research Ethics Committee (HEC17-006) on 4 April 2017 and Saudi Arabia Ethics Committee of Directorate of Health Affairs Jeddah (A00461) on 24 April 2017 (Appendices 1.a & b). There is no risk to the mothers, newborn infants and health care providers in this research project. Permission letters were also obtained from the Research and Educational Department in the two hospitals prior to start the data collection. These letters are compulsory for any researcher working in these sites to ensure certain procedures take place prior to the data collection, such as notifying the unit managers about the presence of the researcher and providing the researcher with assistance needed to facilitate the recruitment procedure and data collection. A number of steps were taken to protect research participants:

# Informed consent

Participants in the original studies were provided with a PIS when invited to participate in the study, which included a description of the study, how their information would be managed, and that they were free to withdraw from the study at any time (Appendices 6.a, b, c, d, & e). In Study II the observational study, pregnant women and clinicians were given a consent form and had time to think about their participation. They were also informed that their participation was voluntary. Pregnant women were informed that their participation was completely voluntary and they were under no obligation to consent to participate in the project. If the woman felt that the presence of the researcher in the room was inconvenience to her, the women could ask the researcher to leave the room at any time. A total of 30 women were approached and of those eight did not took part in the study because two of them changed their minds and the remaining six women had complicated birth which lead the researcher to leave the room.

In Study III, HCPs who attended and participated in the interviews consented to be interviewed and to be recorded. For mothers in Study IV, their completion of the survey was taken as the provision of informed consent.

# Maintaining confidentiality and anonymity

To ensure confidentiality, anonymity, and privacy of participants, the researcher used several strategies. Firstly, the concepts of anonymity and confidentiality were fully explained and detailed in the PIS (Appendices 5.a, b, c, & d). Secondly, the participants were not required to write their names or give any other identifying information on the survey. The surveys were coded numerically, and participants were assured that those numbers would be used for data entry only. Thirdly, as I am a Saudi female and a clinician

with nursing and midwifery background, I am culturally aware of possible sensitive issues that may arise during the conduct of the research study.

In Study II, participants were assured that their demographic data were kept confidential. During the observation of births, I made notes to record what I observed, rather than using a video recording which would have been too intrusive.

One of the important aspects I considered was being a researcher in the birth room. Mothers and HCPs were fully aware of the purpose of the study (observing the hospital practices during the first hour of birth), my role as a researcher, where I came from and the reason I was observing the birth. As I was not an employer in either hospitals, HCPs were a bit anxious at the beginning of the observation period and thought I might evaluate their practice and report poor practices. However, I built good relationships with both the mothers and HCPs and assured them the purpose of the study was to explore hospital practices after birth and not to evaluate individual practices. Some HCPs participants asked me after birth "Am I doing well? How much would rate my work? Ten out of ten?". Being a researcher and new to both hospitals I felt I was welcomed by the participants and treated politely. I was not part of the hospital hierarchy and participants seemed to be comfortable and behave naturally.

I had no previous knowledge of the participants which increased the credibility of the study, as knowing the participants could affect personal bias and preconceived ideas (Rabbitt, 2003). The HCPs were not informed about the specific practice that I would be observing to avoid any change of their practices. My prolonged exposure at the observation site also decreased the participants' focus on being observed (Rabbitt, 2003). The nature of giving birth is quick and participants were focused on their tasks and barely recognised my presence (Altaweli, 2015).

The other aspects were the busy environment of birth room and the possibility of any complicated birth situation (e.g. baby needed resuscitation). Participants were informed the data collection would cease if there was any birth complication and I would leave the room. During the observation period, I sat quietly in a corner without making the HCPs or mothers

uncomfortable. I was looking down and writing all the events happening during the observation period and I did not participate in the care of the women.

In Study III, HCPs were approached after the completion of Study II to avoid influencing their practice of SSC. HCPs were informed that their participation was voluntary and their data were kept anonymous. There was no conflict of interest with the two organisation nor the participants. The majority of HCPs working on the birth unit were female. Although the flyer placed on the memo board clearly stated that all HCPs were welcome to participate, only female HCPs participated in the study. When one of the participants refused to be recorded, notes were taken instead.

When recruiting the HCPs for the interviews some were willing to participate, where other were cautious and afraid they were not qualified enough to represent their colleagues. I ensured the participants that the interview was not about examining their knowledge about certain practices and it all about understanding the perceived barriers and enablers about certain hospital practice. Participants seem to be comfortable during and after the interviews and no complaints were received on this research project.

In Study IV, postpartum mothers were under no obligation to take part in the study. Among the 287 women invited to participate, 254 completed the survey as some changed their minds, or were too busy with their new baby. Mothers were not asked to write their names in the completed survey and assured their demographic data would not be identifiable.

### Storage of data

All hard copy data were held in a locked cabinet in a locked room at La Trobe University. All consent forms were kept separate from transcripts. Electronic data were kept on University servers, and password protected. Care was taken to ensure no quotes or other information used in presentations or publications could be used to identify any of the research participants.

# Reflexivity

My role as a researcher in the research process was important to describe because I collected all the data myself. My role was as an "insider" mother and Saudi Midwife and an "outsider" the researcher (Burns, Fenwick, Schmied, & Sheehan, 2012). To maintain the two roles, I followed certain strategies. The insider mother, and Saudi midwife were I was passionate about the practice of SSC and I have experienced SSC with my children, I advocate for mothers to request SSC. As a researcher outsider, I followed steps recommended by Flacking and Dykes (2016), to be transparent including writing reflexive notes after each birth during the fieldwork and discussing my personal views, beliefs, assumption feelings and observations with my supervisors during regular meetings.

The insider role of being a Saudi midwife assisted my observation and conducting the interviews with rigour in collecting the data because I have the knowledge about the evidence base practices during birth and what interventions should take place in each stage of labour and after birth. My midwifery background enhanced my skills to obtain richer data from the observations and the interviews and I was able to judge when SSC should be implemented and when it was not able to be.

As a mother and a midwife, I had a negative emotional response when one of the babies observed had a congenital non-life threatening condition and the paediatrician requested to transfer the baby to the NICU. I was not happy about the paediatrician's decision because I did not think (as a midwife ) that the baby needed to be transferred and I knew this separation would hinder early initiation of breastfeeding. As a mother I was keen to see the mother and the baby together because the mother was anxious and wanted to see her son but was not given a chance to hold or see her baby during the first hour. I was very angry because my personal experience as a mother of three kids and one of them had a similar condition and I was able to hold my daughter and was ensured she was doing well and breastfeed immediately after birth. I wanted the mother to have the good experience I had. As an outsider researcher, my roles was to observe the mother during the rest of the hour when the baby was transferred to NICU and record the case as no SSC.

# Conclusion

This chapter has provided a description of the methodology of this study which employed mixed methods with a convergent parallel design to address the overall research aims. This chapter also has provided information about the study participants, methods of data collection, methods of data analyses and description of ethical considerations. Further details of the methods used for each study are discussed in the following Chapters (7-9).

# CHAPTER SEVEN: THE CURRENT PRACTICES OF SKIN-TO-SKIN CONTACT IN JEDDAH, SAUDI ARABIA (STUDY II)

This chapter presents the findings from the observational study which aimed to investigate the current practices and policies of SSC in the first hour after vaginal birth in the two largest public hospitals in Jeddah, Saudi Arabia. This chapter incorporates the full-article original submission to *Acta Paediatrica* and the published brief report (Abdulghani, Amir, & Edvardsson, 2020) which is included in Appendix 2. The original submission was reviewed and the reviewers' comments were mainly about the use of term "Semi-SSC" (which I had defined as placing the newborn infant on mother's chest or abdomen with a barrier, such as a sheet or a hospital gown). Based on the reviewers' comments, I instead used the revised description of: "the common practice of newborn infants placed on mother's chest with barriers" in the accepted version of the paper. The editor requested a shorter version as space is tight in this printed journal, so we agreed to resubmit paper as a 1000 word brief report (see Appendix 2).

Publication: Observational study found that skin-to-skin contact was not common after vaginal birth in Saudi Arabia (Study II)

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# Authors' contributions

Nawal Abdulghani (70%)	Conceptualization
	Literature review
	Methodology Data
	analysis Validation
	Interpretation of results
	Writing – original draft Writing
	– review & editing
Lisa Amir (Principal supervisor) (20%)	Conceptualization Data
	analysis Methodology
	Validation
	Interpretation of results
	Writing – review & editing
Kristina Edvardsson (10%)	Conceptualization Data
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Date 21/07/2020

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Title page

# Direct skin-to-skin contact is uncommon after normal birth in Saudi Arabia: an observational study

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# Abstract

Aim: The primary aim was to investigate the current practices and policies of Skin-to-Skin Contact (SSC) by observing mother-infant dyads in the first hour after normal birth. The secondary aim was to observe infants' nine instinctive behavior stages and breastfeeding initiation in the first hour.

Methods: The Birthing Room Observational Tool was used to observe the practice minute-by-minute in the first hour after birth. A total of 22 mother-infant dyads were observed at two large public hospitals in Jeddah, Saudi Arabia in 2017. Field notes were taken for each birth and policies related to SSC were reviewed.

Results: Both hospitals recommended SSC after birth in their policy documents. Only two motherinfant dyads (9%) had direct SSC with an average duration of 10 minutes, while 16 mother-infant dyads had semi-SSC (72%) – meaning that the naked baby was placed on the mother's chest or abdomen with barriers such as a sheet or a hospital gown. No infant progressed through the nine instinctive behaviours within the first hour. Fewer than half the participants (41%, n=9) initiated breastfeeding in the first hour after birth. The quality of education and support for the women about SSC was poor.

Conclusions: Immediate SSC in these hospitals was practiced well below the WHO recommended standard of SSC. Separation of mother-infant dyads was an important barrier for SSC practice within the first hour, which also hindered infants' progress through the nine instinctive behaviors and timely breastfeeding initiation.

# Key notes

- Direct skin-to-skin contact was uncommon in these two large public hospitals in Jeddah, Saudi Arabia.
- Most mothers experienced short period of semi-SSC meaning the newborn infant was placed on the mother's chest or abdomen with barriers such as a sheet or hospital gown.
- Maternity hospitals need to prioritise the practice of SSC and develop strategies to implement SSC routinely after normal birth.

**Keywords:** Skin-to-skin contact, Normal birth, Observation, Semi-skin-to-skin contact **Abbreviations:** SCC, skin-to-skin contact; Semi-SSC, Semi-skin-to-skin contact; WHO, World Health Organization; BFHI, Baby-Friendly Hospital Initiative.

# Introduction

Building evidence supports the importance of immediate Skin-to-Skin Contact (SSC) as the cornerstone of newborn infant survival (1), its benefits for breastfeeding duration and exclusivity (2). Kangaroo care is the practice of SSC in preterm infants and SSC is the synonym term used with full term newborn infants (3). SSC is the placement of the prone newborn infant on the mother's abdomen or chest with no clothing separating them for at least 60 minutes after birth, regardless of method of delivery (4). The revised guidelines for the Baby-Friendly Hospital Initiative (BFHI) from the World Health Organization (WHO) recommends immediate and uninterrupted skin-to-skin contact and states that health care providers should also support mothers to initiate breastfeeding as soon as possible after birth (3). Infants placed directly on their mothers' bare chest usually find their own way to the breast and attach spontaneously (5). During SSC, newborn infants progress through nine stages of instinctive behaviours including the birth cry, relaxation, awakening, activity, crawling, resting, familiarisation, suckling and sleeping (5). This unique hour must be protected by ensuring SSC is a routine practice (6). The WHO recommends a global standard of at least 80 % of all mothers of term infants reporting that their babies were placed skin-to-skin with them, unless there were documented medically justifiable reasons for delayed contact (4).

In Saudi Arabia, studies describing SSC have reported the practice from an administrative level (7, 8). For example, Mosher et al. measured the efficacy of the BFHI implementation at two hospitals in Riyadh using questionnaire data from hospital administration and maternity staff (8). The immediate SSC in the BFHI hospital was reported as 100% and 40% in the Non-BFHI hospital (8). The second study was a qualitative study about childbirth care practices based on interviews with maternity unit managers in nine hospitals (7); participants reported that eight out of the nine hospitals practiced early SCC between mother and newborn infant. Another study in Saudi Arabia surveyed pregnant women and breastfeeding mothers to assess their attitudes and practice of the Ten Steps to Successful Breastfeeding in Al-Khobar (9). In their setting, newborn infants were routinely separated from their mothers and SSC was not practiced.

Although these studies provide an insight into the practice of SSC, more detailed methods of data collection are needed to accurately describe current SSC practice. Therefore, the aim was to investigate the current practices and policies of SSC by observing mother-infant dyads in the first hour after normal birth. The secondary aim was to observe the infants' nine instinctive behavior stages and breastfeeding initiation in the first hour.

# Methods

# Study design

This study utilised a mixed method design combining quantitative recording of observations (10), with field notes and document reviews of guidelines for the immediate postpartum care for both mother and infant.

# Study setting

We conducted the study in two hospitals (A, B) in Jeddah, Saudi Arabia. Both are public hospitals with approximate annual births of 7000 and 6000 respectively and high patient-staff ratios. Each hospital had about six single rooms for birth/labour. Most health care providers working in the birth units were female. Both sites had breastfeeding educators: site A they focused on supporting women in the postnatal ward, whereas site B had two breastfeeding educators to support women immediately after birth as well on the postnatal ward (referred to as "SSC Champions" in this paper).

# Participants and recruitment

The inclusion criteria were women with low-risk singleton term pregnancy, over 18 years of age, a healthy pregnancy with no major antenatal complications and no problems likely to impact on their ability to hold the baby immediately after birth. Both sites are public hospitals with no charge for Saudi citizens and low fees for non-Saudi citizens. Most women who gave birth at these hospitals were not booked in and had no medical file or antenatal records at admission. We invited women to participate in the study when they were admitted and in the early stages of active labor. Women were given the Participant Information Statement, informed that their participation was voluntary and given time to discuss participation with family members. If women were interested and consented to participate, the first author [NA], then sought permission from the assigned clinician (obstetrician, midwife or nurse) who would be managing the birth. A study flyer was placed on memo boards to inform clinicians and women about the study. All clinicians were informed about the study and were informed that their participation was voluntary and if the woman or staff member felt the presence of the researcher in the room was an inconvenience, the researcher would leave the room immediately.

Based on previous similar observational studies (11-15), we aimed for a sample of 20 mother-infant dyads. Of the 30 women who agreed to participate, eight women were excluded: changed their mind (n=2), prolonged  $2^{nd}$  stage or complicated birth (n=2), baby passed meconium (n=1), emergency Caesarean section (n=2), and postpartum haemorrhage (n=1). A sample of 22 mother-infant dyads were observed for the first hour after birth.

# Data collection tools

We searched for tools that had been used for previous observation of birth practices (Table 1). The *Birthing Room Audit Tool* developed by Cantrill et al which describes the first hour post-birth minuteby-minute was selected to record the observations because it was the most comprehensive tool identified and therefore best suited for this study (12). A face-to-face meeting with the author [RC] took place during the planning phase of this study. The tool is divided in to four sections: the first section describes the practice of SSC and any events occurring immediately after birth, and the second section identifies the nine instinctive newborn behaviours that the infant progresses through in the first hour according to Widstrom et al (16). The third section explains the maternal experience of initiating breastfeeding, categorised into 'Fed well', 'Few suckles', 'Licked or nuzzled', 'Unable to latch despite repeated attempts to latch' and 'Not interested in feeding'. The fourth section describes the assistance that mothers received to breastfeed, categorised into 'Declined assistance', 'No assistance required', 'Hand off assistance', 'Minimal assistance', 'Moderate assistance' , 'Full assistance', (12). The risk of bias was reduced by blinding participants (clinicians and mothers) to the study hypothesis and using a structured observation tool.

Field notes were collected before and after birth describing the contextual, physical environment and what else was happening relevant to SSC and not included in the observation tool. Hospital policy and guidelines were also collected for analysis.

# **Operational definitions**

In this study, SSC was defined as placing the naked baby on the mother's bare abdomen or chest immediately or less than 10 minutes after birth or soon afterwards. The term 'semi-SSC' term was coined by the authors to subsume the concepts of newborn infants being placed on the mothers' chest or abdomen with a barrier such as a sheet or hospital gown between them.

# Data collection procedure

Data were collected between June and September 2017. Observations were unobtrusive with minimal interaction with mothers and their supporters and staff. The researcher confirmed the mother's consent again in the birth room. When birth was imminent, the researcher entered the room and started recording the events occurring during the 60 minutes after birth. In some cases, the researcher stayed longer than 60 minutes if SSC or breastfeeding was occurring.

# Data analysis

All data from observations were entered in EpiData (4.0.2.101) and transferred to Stata 15 program for descriptive analysis. We used descriptive analysis and displayed the results graphically for each infant and also summarised the findings in the Healthy Children Project's Skin-to-Skin Implementation Algorithm (HCP-S2S-IA) (11). Field notes of events before and after the observation period informed the data analysis of the observations (17). Data collected from field notes, policies and procedures were qualitatively analysed by using a content analysis approach (18).

# Ethical approval

Ethical approval was obtained from La Trobe University Human Research Ethics Committee (HEC17-006) and Saudi Arabia ethics committee of Directorate of Health Affairs Jeddah (A00461).

# Results

# Background characteristics of the study sample

Twenty-two healthy, mothers and their newborn infants were observed for the first hour after birth. The characteristics of mothers and infants are summarised in Table 2. The mean maternal age was 30 years (range 23-38 years) and four were primiparous. Sixteen mothers were Saudi nationality (73%). All newborn infants were healthy with 8-9/10 Apgar score at 1 minute and 10/10 at 5 minutes. One infant was transferred to NICU after the first hour because he was diagnosed with a non-life-threatening genetic condition and needed further investigation.

# The current policies and practices of skin-to-skin contact after vaginal birth

# Policy review

Both hospitals mentioned SSC practice in their immediate postpartum policies, however site B was more detailed. Site A's written policy stated that:

"During the first hour of life if baby will not be admitted to NICU: a) Mother and baby should not be separated, b) skin-to-skin contact should be encouraged and c) breastfeeding should be initiated after birth to aid the uterus to contract."

Whereas Site B provided more explanation about the practice of SSC and breastfeeding:

"a) Place the newborn in Skin-to-Skin Contact (SSC) with the mother immediately following birth, b) encourage uninterrupted SSC for a minimum of one hour (irrespective of the feeding choice) and until after the first breastfeed, c) explain to the mother and support person, the importance of support the newborn's head and neck in the neutral position, to enable airway patency, d) cover the newborn's back with warm blanket, e) encourage the mother to 92 recognize when her newborn is ready to breastfeed".

#### Nature and duration of mother-infant dyads' skin-to-skin

A detailed description of each infant's care received during the first hour including the practice of SSC duration, events interrupting SSC, by whom and breastfeeding practices are presented in Figure 1. All mothers were capable of holding their babies immediately after birth (n=22), however only 18 mothers held their babies within the first hour after birth (82%). Among those, only two mother-infant dyads had direct SSC. In the first case (ID# 16), the mother asked the midwife to hold the baby, and direct SSC started at 11:50 minutes post-birth lasting for two minutes until the first separation by another midwife to administer Vitamin K injection. At 17:44 minutes post-birth, the SSC champion encouraged the mother to hold the baby for a second time and SSC continued for almost 13 minutes.

A second interruption occurred when another midwife took the baby to complete assessment tasks. In the second case (ID# 22), the newborn infant was placed immediately on the mother's bare chest for 4 minutes by the second SSC champion before being interrupted for routine care by another midwife. During the observation period, only three women (14%) received education about SSC from two midwives – both SSC champions.

According to Healthy Children Project's Skin-to-Skin Implementation Algorithm (Figure 2), no infant achieved the standard practice of immediate continuous and uninterrupted SSC in the first hour after normal birth.

# Semi-skin-to-skin contact

In the 16 cases where the mother held her infant but did not have direct SSC, infants were placed on their mothers' chest/abdomen with a barrier such as a sheet or a hospital gown between them. The nature of semi-SSC was a "quick touch" with the baby resting on the mother's chest while clinicians clamped and cut the cord for an average duration of 4 minutes without breastfeeding and 12 minutes when breastfeeding occurred. These 16 dyads were also subject to interruption by clinicians during the first hour (Figure 1).
#### Barriers for skin-to-skin practice

It is clear from Figure 1 that all babies were separated from their mothers and many events interrupted the practice of SSC within the first hour after birth. The most common event was placing the baby under the radiator and measuring the infant's head, chest, abdomen circumference, weighing and Vitamin K injection (100%), followed by dressing the infant (95%) and oral/nasal suction (77%). A procedure applied by the Saudi Ministry of Health, the 'baby foot and mother fingerprint' in order to record identification for both mother and baby, also interrupted the practice of SSC. All these procedures were performed with infant placed under the radiator. During the observation period, staff did not provide any education for the mother about SSC, except in the two cases mentioned above. Some staff prevented mothers from holding the baby due to completing the baby assessment and routine care (32%).

Field notes indicated that the design of the hospital gown prevented mothers exposing their chest to prepare for SSC. The gown was completely closed at the front and opened with strips at the back to enable easy access if an epidural injection was needed. Moreover, the structure of the birth room was not conducive to SSC due to the large distance between the mother's bed and the radiator where the baby was placed. No portable cots were available in the birth room making it difficult for the mother to reach the baby.

## The nine instinctive stages of newborn infant behaviour

Generally, observation of newborn infant behaviours was difficult due to separation of mother-infant dyads. However, the researcher attempted to observe some data about infant behaviour. The nine instinctive stages of newborn behaviour observed are summarized in Table 3. The first stage *Birth cry* and the subsequent cry was observed in all infants. However, it was observed that infants had consistent and prolonged crying when separated from their mothers. Stage two, *Relaxation* was observed in nine newborn infants, however, staff were concerned when the infant was relaxed or silent and they stimulated the infant to move or cry. The *Awaking* stage was observed in 13 infants.

The fourth stage *Activity* was observed in nearly all babies. The following stage *Resting* was observed when the baby was lying on mother's chest and after routine care (n=17). The *Crawling stage* was not

observed in any of the newborns due to the separation between mothers and infants. *Familiarisation* and *Suckling* stages were mostly observed when mothers initiated breastfeeding. The last stage, *Sleeping*, when the infant falls asleep was mainly seen when the baby was held by the mother. No infant progressed through all nine instinctive stages of newborn infant behaviours during the first hour.

## Breastfeeding practices

The first breastfeeding attempt and the assistance mothers received for breastfeeding are shown in Table 4. Among the 22 mother-infant dyads, only nine mothers initiated breastfeeding within the first hour after birth (41%). Three were classified as "Fed well" when babies showed effective suckling by the sound of sucking and the chin was well placed on the mother's areola, four babies had "Few sucks", one baby was licking the nipple and one was unable to latch on despite the midwife's attempt to assist the baby to latch at the breast. Around 50% of the women were offered help to breastfeed (n=11). Two women declined assistance with breastfeeding, one was breastfeeding independently and required no assistance, three mothers received "hands off" support and three mothers received "hands on" assistance. Although the paediatrician asked the assigned midwife to encourage the mother to breastfeed the baby with the genetic condition before transfer to the NICU the baby was not breastfeed within the first hour.

# Discussion

We found that the practice of immediate uninterrupted and continuous SSC after normal birth was uncommon in these two hospitals in Jeddah, Saudi Arabia. While many mothers held their infants immediately after birth, most were very briefly placed semi-SSC instead of directly skin-to-skin and were subject to interruption by clinicians during the first hour. Only two infants were placed on the mother's bare chest without a barrier for a mean of 10 minutes, indicating lack of adherence to the SSC hospital policy, and a practice that does not meet the WHO recommended standard (4). Therefore, policy makers and stakeholders should pay attention to updating the current policy and support the need for provision and ongoing support of SSC practice in Saudi Arabian hospitals. The most frequent events interrupting SSC practice were placing the newborn under the radiator (generally located a distance from the mother), naso-oropharyngeal suction, and routine injections, which are similar to events noted in other studies undertaken in Australia and Singapore (12, 19). Routine suction of all newborn infants is discouraged due to the reduced likelihood of babies achieving suckling within the first hour leading to difficulties in breastfeeding (12, 13, 20). To avoid interruptions to SSC, clinicians could perform some interventions such as baby assessment or Vitamin K injection while the newborn stays SSC with the mother, instead of separating the dyad. This may also bring further benefits since SSC reduces newborn pain during injection (21).

Our most striking finding was that no infant progressed through the nine instinctive behaviours, even though more than half of the mothers did not receive any pain relief. It is known that maternal exposure to pain relief medication during birth is associated with altered newborn infant behaviour (22). We observed prolonged crying when infants were separated from their mothers, as described by Christensson et al (23) as the "separation distress call" when infants recognise physical separation from their mothers and start to cry in pulses and stop when reunited. Therefore, the most appropriate position of the healthy full-term newborn baby after birth is in close body contact with the mother.

The WHO recommends initiation of breastfeeding within the first hour after birth (4), however, in our study only 41% of mothers initiated breastfeeding within this time period due to the frequent separation of mother and infant. Timely initiation of breastfeeding is important because it reduces the risk of infant mortality (24) and decreases risk of sepsis, diarrhea and respiratory in the first month of life (25). Timely initiation of breastfeeding is correlated with SSC practice (26), as it is a natural behaviour for a healthy infant to slowly squirm or crawl toward the breast (5). Skin-to-skin contact immediately after birth is associated with higher rates of exclusive breastfeeding during hospital stay (27).

## Strengths and limitations

To our knowledge, this is the first study to address the current practices and policies about SSC practice after normal birth in Saudi Arabia. The first author is familiar with the study context and culture because of her Saudi nationality and midwifery background. The design of the study enabled the researchers to provide detailed description of the current practice of SCC in two hospitals in Saudi Arabia, and the non-participant observations enabled an accurate record of the care received by the mother-infant dyads received.

The main limitation for this study was that it was conducted in two hospitals in one city. Although the two hospitals were the largest in Jeddah, we cannot generalise the findings to all hospitals in Saudi Arabia. Future research should consider conducting the study in other sites, and the data collection method could be strengthened if two researchers were assigned: one to observe the mother and one for the newborn infant.

## Recommendations

Hospital policy-makers should prioritise implementing the routine practice of SSC (6), since the majority of mothers in this study had insufficient education about SSC; only two staff members, the breastfeeding educators – SSC champions – encouraged SSC. A multidisciplinary team of clinicians and policy makers should work collaboratively to enhance the practice of SSC by designing strategies aiming towards zero separation between mothers and newborn infants. Educating mothers and encouraging them to experience SSC is a shared responsibility between obstetricians, midwives and nurses. An initiative could be adopted by the Ministry of Health in Saudi Arabia including collecting accurate estimates of the prevalence of SSC at population levels.

# Conclusion

Immediate SSC in these hospitals was practiced well below the WHO recommended standard of SSC. Separation of mothers-infant dyads was an important barrier for SSC practice within the first hour, which hindered timely breastfeeding initiation. A brief period of semi-SSC with a sheet between mother and infant was the most common practice in the two hospitals. However, the reasons for this practice are not clear. Further research should investigate why and how common the practice of semi-SSC is in other settings and cultures. Maternity services in Saudi Arabia could increase the implementation of SSC by changing hospital policies to prioritise SSC over routine care and use SSC champion modelling to encourage adoption of SSC among birth unit staff, educate staff and expectant parents about SSC, and train staff working in birth units to implement SSC.

# Acknowledgement

We would like to thank Dr. Ruth Cantrill for her support and time to discuss the study tool and we are grateful for the women and health care providers for their participation in the study.

# Conflict of Interest

The authors have no conflicts of interest to declare.

# Funding information

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Figure 1 Flow chart of skin-to-skin contact observation among 22 mother-infant dyads, in Jeddah, Saudi Arabia in first hour after birth.

Events interrupting SSC (alphabetically): A = baby assessment, D = baby dressed, F = baby foot stamped, H = mother request not to hold baby, I = routine injections, M = baby measurement, O = baby holding by others, P = staff prevented, R = placed under radiant heater, S = oral/nasal suction, SH = mother showered or up to toilet, Res = Active resuscitation. \* Other abbreviations; N = Nurse, Mw = Midwife, Paedia = Paediatrician, Obs = Obstetricians



*Figure 2 Skin-to-skin Implementation Algorithm showing status of the 2 infants (of 22) who received skin-to-skin contact, adapted from* © *Healthy Children Project, Brimdyr et al. (11)* 

Author/s (year)	Aim	Tools description	Validation process
Sobel, et al., 2011 (28)	An evaluation of hospital care in the first hours of life with the intent to drive policy change, strategic planning and hospital reform.	Intrapartum assessment tools about newborn care practices.	Pre-testing of the assessment tool was performed in two hospitals.
Cantrill et al., 2014 (12)	Evaluate the practice of suckling achievement within the first hour after birth.	The tool sections: birthing events and placement of babies immediately following birth, newborn feeding behaviour, maternal behaviour to initiate breastfeeding, and assistance mothers received to position and attach their baby to the breast.	Content validity by seven professionals (nurses, midwives, IBCLC and researcher). Piloted on two births.
Martinez-Galiano, and Delgado- Rodriguez, 2014 (29)	Assess the effect of education program on factors related to delivery and health behaviour with newborns after birth.	Sociodemographic characteristics of the mother, conditions during pregnancy, obstetric variables, duration of stages of labor, postpartum complications, early skin-to-skin contact between mother and newborn, and active involvement of mother during birth.	Not identified.
Robiquet, et al., 2016 (13)	Measure the actual time of SSC in the first 2 hours, study the events that occur during this period and search for factors linked to delay breastfeeding.	Interviews and video recording combined with medical records. The tool collected information about the mothers' characteristics, breastfeeding experiences, and events occurring in the first 2 hours of life and details about SSC.	Not identified.
Cadwell, et al., 2018 (6)	Analyse the process of uninterrupted SSC between healthy newborns and their mothers immediately after birth.	An algorithm of a coloured flowchart that presents when and how the dyad carried out SSC during the first hour.	The algorithm validated in two sets of data.
Watkins, et al., 2018 (14)	Collect data about SSC in newborn infants born weighing less than 2000 g over the first week after birth.	Tool based on WHO practical guides for Kangaroo mother care guides.	Not identified.

Table 1 Summary of observational tools listed according to year of publication

Demographic characteristics		
Matamal aga		0/
20.25 years	1	70 19
26-25 years	4	18
31_35	8	36
36-40	8 2	9
Nationality	10	72
Saudi Non Soudi	10	75
Non-Saudi	0	21
Parity		
Primiparous	4	18
Multipara	18	82
Gestational age (weeks) (mean)	39 (36-41)	
Labor and birth		
Onset of labor		
Spontaneous	17	77
Induced	5	23
Birth type		
Vaginal birth	22	100
Assisted birth	0	0
Method of analgesia <sup>a</sup>		
Nitrous oxide	9	41
Pethidine	5	23
Epidural	0	0
Nil	13	59
Infant Apgar score		
@ 1 minute: score of 8	4	18
score of 9	18	82
@ 5 minutes: score of 10	22	100
Birthweight (kg) (mean)	2.970 (2.400-3.500)	
Baby gender		
Male	10	45
Female	12	55
Breastfeeding in the first hour		
Yes	9	41
No	13	59

Table 2 Characteristics of mother-infants dyads observed after normal birth in Jeddah (n=22)

<sup>a</sup> Mothers may have more than one method of analgesia

Sta	ges	Behaviours	n (%)
1.	Birth cry	Intense cry just after birth, transition to breathing air.	22 (100)
2.	Relaxation	Infant rests. No activity of mouth, head, arms, legs or body.	9 (41)
3.	Awaking	Infant begins to show signs of activity. Small thrusts of head: up, down, from side-to-side. Small movements of limbs and shoulders.	13 (59)
4.	Activity	Infant moves limbs and head, more determined movements.	18 (82)
5.	Rooting activity	, 'pushing' with limbs without shifting body.	
6.	Resting	Infant rests, with some activity, such as mouth activity, sucks on hand.	17 (77)
7.	Crawling	'Pushing' which results in shifting body.	0 (0)
8.	Familiarisation	Infant has reached areola/nipple with mouth positioned to brush and lick areola/nipple.	6 (27)
9.	Suckling	Infant has taken nipple in mouth and commences suckling.	8 (36)
10.	Sleeping	The baby has closed its eyes.	12 (55)

Table	3 The	nine	instinctive	stages o	f newborn	infant	behaviours,	adapted	from	Widström	et al.	(16	)
												1	/

*Table 4 Breastfeeding practice among 22 mother-infant dyads in the first hour after birth, adapted from Cantrill et al. (12)* 

Infant's ID	Type of contact	Baby's first breastfeed attempt	Type of assistance
1	Semi-SSC	No BF attempted	No assistance offered
2	Semi-SSC	No BF attempted	No assistance offered
3	Semi-SCC	No BF attempted	Mw offered assistance/mother declined
<u> </u>	Semi-SSC	No BF attempted	Pediatrician advised mother to BF
5	Semi-SSC	No BF attempted	Mw asked mother to BF and mother
5.	Senii-SSC	No DI attempted	was ready but did not happen
6	Semi_SSC	No BE attempted	Mw asked mother to bring the haby/
0.	Senii-SSC	No bi attempted	mother not ready
7.	No initial	Few suckles after repeated	Mw offered hands off assistance
	contact	attempts to latch	
8.	Semi-SCC	Few suckles after repeated	N offered minimal assistance
		attempts to latch	
9.	No contact	No BF attempted	No assistance offered
10.	No contact	No BF attempted	No assistance offered
11.	Semi-SCC	Unable to latch despite repeated	Mother asked to hold the baby/ N
		attempts to grasp nipple	offered full assistance
12.	Semi-SCC	No BF attempted	No assistance offered
13.	No contact	No BF attempted	No assistance offered
14.	No contact	No BF attempted	No assistance offered
15.	Semi-SCC	Fed well	No assistance required - mother
			independent
16.	SSC	Few suckles	MW, minimal assistance
17.	Semi-SCC	Licked /nuzzle	N, full assistance- help position and
			attachment
18.	Semi-SCC	Few suckles	Mw, minimal assistance
19.	Semi-SCC	No BF attempted	No assistance offered
20.	Semi-SCC	No BF attempted	No assistance offered
21.	Semi-SSC	Fed well	Mw, hand off assistance
22.	SSC	Fed well	Mw, hand off assistance

Abbreviations: Fed well = sustained deep rhythmical suck, swallow, breathe pattern; No assistance required = mother independent; Hands off assistance = supportive verbal or nonverbal encouragement, instruction, information; Minimal assistance = positioning only i.e. baby near the breast; Moderate assistance = attachment only i.e. shaping mother's breast; Full assistance = help to both position and attach baby to breast; Mw = Midwife; N = Nurse.

# References

1. Conde-Agudelo A, Diaz-Rossello JL. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. Cochrane Database Syst Rev. 2016(8):CD002771.

2. Moore ER, Bergman N, Anderson GC, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst Rev. 2016;11:CD003519.

3. World Health Organization. Kangaroo Mother Care: A Practical Guide. Geneva 2003.

4. World Health Organization. Implementation guidance: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services – the revised Baby-friendly Hospital Initiative. Geneva 2018.

5. Widström AM, Lilja G, Aaltomaa-Michalias P, Dahllöf A, Lintula M, Nissen E. Newborn behaviour to locate the breast when skin-to-skin: a possible method for enabling early self-regulation. Acta Paediatr. 2011;100(1):79-85.

6. Cadwell K, Brimdyr K, Phillips R. Mapping, measuring, and analyzing the process of skin-toskin contact and early breastfeeding in the first hour after birth. Breastfeed Med. 2018;13(7):485-92.

7. Altaweli R, McCourt C, Baron M. Childbirth care practices in public sector facilities in Jeddah, Saudi Arabia: a descriptive study. Midwifery. 2014;30(7):899-909.

8. Mosher C, Sarkar A, Hashem AA, Hamadah RE, Alhoulan A, AlMakadma YA, et al. Selfreported breast feeding practices and the Baby Friendly Hospital Initiative in Riyadh, Saudi Arabia: prospective cohort study. BMJ Open. 2016;6(12):e012890.

9. Salem LYA, Al Madani MM. Pregnant and lactating mothers' attitudes and practice of the Ten Steps to Successful Breastfeeding at King Fahd Hospital of University (KFHU)-Khobar, Saudi Arabia: Appraisal of Baby Friendly Hospital Initiatives. Journal of Education and Practice. 2015;6(11):9-18.

10. Creswell JW, Clark VLP. Designing and conducting mixed methods research. 3rd ed. Thousand Oaks, CA: Sage publications; 2017.

11. Brimdyr K, Cadwell K, Stevens J, Takahashi Y. An implementation algorithm to improve skin-to-skin practice in the first hour after birth. Matern Child Nutr. 2017;14(2):e12571.

12. Cantrill RM, Creedy DK, Cooke M, Dykes F. Effective suckling in relation to naked maternal-infant body contact in the first hour of life: an observation study. BMC Pregnancy Childbirth. 2014;14:20.

13. Robiquet P, Zamiara PE, Rakza T, Deruelle P, Mestdagh B, Blondel G, et al. Observation of skin-to-skin contact and analysis of factors linked to failure to breastfeed within 2 hours after birth. Breastfeed Med. 2016;11:126-32.

14. Watkins HC, Morgan MC, Nambuya H, Waiswa P, Lawn JE. Observation study showed that the continuity of skin-to-skin contact with low-birthweight infants in Uganda was suboptimal. Acta Paediatr. 2018;107(9):1541-7.

15. Stevens J, Schmied V, Burns E, Dahlen HG. Who owns the baby? A video ethnography of skin-to-skin contact after a caesarean section. Women Birth. 2018;31(6):453-62.

16. Widstrom AM, Brimdyr K, Svensson K, Cadwell K, Nissen E. Skin-to-skin contact the first hour after birth, underlying implications and clinical practice. Acta Paediatr. 2019;108(7):1192-204.

17. Phillippi J, Lauderdale J. A guide to field notes for qualitative research: context and conversation. Qual Health Res. 2018;28(3):381-8.

18. Schreier M. Chapter 12: Qualitative content analysis The SAGE Handbook of Qualitative Data Analysis 2014. p. 170-83.

19. Lau Y, Tha PH, Ho-Lim SST, Wong LY, Lim PI, Citra Nurfarah BZM, et al. An analysis of the effects of intrapartum factors, neonatal characteristics, and skin-to-skin contact on early breastfeeding initiation. Matern Child Nutr. 2017:e12492.

20. Widström AM, Ransjö-Arvidson A, Christensson K, Matthiesen AS, Winberg J, Uvnäs-Moberg K. Gastric suction in healthy newborn infants effects on circulation and developing feeding behaviour. Acta Paediatr. 1987;76(4):566-72.

21. Johnston C, Campbell-Yeo M, Disher T, Benoit B, Fernandes A, Streiner D, et al. Skin-toskin care for procedural pain in neonates. Cochrane Database Syst Rev. 2017;2:CD008435. 22. Brimdyr K, Cadwell K, Widström A-M, Svensson K, Phillips R. The effect of labor medications on normal newborn behavior in the first hour after birth: A prospective cohort study. Early Hum Dev. 2019;132:30-6.

Christensson K, Cabrera T, Christensson E, Uvnäs–Moberg K, Winberg J. Separation distress call in the human neonate in the absence of maternal body contact. Acta Paediatr. 1995;84(5):468-73.
NEOVITA Study Group. Timing of initiation, patterns of breastfeeding, and infant survival: prospective analysis of pooled data from three randomised trials. Lancet Glob Health. 2016;4(4):e266-e75.

25. Khan J, Vesel L, Bahl R, Martines JC. Timing of breastfeeding initiation and exclusivity of breastfeeding during the first month of life: effects on neonatal mortality and morbidity- a systematic review and meta-analysis. Matern Child Health J. 2015;19(3):468-79.

26. Mekonnen AG, Yehualashet SS, Bayleyegn AD. The effects of kangaroo mother care on the time to breastfeeding initiation among preterm and LBW infants: a meta-analysis of published studies. International Breastfeeding Journal. 2019;14(1):12.

27. Bramson L, Lee JW, Moore E, Montgomery S, Neish C, Bahjri K, et al. Effect of early skinto-skin mother-infant contact during the first 3 hours following birth on exclusive breastfeeding during the maternity hospital stay. J Hum Lact. 2010;26(2):130-7.

28. Sobel HL, Silvestre MA, Mantaring JB, 3rd, Oliveros YE, Nyunt US. Immediate newborn care practices delay thermoregulation and breastfeeding initiation. Acta Paediatr. 2011;100(8):1127-33.

29. Martinez-Galiano JM, Delgado-Rodriguez M. Influence of an education program of pregnant women on delivery. J Matern Fetal Neonatal Med. 2014;27(7):719-23.

# CHAPTER EIGHT: HEALTH CARE PROVIDERS' PERCEIVED FACILITATORS AND BARRIERS OF SKIN-TO-SKIN CONTACT IN JEDDAH, SAUDI ARABIA (STUDY III)

This chapter presents the published paper of the semi-structed interviews with Health Care Providers (HCPs) about the facilitators and barriers of Skin-to-Skin Contact (SSC).

Publication: Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: A qualitative study (Study III)

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Nawal Abdulghani (70%)	Conceptualization
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Lisa Amir (Principal supervisor) (10%)	Conceptualization
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	Interpretation of results
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# Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: A qualitative study



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#### abstract

*Objectives:* To identify Health Care Providers' (HCPs') perceived facilitators, barriers and requirements for implementing the practice of Skin-to-Skin Contact (SSC) immediately after vaginal birth.

*Design:* A descriptive qualitative study with semi-structured interviews. Two theoretical frameworks were used to guide the data analysis: Theoretical Domains and the Grol and Wensing's barriers to and facilitations of change in health care practice.

Settings: Two public hospitals in Jeddah, Saudi Arabia with 7000 and 6000 births per year, respectively.

Participants: A purposeful sample of 20 obstetricians, midwives, and nurses.

*Findings:* The HCPs' perceived facilitators included buy-in of the practice of SSC. Existing or potential barriers included the absence of a detailed policy and guidelines to support the practice of SSC, lack of capabilities and motivations to implement the practice of SSC, mothers not interested in SSC, lack of pro- fessional collaboration, staffing and time constraints, and a medicalised birth environment that prioritised interventions over SSC.

*Conclusion and implication to practice:* The insights gained from identification of facilitators and barriers for SSC practice in this study can assist the development of a tailored multi-level implementation strategy at the individual, social and organisational levels to provide continuous uninterrupted SSC immediately after birth. The practice of SSC could likely be successfully implemented if there is multidisciplinary collaboration that prioritises the practice of SCC.

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#### Introduction

There have been advances in the promotion and support of skinto-skin contact (SSC), which involves placing the infant naked on the mother's bare chest or abdomen for at least 60 min after birth (World Health Organization, 2018). The World Health Orga- nization (WHO) recommends that immediate, continuous, and un- interrupted SSC for mother-infant dyads should be facilitated and encouraged as soon as possible after birth (2018).

SSC provides short and long-term benefits for both mother and newborn infant (Moore et al., 2016). These benefits include improved attachment and recognition between mother and new- born infant (Moore et al., 2016), faster expulsion of the placenta (Marin Gabriel et al., 2010), lowered incidence of primary postpartum haemorrhage (Saxton et al., 2014), improved maternal selfefficacy towards breastfeeding (Aghdas et al., 2014), facilitation of breastfeeding initiation (Mahmood et al., 2011; Aghdas et al., 2014), increased exclusive breastfeeding duration (Bramson et al., 2010; Mahmood et al., 2011; Aghdas et al., 2014; Agudelo et al., 2010; Mahmood et al., 2011; Aghdas et al., 2014; Agudelo et al., 2016), women breastfeeding more times per day (Marin Gabriel et al., 2010), and lower risk for maternal post-traumatic stress and depression (Bigelow et al., 2012; Morelius et al., 2015; Abdollahpour et al., 2016). SSC is also appreciated by women due to the opportunity to bond with the baby, and women gener- ally do not want to be separated from their babies (Finigan and Long, 2014; Stevens et al., 2019).

For the newborn infant, the practice of SSC stabilises thermoregulation (Marin Gabriel et al., 2010; Beiranvand et al., 2014), helps to maintain the newborn's blood glucose level (Moore et al., 2016), improves stability of cardiopulmonary dynamics, reduces newborn infant stress and crying during the early period post birth (Dalbye et al., 2011; Takahashi et al., 2011; Beijers et al., 2016)

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and reduces pain during intramuscular injections (Abeling and Thacker, 2013).

In spite of the WHO recommendations and the numerous benefits of SSC, the practice has not been fully integrated as part of routine care after vaginal birth in Saudi Arabia. To bridge the gap between evidence-based practice and patient care, we need to understand the factors that can facilitate or act as barriers for prac- tice change (Grol et al., 2013). Understanding health care providers' (HCPs') perceived facilitators and barriers for the practice of SSC is a key factor for successful implementation.

#### Background

HCPs including obstetricians, midwives and nurses have an essential role in implementing the practice of SSC. Research has identified several barriers to SSC after vaginal birth for healthy newborns: absence of a policy for SSC, clinicians' lack of education, insufficient staff and competing priorities (Calais et al., 2010; Ferrarello and Hatfield, 2014; Koopman et al., 2016), lack of staff practical experiences (Vittner et al., 2017), maternal exhaustion and perceived need for cleanness (Ferrarello and Hatfield, 2014), and interruption by family (Ferrarello and Hatfield, 2014). Facilitators to SSC practice identified in previous studies include education for mothers and clinicians (Calais et al., 2010; Nahidi et al., 2014; Koopman et al., 2016; Vittner et al., 2017). However, there has been little qualitative research undertaken to investigate perceived barriers and facilitators regarding immediate, continuous, and uninterrupted SSC after vaginal birth, taking into account factors at the individual, social and organisational levels.

Most studies conducted in Saudi Arabia have focused on the practice and determinants of exclusive breastfeeding (Al- Hreashy et al., 2008; El-Gilany et al., 2011; Alzaheb, 2016; Alyousefi et al., 2017), while some studies have focused on fac- tors related to breastfeeding initiation (Amin et al., 2011; El- Gilany et al., 2012; Aghdas et al., 2014) and the adherence to the Baby Friendly Hospital Initiative (BFHI) Ten Steps for Successful Breastfeeding (Mosalli et al., 2012; Mosher et al., 2016).

Three studies have reported data on SSC practice in Saudi Arabia (Altaweli et al., 2014; Salem and Al Madani, 2015; Mosher et al., 2016). The first of these, from Jeddah by Altaweli et al. (2014), found that head midwives, head nurses and head obstetricians, in eight out of the nine hospitals reported practicing early skin-to- skin contact between mother and newborn infant. The other study reported women's experience of breastfeeding, and the views of hospital administrators and maternity staff views about the ad- herence to the BFHI Ten Steps to Successful Breastfeeding in two hospitals (BFHI and non-BFHI) in Riyadh (Mosher et al., 2016). Immediate SSC was reported by maternity staff to be 100% at

the BFHI hospitals (n = 7) and 40% at the non-BFHI hospitals (n = 4). The third study identified from Saudi Arabia assessed pregnant and breastfeeding mothers' attitudes and practices of the Ten Steps to Successful Breastfeeding in Khober (Abu Salem and Al Madani, 2015). They found that SSC was limited in practice, newborn infants were often separated from their mothers, and breastfeeding initiation was often delayed for hours or days (Abu Salem and Al Madani, 2015). However, since the studies that reported the practice of SSC were based on views of hospital administrators and birth unit managers rather than maternity staff managing births, they may not reflect actual SSC practice, nor did they identify what factors may hinder the practice of SSC after vaginal birth in Saudi Arabia. Therefore, evidence about the practice of SSC in Saudi Ara- bia is inconclusive. The aim of the study was to identify the facil- itators, barriers for HCPs and requirements for implementing the practice of continuous uninterrupted SSC immediately after vagi- nal birth.

#### Methods

#### Study context

In Saudi Arabia, the Ministry of Health (MOH) is the major government provider and financer of health care services. MOH provides all health care services, including maternity and child health services, free of charge for Saudi citizens and at low-cost for non-Saudi citizens (Almalki et al., 2011). The private sector is mostly financed by health insurance schemes for employers under nongovernmental agencies (Almalki et al., 2011). In 2017, the birth rate was 17.23 per 1000 population, the Maternal Mortality Rate (MMR) was 12 in 100,000 live births, and the Infant Mortality Rate (IMR) was 6.3 in 1000 live births (Ministry of Health (MOH), 2017). The maternity care model in Saudi Arabia is managed mainly by obstetricians who see women at antenatal clinics, and with shared obstetrician and midwifery or nursecare at birth. Midwives and nurses mostly manage low risk births. Due to the shortage of midwives in Saudi Arabia, registered nurses are also allocated to work in birth units.

The WHO/UNICEF recommends that skin-to-skin contact begins immediately after birth, regardless of method of delivery, and mothers should be supported to initiate breastfeeding as soon as possible after birth, within the first hour (World Health Organization, 2018). Breastfeeding data is not routinely collected in Saudi Arabia. The World Breastfeeding Trends Initiatives (WBTi) in Saudi Arabia (2015) reported that the early initiation of breastfeeding within the first hour was 11% (The World Breastfeeding Trends Initiative (WBTi), 2015). The prevalence of exclusive breastfeeding in Saudi Arabia is inconsistently reported and results from the available studies are inconclusive.

This study was conducted in Jeddah, Saudi Arabia, the second largest city in Saudi Arabia with a population of over four mil- lion people (Jeddah Population, 2017). Two public hospitals were selected based on their high number of births, with approximately 7000 and 6000 births per year, respectively. Within these two hos- pitals, rooming-in was commonly practised in the postnatal wards. At the time of the study, around 112 obstetricians were rotated through labour and delivery, gynaecology, antenatal and postnatal wards at the two hospitals, and this number included consultants, registrars, residents and rotating medical intern students. Approxi- mately 82 midwives and nurses were working in the birth units at the two hospitals.

#### Participants and recruitment

Purposeful sampling was used to ensure participants repre-sented a variety of positions, years of experience and nationalities. The inclusion criteria for participants were any senior or junior obstetricians, nurses, and midwives who had worked in the birth unit within the previous 12 months.

Prior to the start of data collection, an introductory meeting was held with birth unit managers and charge nurses to get their permission to commence data collection, to discuss the research topic and to encourage staff to participate in the study. A flyer about the project was placed on the notice board in the birth unit in both hospitals. All HCPs were invited to participate in the study and the first author, NA, conducted interviews at a time and place that suited the interviewee.

All participants (n = 20) were female full-time employees. Most workers at the hospitals were Saudi nationality and a minority were from the Philippines, Bangladesh, and Egypt, and they had a wide range of ages and length of work experience. Participants' characteristics are presented in Table 1.

#### Table 1

Characteristics of participants

Role	Number=20	Age mean, years (range)	Work experience mean, years (range)
Obstetricians	4	41 (33–52)	13 (5–20)
Nurses-Midwives	4	33 (31–34)	9 (8–11)
Midwives	7	37 (29–57)	12 (4–27)
Nurses	5	34 (25–45)	9 (3–15)

#### Table 2

Key domains used to guide health care provider interviews Theoretical Domains Framework, (Michie et al., 2005).

Domains	Example of interview prompts
Knowledge	What is the usual practices during the first hour after normal birth?
	What do you know about SSC?
Skills	Can you tell me where do usually place the healthy full-term newborn after birth?
	Are there other things you may want to do that may interfere with SSC?
Attitude	How do you feel about SSC for the mother and newborn infant?
	What are the benefits of SSC for mother and baby?
Professional role and identity (self-standard)	Can you tell me how doing SSC is compatible or in conflict with your job standard?
Beliefs about capabilities (Self-efficacy)	Can you tell me how easy or difficult it is to perform SSC with the first hour after birth?
	What would help you overcome these difficulties?
	How confident are you in demonstrating SSC practice for mother-infant dyads?
Motivation and goals	How motivated are you to implement the practice of SSC after birth?
	Are there any rewards or incentives when you implement the practice of SSC?
Memory and decision processes	What are some of the reasons for deciding to do or not to do SSC for mother-infants' dyads?
Environmental context and resources	To what extent do physical or environmental resource factors facilitate or hinder SSC?
Social influences (Norms)	Can you tell me how the other staff working in the birth unit facilitate or hinder SSC?
	Can you tell me how social influences facilitate or hinder SSC?
	Can you tell me how you think cultural background facilitate or hinder SSC?
Regulation	What policies and guidelines are in place for SSC practice?
	Are there any procedures or ways of working that encourage SSC practice?
Nature of the behavior	What is the current practice of SSC?
	Do you think it would be possible to implement SSC as a routine practice in the future? How?

Abbreviation: SSC=Skin-to-skin contact.

#### Table 3

A multilevel approach to examine barriers and incentives adapted from (Grol and Wensing, 2004).

Level	Barriers/incentives
Innovation (SSC practice)	Advantages in practice, feasibility, credibility, accessibility, attractiveness
Individual (Health care providers)	Awareness, knowledge, attitude, motivation to change, behavioural routines
Patient (Mother-infant dyad)	Knowledge, skills, attitude, compliance
Social context	Opinion of colleagues, culture of the network collaboration, leadership
Organisational context	Organisation of care processes, staff capacities, resources, structures
Economic and political context	Financial arrangements, regulations, policies

#### Data collection

Semi-structured face-to-face interviews were conducted with HCPs at each hospital from June to September 2017. An interview guide was developed by the authors based on a literature search as well as clinical and research experience. The Theoretical Do- mains Framework (TDF) assisted the development of the interview guide (Michie et al., 2014). Key domains are listed in Table 2, with examples of interview prompts for each TDF domain. All inter-views were digitally recorded except one, where the participant did not consent to the interview being recorded, and notes were taken instead which were checked by the participant following the interview to ensure the trustworthiness of the data. The in- terviews were conducted in English and Arabic according to the participant's preference and lasted between 25 and 60 min (mean 38 min). No new barriers or enablers were raised in the last two interviews indicating data saturation.

#### Data analysis

A systematic method was undertaken to analyse the data. Firstly, the interviews were transcribed. Secondly, the interviews were read several times to get a general sense of the content and, transcripts were coded to capture key thoughts and concepts related to barriers and enablers for practicing SSC. Thirdly, codes were translated to English and checked by two English-Arabic researchers and the co-investigators. Fourth, codes with shared conceptual content were sorted into broad content areas and subsequently abstracted into categories. Fifth, the content of each category was checked by co-investigators and validated against the original data by the two English- Arabic researchers. Sixth, a model inspired by Grol and Wensing (2004) was used to sort categories into a theoretical scheme. This multilevel model proposes fac- tors to be identified at the level of the innovation/intervention (SSC practice), the individual (HCPs), the patient (the mother-infant dyad) the social context, organisational context, and the economic and political context (Table 3). Seventh, factors related to the indi- vidual HCPs were subcategorised according to the Theoretical Do- mains Framework (TDF) (Michie et al., 2014). This framework out- lines 12 key theoretical domains related to individual behaviour change. Three domains - social influences, regulation, and motiva- tion were integrated in other levels (social level, organisational level, and economic political level). We used the TDF to assist cat- egorising the barriers and facilitators that could change current HCPs' practices of SSC and design an intervention to implement the evidence-based practice in the future (Michie et al., 2005, 2011). The quotes presented in the results are identified by the partici- pants' role and ID number allocated for each participant.

#### Findings

#### Describing the immediate usual practice after birth

Health care providers explained that their usual practices immediately after vaginal birth included cutting the cord and placing the baby under the warmer, suction of the baby if needed, infant assessment and measurement, cleaning the baby, Vitamin K administration, and maternal thumb print and infant footprint. While participants mentioned placing the baby on the mother's chest and then cutting the cord, only a few participants stated that SSC was part of their routine practice after birth.

Many factors were identified as facilitators and barriers for SSC practice immediately after birth for vaginal deliveries. Table 4 presents a summary of the perceived facilitators and barriers of SSC through the lens of Grol et al. (2013) and Michie et al. (2014). The following section outlines these factors in detail.

#### Perceived facilitators, barriers and requirements for SSC practice

# The practice (skin-to-skin contact immediately after vaginal birth) level

Health care providers buy-in the value and the benefits of SSC by describing the importance of the first hour and referring to the practice as the "magic hour". While the majority of participants perceived the practice of SSC to be simple, easy and cost-effective, a few expressed that SSC was a waste of time and therefore not feasible to practice immediately or within the first hour after birth.

#### *Health care providers level*

Capability. Knowledge, skills, memory, attention, decision process

Several factors were identified at the level of the HCPs that could work as facilitators or barriers to SSC. One of the most common barriers raised by participants was insufficient procedu- ral knowledge about when SSC was appropriate or not appropriate due to medical complications. The participants' understanding of SSC varied and was sometimes inconsistent with the established recommendation on how SSC should be defined and practiced.

A routine practice frequently described as a barrier for SSC was placing a waterproof sheet on the mother's chest or abdomen. There were divergent views about the benefits of the sheet; some participants felt that it facilitated the practice of SSC because the mother would not get dirty from the blood and thus encouraged to hold the baby, while a second group of participants admitted that placing the sheet was incorrect practice and that it acted as a physical barrier to the direct contact between the mother and the baby.

To be honest, placing the sheet on the mother's chest is a wrong practice, but maybe the intention is to keep the mother clean. (Midwife.11)

Health care providers explained that when they placed the baby on the mother's chest, the purpose was to temporarily rest the baby until the cord was cut rather than gaining the benefits of SSC. Participants mentioned that the actual problem was not the knowledge, but rather resistance to change among HCPs. Most senior staff stated that they had experienced problems with practice change, especially if staff had been used to a practice for a long time. They had hardly seen anyone practicing SSC and it was not perceived as a routine practice.

All of them [obstetricians, midwives and nurses] have the knowledge to provide skin-to-skin contact, they have to delay cord cut and clamp but these changes are very hard and the process takes time, so the staff they have to change their atti- tudes and practice in this first hour of the postpartum period. (Nurse-Midwife.1)

Participants suggested they needed more education to develop the capability to perform SSC and to enable endurance for the practice of SSC, including attending workshops and seminars re-lated to SSC to learn more about this practice.

# Motivation. Beliefs about capability, professional role and identity, goals, beliefs about consequences and emotion

Participants had a positive attitude towards SSC and felt happy to see mother and baby together, however they were concerned that the baby may fall or be at increased risk of Sudden Unex- pected Postnatal Collapse if left skin-to-skin with the mother.

Nothing like seeing the baby and the mother together, it is so peaceful and beautiful, that picture stays in my mind every time I place the baby on the mother's chest. (Nurse-Midwife.5)

Midwives felt that SSC is part of their job and they were motivated to do the practice. However, they received no support from other HCPs. Obstetricians expressed that SSC was not part of their job.

We are expecting midwives to teach women about skin-to-skin contact and breastfeeding because they spend more time with them... by the time we enter the room the baby is already under the warmer or resuscitator. (Obstetrician.17)

Some midwives also shared their motivation and enthusiasm through creative ideas to increase the implementation of SSC.

You know I feel now after this discussion that I could change the way that the mother is dressed in the hospital gown; if she wears it backward, I could facilitate SSC better, I never thought of that. (Nurse-Midwife.8)

#### Mother-infant dyad level

According to participants, mothers' knowledge, attitudes and experiences were the main factors that determined their accep- tance or rejection of SSC. HCPs expressed that it is not common for mothers to expose their breast and place the baby there. Partic- ipants also noted that mothers sometimes refused to hold the baby until the baby had been cleaned. Another barrier for SSC described was the traditional view that women need to rest after giving birth and therefore the baby should be separated from the mother. Furthermore, if the mother was exhausted, in pain or under sedation she would not be able to hold the baby immediately after birth. Therefore, participants suggested it is necessary to educate women about SSC during pregnancy and at birth.

Most of the time... after the mother deliver the baby, she will ask me "Can you take the baby to the nursery, I am tired I can't breastfeed the baby, I need some rest". (Nurse.15)

No practice will change unless we educate the mothers. Unfortunately, our patients do not receive any antenatal education about skin-to-skin contact, or other aspects, and we want them to be better prepared for delivery and caring for their babies. If the mother was educated about skin-to-skin contact, she would stop everyone taking the baby and she will say "please give me more time with baby, the time that my baby deserves". (Obstetrician.16)

On the other hand, participants thought that mothers would accept SSC if they were aware of its benefits, were educated, had previous experience of SSC, had a history of infertility or if it was a 'precious' pregnancy. Moreover, HCPs also stated that mothers' positive attitude towards SSC and a professional relationship between the mother and HCPs managing the birth would facilitate the practice of SSC.

The best experience I witnessed was a mother who had many miscarriages. When the baby was delivered, I placed the baby

#### Table 4

Facilitators and barriers influencing health care providers to practice skin-to-skin contact immediately after normal birth according to framework of Grol and Wensing (2004) and Theoretical Domains Framework Michie et al. (2005).

Facilitators	Barriers
The practice level: Skin-to-skin contact immediately after vaginal birth	
Valued SSC	Waste of time
SSC is easy to practice	Not applicable immediately after birth
Health Care Providers (HCPs) level* :	11 2
Capability	
Procedural knowledge	
	Insufficient knowledge about definition starting time, duration, eligibility for
	SSC
Skills	
	Place waterproof sheet on the mothers' chest
Memory, attention, decision process	
Reminder to do SSC	SSC is not a routine practice
SSC is a priority	SSC is not a priority
	Resist the change
	Mother's chest is temporary place to cut the cord
Motivation	
Beliefs about capabilities	
Optimistic about practicing SSC	Nurses' and midwives' lack of confidence
Beliefs about consequences	A Contill of the loss Colling
Positive attitudes toward SSC	Arraid of baby failing
Professional role and Identity	
SSC is part of midwives' job	SSC is not appropriate part of Obstetricians job
Emotion	sise is not appropriate part of obsterricians job
Happy to see mother and baby together	Regret to do SSC
	Anxious about potential consequences
Goal	
Change the design of hospital gown	
Mother-infant dyads level (according to HCPs' perspective)	
Knowledge and experience	
Knowledge about SSC, education level, background, previous experience,	Inadequate antenatal education, unaware about SSC, unwanted pregnancy,
precious pregnancy, parity, health and wellbeing and had positive birth	baby unwell and needs resuscitation, uneducated, mother exhausted, in pain,
experience	Under sedation, or experienced complicated birth
Attitude	Moners need rest after bitti
21000 March 1997	
Mother's positive attitude	Refuse to hold the baby
Professional relationship between mother and HCPs	Antenatel education is not a priority
	Need for cleanliness
Social level	
Colleagues' influence	
SSC champion and leadership	Lack of team work and interprofessional collaboration
	Power and hierarchy for obstetricians
	Lack of designated leader
	Staff not doing SSC
Family influence	
Attend the birth and assist to do SSC	Lack of awareness and knowledge
	Family members want to hold the baby
Organisational level	Absolute of husband and failing fore at birth
Education and Training	
8	Lack of focused education and training programs for staff about SSC
Culture and philosophy	¢I ¢
	Medicalised birth environment
	Lack of administration support
	Lack of woman-centred care
	Lack of staff motivation
Human and financial resources	
<b>N 1</b> 100 11 1	Shortage of staff and heavy workload
Economic and political level	
roucies and regulations	
The policy about SSC is available and updated	No detailed policy for SSC
Assisted by routine practices	Focus on the documentation rather than care
Form specific for SSC documentation	Lack of direction from MOH**

Abbreviations: SSC= Skin-to-skin contact, HCPs= Health care providers.

\* The following categories according to Theoretical Domains Framework (TDF), Michie et al. (2011) \*\* MOH: Saudi \*\*Ministry of Health.

on the mother's chest and cut the cord, then I was going to take the baby. The mother refused to give me the baby and opened her gown and put her baby directly on her skin. (Nurse. 7)

#### Social level

The social factors were categorised according to colleague or family influences. One of the barriers reported by participants was a lack of teamwork and interprofessional collaboration, which included frequent interruption and criticism from obstetricians or paediatricians.

I practice mother-infant skin-to-skin contact and I know it is evidence-based practice, but I practice when I am alone with the mother because I am afraid, I will get negative comments like "finish your job quickly" or "it is your responsibility if the baby falls down". I feel reluctant to do the practice. The prob- lem if they said that in front the mother, this mother will not trust me or my work. (Midwife.11)

Participants said that they hardly saw any staff doing SSC, and that there was no leader to encourage and remind the staff about SSC. Participants suggested that the presence of a SSC champion who would regularly spread knowledge and positive attitude to- wards SSC among the staff would facilitate SSC.

One of the midwives has a unique practice, she used to expose the mother's chest and place the baby skin-to-skin and she ini- tiated breastfeeding early. This was a basic practice for her. She is now continuing her postgraduate studies. She was my hero and I haven't seen any one doing SSC since she left. (Nurse.9)

In regard to family influence, participants argued that the presence of family and husband at the birth could facilitate the practice because they could look after the mother and support the baby's back. Family support and education was suggested to help facilitate the practice. However, other participants held the contrasting view that the presence of family members at the birth was a 'headache' and family members could act as if they 'owned' the baby, which interfered with continuity of the practice of SSC.

We don't allow family because they might interfere with the care we provide and sometimes they want to hold the baby. They will also interfere with skin-to-skin contact and they might report something bad about the midwife. (Midwife.4)

#### Organisational level

Participants' perspectives at the organisational level focused on three themes: education and training support, the organisation culture and philosophy, and human and financial resources. Within the education and training support, most participants indicated that there was a lack of education for staff and parents about SSC. Participants agreed that most educational sessions held at birth units focused on complications and interventions after birth.

Honestly, our hospital provides seminars about birth and we celebrated breastfeeding day but we do not have enough education for staff to apply the practice. . .Unfortunately, we don't have support to practise skin-to-skin contact, no education or training for the staff to prioritise skin-to-skin contact over other tasks. They [hospital managers] underestimate the practice of skin-to-skin contact and breastfeeding. Even if I do the practice no one would appreciate my effort. (Midwife.5)

Participants provided suggestions to increase the implementation of SSC by designing an educational program for the local setting dedicated to the practice of SSC and encouraging HCPs to attend workshops and seminars about SSC. Further suggestions were education programs during antenatal classes for pregnant women about the practice of SSC.

Within the organisation culture and philosophy in the two hospitals, midwives raised a concern about the nature of the birth environment, particularly in relation to increasing the numbers of interventions and medicalised care. Women were said to be 'pushed' to have the baby as fast as they could and not given enough time. The midwives emphasised the importance of slowing down the process and giving mothers more time for the birth experience, and to let the mothers experience a physiological birth with limited interventions and procedures that could interrupt SSC.

We have to give her [birthing woman] time to have natural delivery and to keep her baby next to her with no need for frequent interruption. The baby was inside his mother's tummy for nine months, why do we have to hurry and take the baby away? Leave them together! (Midwife.18)

It was mentioned by participants that women had no choice about holding the baby, it was the doctors and midwives who de- cided whether to place the baby on the mother's chest or under the radiator. Participants suggested that the organisation should consider developing a woman-centred care philosophy and develop a midwifery care pathway for healthy women in order to promote the culture of SSC practice.

Within the human and financial resources, the main challenge faced by participants was the shortage of staff. It was described as a burden for staff members to care for the mother and baby as well as completing all paperwork. The participants on the whole agreed that their workload was unbearable and that organisations should consider this issue and create job opportunities for new staff who could help engage the mother and baby in continuous and uninterrupted SSC. Time constraints were also reported to hinder HCPs from practising SSC immediately after vaginal birth.

The work is tiring, we don't have time to even talk to the mother. I hardly take a break for prayer or lunch. I'm not say- ing that we could not perform the practice of skin-to-skin con- tact, it is easy and simple but with all other competing tasks we find it is hard to do. You cannot understand the situation until you work here and experience being under pressure. The problem is that we reach a stage where we just work blindly like a machine. We would love to spend time with the mother and educate them but being busy all the time makes us tired and counting the time to go home. (Obstetrician.20)

#### Economic political level

The factors related to the economic and political level were categorised under policies and regulations. Although both sites have an immediate postpartum care policy that encourages the practice of SSC and have a specific form designed for it, most of the participants were uncertain about the details of that policy. They were unanimous in the view that the form would facilitate the practice. Participants suggested there is a need to develop a national policy and guidelines for SSC with detailed information about the starting time, duration and eligibility criteria. They furthermore suggested adding the practice of SSC to the compulsory newborn assessment sheet for each baby.

We have an updated policy for breastfeeding and a section about skin-to-skin contact, it has improved the practice. But I want to see specific policy for skin-to-skin contact for each hospital. This policy needs to explain everything related to implementation of skin-to-skin contact after vaginal or caesarean section. (Midwife.12)

It was mentioned by participants that the routine practice of stamping mother's thumb and baby's foot and revealing the gender to the mother made the mother and baby come close together, which in turn could facilitate the practice of SSC.

Whilst participants mentioned the efforts made by the Ministry of Health to promote breastfeeding in Saudi Arabia, they agreed that there is a lack of direction particularly towards the practice SSC. One of the participants commented:

The Ministry of Health for example made an action against routine episiotomy and I can see that routine episiotomy has significantly reduced. They [MOH] started a campaign for breastfeeding as well. We have not heard anything from them about skin-to-skin contact. Their role is crucial to influence hospitals and staff practices. (Nurse-midwife.5)

#### Discussion

This study addresses several gaps about the practice of SSC in Saudi Arabia. We used a qualitative approach to unravel factors negatively or positively influencing the practice of SSC. The participating obstetricians, midwives and nurses identified a large num- ber of facilitators and barriers and these factors were present at all levels of the framework suggested by Grol and Wensing (2004).

Despite both sites having policies that recommend the prac-tice of SSC, there were no standardised definitions of the prac- tice or detailed guidelines to support the practice of SSC imme- diately after birth. Our findings are in agreement with the reviews by Brimdyr et al. (2017) and Abdulghani et al. (2018) indicating that an absence of an agreed protocol and unclear definitions are real barriers for SSC. Most previous studies conducted in Saudi Ara- bia that focused on the BFHI 10 Steps for successful breastfeed- ing did not provide any description whether SSC was included in their policies, or explained how to implement the practice of SSC (Mosalli et al., 2012; Mosher et al., 2016; Al-Jawaldeh and Abul- Fadl, 2018). Therefore, implementing such a protocol for the prac- tice of SSC would improve the practice in the first hour after birth (Brimdyr et al., 2017). The hospital policies and guidelines need to be updated to support uninterrupted SSC immediately after birth for vaginal and caesarean section births (Phillips, 2013).

The results of this study are in agreement with other stud- ies that have identified a lack of health care providers' capa- bilities including procedural knowledge and skills to be impor- tant barriers to the implementation of SSC (Nyqvist et al., 2010; Almutairi and Ludington-Hoe, 2016; Vittner et al., 2017). Insuffi- cient training was also raised as a significant barrier for SSC in this study, and according to other studies that recommended that all health care providers in an institution should be trained to support the practice of SSC immediately after birth to enable SSC adoption (Nickel et al., 2013; Seidman et al., 2015; Koopman et al., 2016). In line with our findings Mosher et al. (2016) also recommended education and training for clinicians to support women's breast- feeding after birth in Saudi Arabia, which in turn would facilitate SSC practice after birth.

Our results showed that HCPs perceived that mothers were not interested to practice SSC immediately after birth because of the need for cleanliness and they wanted babies to be taken to nursery. The results are contrary to previous studies which have suggested that mothers wanted to remain with their babies to have SSC and accepted secretions and bodily fluids from birth (Finigan and Long, 2014; Stevens et al., 2019). Within the Saudi context, in the study by Abu Salem and Al Madani (2015), mothers reported that they were separated from their babies and breast-feeding was delayed for hours in one hospital in Khobar, Eastern region of Saudi Arabia. Whereas, in another Saudi study by Mosher et al. (2016) conducted in Riyadh, central region of Saudi Arabia, it was found that BFHI hospital had higher rate of both rooming-in with the baby and SSC practice compared to non-BFHI hospital. In the light of these findings, the perceived concept of the mother's rejection to the practice of SSC could possibly be influ- enced through the involvement of mothers in the decision to place the baby SSC and motivate them experience it. The implementa- tion of BFHI policy would likely increase the rate of SSC practice and baby rooming-in with mothers in Saudi hospitals.

Within the organisational level, participants perceived barriers to SSC to be the cultural environment of the birth unit including medicalisation of birth and obstetricians' position of power. It has previously been found that hierarchy power of control of obstetricians over midwives and nurses, is a problem in birth units in Saudi Arabia that leads to more intervention taking place at the second stage of labor (Altaweli et al., 2014, 2018). A possible solution would be developing an interactive workshop where health care professionals can discuss barriers and solutions to the practice of SSC (Brimdyr et al., 2012; Brady et al., 2014). The in- volvement of peer interaction and learning between health care providers has been shown to enhance information retention rates, to facilitate the development of critical thinking and improve SSC practice (Turenne et al., 2016). Particularly when senior HCPs per- form the practice of SSC, it provides an opportunity for junior staff to observe, imitate and then model the desired behaviour.

The other common barriers cited by participants in this study were shortage of staff and a heavy workload, which is not surpris- ing because time constraints have shown to hinder the practice of SSC (Koopman et al., 2016). Therefore, there is a need to create job opportunities for staff to assist the practice of SSC and reduce the risk of burnout among staff members (Koopman et al., 2016; Chan et al., 2017). The problem of staff is a challenge for the health care system in Saudi Arabia and particularly the maternity services (Almalki et al., 2011).

#### Strengths and limitations

The first author NA is a Saudi citizen and is aware of the important cultural factors in this study context. NA has personal experience being a mother, midwife, nurse and researcher. The coauthors' background and experience in breastfeeding management, public health, and women's health, provided perspectives that enriched the analysis process and interpretation of the results. This study was strengthened by the inclusion of different professions that reflected diversity in opinions about the factors that influ- enced the practice of SSC. Within the scope of this study we were unable to conduct an in-depth comparison between the profes- sions. A future study could explore other health care professionals such as paediatricians and neonatologists' barriers and enablers to implement the practice of SSC after vaginal birth and caesarean section.

Another limitation for this study was the gender imbalance due to fewer male doctors working on the birth units. The recruitment flyer was placed on the memo board and clearly stated that any HCPs managing birth were welcome to participate in the study.

#### Conclusion

HCPs hold positive perceptions toward SSC, yet struggle to fully integrate immediate, continuous and uninterrupted SSC due to the absence of protocols for SSC immediately after birth, lack of HCPs capabilities' and motivation to implement the practice of SSC, mothers not interested in SSC, lack of professional collaboration, shortage of staff and heavy workload, the cultural environment that prioritises routine care over SSC. HCPs suggested more educa- tional opportunities and training programs dedicated to the prac- tice of SSC. HCPs also recommended that women during pregnancy should receive antenatal education about SSC.

The insights gained from the identification of facilitators and barriers for SSC practice in this study can assist the development of a tailored multi-level implementation strategy at the individ- ual, social and organisational levels to provide continuous uninter- rupted SSC immediately after birth. The practice of SSC could likely be successfully implemented when organisational stakeholders and health care professionals prioritise the practice of SCC. The Behaviour Change Wheel could assist in identifying changes needed to successfully implement the practice of SSC (Michie et al., 2014).

#### **Declaration of Competing Interest**

None declared.

#### **Ethical Approval**

This study was approved by La Trobe University Human Re- search Ethics Committee (HEC17-006) on 4 April 2017 and Saudi Arabia Ethics Committee of Directorate of Health Affairs Jeddah (A00461) on 24 April 2017.

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#### References

- Abdollahpour, S., Khosravi, A., Bolbolhaghighi, N., 2016. The effect of the magical hour on post-traumatic stress disorder (PTSD) in traumatic childbirth: a clini- cal trial. J. Reprod. Infant Psychol. 34 (4), 403–412. doi:10.1080/02646838.2016. 1185773.
- Abdulghani, N., Edvardsson, K., Amir, L.H., 2018. Worldwide prevalence of mother- infant skin-to-skin contact after vaginal birth: a systematic review. PLoS ONE 13 (10), e0205696. doi:10.1371/journal.pone.0205696.
- Abeling, B.A., Thacker, A.D., 2013. The impact of kangaroo care on pain in term newborns receiving intramuscular injections. JOGNN J. Obst., Gynecol. Neonatal Nurs. 42, S89. -S89 http://dx.doi.org/10.1111/1552-6909.12182 . .ez.library.latrobe.edu.au.
- Abu Salem, L.Y., Al Madani, M.M., 2015. Pregnant and lactating mothers' attitudes and practice of the ten steps to successful breastfeeding at King Fahd Hospital of University (KFHU)-Khobar, Saudi Arabia: appraisal of baby friendly hospital initiatives. J. Educ. Pract. 6 (11), 9–18.
- Aghdas, K., Talat, K., Sepideh, B., 2014. Effect of immediate and continuous motherinfant skin-to-skin contact on breastfeeding self-efficacy of primiparous women: a randomised control trial. Women & Birth 27 (1), 37–40. doi:10.1016/ j.wombi.2013.09.004.
- Agudelo, S., Gamboa, O., Rodriguez, F., Cala, S., Gualdron, N., Obando, E., Padron, M.L., 2016. The effect of skin-to-skin contact at birth, early versus im- mediate, on the duration of exclusive human lactancy in full-term newborns treated at the Clinica Universidad de La Sabana: study protocol for a random- ized clinical trial. Trials 17 (1), 521. doi:10.1186/s13063-016-1587-7.
- Al-Hreashy, F.A., Tamim, H.M., Al-Baz, N., Al-Kharji, N.H., Al-Amer, A., Al-Ajmi, H., Eldemerdash, A.A., 2008. Patterns of breastfeeding practice during the first 6 months of life in Saudi Arabia. Saudi Med. J. 29 (3), 427–431.
- Al-Jawaldeh, A., Abul-Fadl, A., 2018. Assessment of the baby friendly hospital initiative implementation in the eastern mediterranean region. Children 5 (3), 41.
- Almalki, M., FitzGerald, G., Clark, M., 2011. Health care system in Saudi Arabia: an overview. East. Mediterr. Health J. 17 (10), 784–793.
- Almutairi, W.M., Ludington-Hoe, S.M., 2016. Kangaroo care education effects on nurses' knowledge and skills confidence. J. Contin. Educ. Nurs. 47 (11), 518–524. doi:10.3928/00220124-20161017-11.
- Altaweli, R., McCourt, C., Baron, M., 2014. Childbirth care practices in public sector facilities in Jeddah, Saudi Arabia: a descriptive study. Midwifery 30 (7), 899–909. doi:10.1016/j.midw.2014.03.006.
- Altaweli, R., McCourt, C., Scamell, M., Curtis Tyler, K., 2018. Ethnographic study of the use of interventions during the second stage of labor in Jeddah, Saudi Arabia. Birth 46, 500–508. doi:10.1111/birt.12395.
- Alyousefi, N.A., Alharbi, A.A., Almugheerah, B.A., Alajmi, N.A., Alaiyashi, S.M., Alharbi, S.S., Alnoumasi, Z.K., 2017. Factors influencing Saudi mothers success in exclusive breastfeeding for the first six months of infant life: a cross-sectional observational study. Int. J. Med. Res. Health Sci. 6, 68–78.
- Alzaheb, R.A., 2016. Factors associated with the initiation of breastfeeding within the first 48 h of life in Tabuk, Saudi Arabia. Int. Breastfeed. J. 11, 21. doi:10. 1186/s13006-016-0079-4.
- Amin, T., Hablas, H., Al Qader, A.A., 2011. Determinants of initiation and exclusivity of breastfeeding in Al Hassa, Saudi Arabia. Breastfeed. Med. 6 (2), 59–68. doi:10. 1089/bfm.2010.0018.

- Beijers, R., Cillessen, L., Zijlmans, M.A., 2016. An experimental study on motherinfant skin-to-skin contact in full-terms. Infant. Behav. Dev. 43, 58–65. doi:10. 1016/j.infbeh.2016.01.001.
- Beiranvand, S., Valizadeh, F., Hosseinabadi, R., Pournia, Y., 2014. The effects of skinto-skin contact on temperature and breastfeeding successfulness in full-term newborns after cesarean delivery. Int. J. Pediatr. 2014, 846486. doi:10.1155/2014/ 846486.
- Bigelow, A., Power, M., Maclellan-Peters, J., Alex, M., McDonald, C., 2012. Effect of mother/infant skin-to-skin contact on postpartum depressive symptoms and maternal physiological stress. JOGNN J. Obst., Gynecol. Neonatal Nurs. 41 (3), 369–382. doi:10.1111/j.1552-6909.2012.01350.x.
- Brady, K., Bulpitt, D., Chiarelli, C., 2014. An interprofessional quality improvement project to implement maternal/infant skin-to-skin contact during cesarean de- livery. JOGNN J. Obst., Gynecol. Neonatal Nurs. 43 (4), 488–496. doi:10.1111/1552-6909.12469.
- Bramson, L., Lee, J.W., Moore, E., Montgomery, S., Neish, C., Bahjri, K., Melcher, C.L., 2010. Effect of early skin-to-skin mother-infant contact during the first 3 h fol-lowing birth on exclusive breastfeeding during the maternity hospital stay. J. Hum. Lactat. 26 (2), 130–137. doi:10.1177/0890334409355779.
- Brimdyr, K., Cadwell, K., Stevens, J., Takahashi, Y., 2017. An implementation algorithm to improve skin-to-skin practice in the first hour after birth. Mater. Child Nutr. 14 (2), e12571. doi:10.1111/mcn.12571.
- Brimdyr, K., Widstrom, A.M., Cadwell, K., Svensson, K., Turner-Maffei, C., 2012. A realistic evaluation of two training programs on implementing skin-to-skin as a standard of care. J. Perinat. Educ. 21 (3), 149–157 doi:https://dx.doi.org/10.1891/ 1058-1243.21.3.149.
- Calais, E., Dalbye, R., Nyqvist, K., Berg, M., 2010. Skin-to-skin contact of fullterm infants: an explorative study of promoting and hindering factors in two Nordic childbirth settings. Acta Paediatr. 99 (7), 1080–1090. doi:10.1111/j.1651-2227. 2010.01742.x.
- Chan, G., Bergelson, I., Smith, E.R., Skotnes, T., Wall, S., 2017. Barriers and enables of kangaroo mother care implementation from a health systems perspective: a systematic review. Health Policy Plann. doi:10.1093/heapol/czx098.
- Dalbye, R., Calais, E., Berg, M., 2011. Mothers' experiences of skin-to-skin care of healthy full-term newborns -a phenomenology study. Sexual Reprod. Healthc. 2 (3), 107–111. doi:10.1016/j.srhc.2011.03.003.
- El-Gilany, A.H., Sarraf, B., Al-Wehady, A., 2012. Factors associated with timely ini- tiation of breastfeeding in Al-Hassa province, Saudi Arabia. Eastern Mediterr. Health J. 18 (3), 250–254.
- El-Gilany, A.H., Shady, E., Helal, R., 2011. Exclusive breastfeeding in Al-Hassa, Saudi Arabia. Breastfeed. Med. Off. J. Acad Breastfeed. Med. 6 (4), 209–213. doi:10. 1089/bfm.2010.0085.
- Ferrarello, D., Hatfield, L., 2014. Barriers to skin-to-skin care during the postpar- tum stay. MCN Am. J. Mater. Child Nurs. 39 (1), 56–61. doi:10.1097/01.NMC. 0000437464.31628.3d.
- Finigan, V., Long, T., 2014. Skin-to-skin contact: multicultural perspectives on birth fluids and birth 'dirt'. Int. Nurs. Rev. 61 (2), 270–277. doi:10.1111/inr.12100.
- Grol, R., Wensing, M., 2004. What drives change? Barriers to and incentives for achieving evidence-based practice. Med. J. Austr. 180 (6 Suppl), S57.
- Grol, R., Wensing, M., Eccles, M., Davis, D., 2013. Improving Patient care: the Implementation of Change in Health Care. John Wiley & Sons, Oxford.
- Jeddah Population, 2017. World Population Review Retrieved from http:// worldpopulationreview.com/world-cities/jeddah- population/.
- Koopman, I., Callaghan-Koru, J.A., Alaofin, O., Argani, C.H., Farzin, A., 2016. Early skinto-skin contact for healthy full-term infants after vaginal and caesarean delivery: a qualitative study on clinician perspectives. J. Clin. Nurs. 25 (9/10), 1367–1376. doi:10.1111/jocn.13227.
- Mahmood, I., Jamal, M., Khan, N., 2011. Effect of mother-infant early skin-to-skin contact on breastfeeding status: a randomized controlled trial. J. College Phys. Surg. Pak. 21 (10), 601–605.
- Marin Gabriel, M.A., Llana Martin, I., Lopez Escobar, A., Fernandez Villalba, E., Romero Blanco, I., Touza Pol, P., 2010. Randomized controlled trial of early skinto-skin contact: effects on the mother and the newborn. Acta Paediatr. 99 (11), 1630–1634. doi:10.1111/j.1651-2227.2009.01597.x.
- Michie, S., Atkins, L., West, R., 2014. The Behavior Change wheel: a Guide to Designing Interventions. Silverback Publishing, Great Britain.
- Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., Walker, A., 2005. Making psychological theory useful for implementing evidence based practice: a consensus approach. Qual. Saf. Health Care 14 (1), 26–33. doi:10.1136/qshc.2004. 011155.
- Michie, S., van Stralen, M.M., West, R., 2011. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. Implement. Sci. 6 (1), 42 doi:https://dx.doi.org/10.1186/2F1748- 5908- 6- 42.
- Ministry of Health (MOH), 2017. Annual Statistical Book Retrieved from https://www.moh.gov.sa/en/Ministry/Statistics/book/Documents/ Statistical-Yearbook-1438- Appendix.pdf.
- Moore, E.R., Bergman, N., Anderson, G.C., Medley, N., 2016. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst. Rev. 11, CD003519. doi:10.1002/14651858.CD003519.pub4.
- Morelius, E., Ortenstrand, A., Theodorsson, E., Frostell, A., 2015. A randomised trial of continuous skin-to-skin contact after preterm birth and the effects on salivary cortisol, parental stress, depression, and breastfeeding. Early Hum. Dev. 91 (1), 63– 70. doi:10.1016/j.earlhumdev.2014.12.005.
- Mosalli, R., El-Azim, A.A., Qutub, M.A., Zagoot, E., Janish, M., Paes, B.A., 2012. Perceived barriers to the implementation of a baby friendly initiative in Jeddah, Saudi Arabia. Saudi Med. J. 33 (8), 895–900.

- ... Mosher, C., Sarkar, A., Hashem, A.A., Hamadah, R.E., Alhoulan, A., Al-Makadma, Y.A., Senok, 2016. Self-reported breast feeding practices and the baby friendly hospital initiative in Riyadh, Saudi Arabia: prospective cohort study. BMJ Open 6 (12), e012890. doi:10.1136/bmjopen-2016-012890.
- Nahidi, F., Tavafian, S.S., Haidarzade, M., Hajizadeh, E., 2014. Opinions of the midwives about enabling factors of skin-to-skin contact immediately after birth: a descriptive study. J. Family Reprod. Health 8 (3), 107–112.
- Nickel, N.C., Taylor, E.C., Labbok, M.H., Weiner, B.J., Williamson, N.E., 2013. Applying organisation theory to understand barriers and facilitators to the implementation of baby-friendly: a multisite qualitative study. Midwifery 29 (8), 956–964. doi:10.1016/j.midw.2012.12.001.
- ... Nyqvist, K.H., Anderson, G.C., Bergman, N., Cattaneo, A., Charpak, N., Davanzo, R., WistrĶm, A., 2010. State of the art and recommendations. Kangaroo mother care: application in a hightech environment. Breastfeed. Rev. 18 (3), 21–28. doi:10.1111/j.1651-2227.2010.01794.x.
- Phillips, R., 2013. The sacred hour: uninterrupted skin-to-skin contact immediately after birth. Newborn Infant Nurs. Rev. 13 (2), 67–72. doi:10.1053/j.nainr.2013.04.001.
- Salem, L.Y.A., Al Madani, M.M., 2015. Pregnant & lactating mothers' attitudes and practice of the ten steps to successful breastfeeding at King Fahd Hospital of University (KFHU)-Khobar, Saudi Arabia: appraisal of baby friendly hospital ini-tiatives. J. Educ. Pract. 6 (11), 9–18.
- Saxton, A., Fahy, K., Hastie, C., 2014. Effects of skin-to-skin contact and breastfeeding at birth on the incidence of PPH: a physiologically based theory. Women Birth 27 (4), 250–253. doi:10.1016/j.wombi.2014.06.004.

- Seidman, G., Unnikrishnan, S., Kenny, E., Myslinski, S., Cairns-Smith, S., Mulli- gan, B., Engmann, C., 2015. Barriers and enablers of kangaroo mother care prac- tice: a systematic review. PLoS ONE 10 (5), e0125643. doi:10.1371/journal.pone. 0125643.
- Stevens, J., Schmied, V., Burns, E., Dahlen, H.G., 2019. Skin-to-skin contact and what women want in the first hours after a caesarean section. Midwifery 74, 140–146. doi:10.1016/j.midw.2019.03.020.
- Takahashi, Y., Tamakoshi, K., Matsushima, M., Kawabe, T., 2011. Comparison of salivary cortisol, heart rate, and oxygen saturation between early skin-to-skin con- tact with different initiation and duration times in healthy, full-term infants. Early Hum. Dev. 87 (3), 151–157. doi:10.1016/j.earlhumdev.2010.11.012.
- Turenne, J.P., Heon, M., Aita, M., Faessler, J., Doddridge, C., 2016. Educational intervention for an evidence-based nursing practice of skin-to-skin contact at birth. J. Perinat. Educ. 25 (2), 116–128. doi:10.1891/1058-1243.25.2.116.
- Vittner, D., Cong, X., Ludington-Hoe, S.M., McGrath, J.M., 2017. A survey of skin- to-skin contact with perinatal nurses. Appl. Nurs. Res. 33, 19–23. doi:10.1016/ j.apnr.2016.09.006.
- The World Breastfeeding Trends Initiative (WBTi) 2015. Retrieved from https: //www.worldbreastfeedingtrends.org/uploads/country-data/country-report/ WBTi-Saudi-Arabia-2016.pdf.
- , 2018. Implementation guidance: protecting, Promoting and Supporting Breastfeeding in Facilities Providing Maternity and Newborn Services – the re-vised Baby-friendly Hospital Initiative. World Health Organization, Geneva Retrieved from https://www.who.int/nutrition/publications/infantfeeding/ bfhi-implementation-2018.pdf.

# CHAPTER NINE: MOTHERS' PERCEPTIONS OF SKIN-TO-SKIN CONTACT AFTER VAGINAL BIRTH (STUDY IV)

This chapter presents the submitted manuscript of the mothers' survey findings about Skin-to-Skin Contact (SSC) after vaginal birth. The paper is formatted for *Women and Birth* and the original version was submitted on 11 April 2020. The Editor's letter received on 22 June 2020 requested 'minor revisions'. The revised paper was resubmitted on 9 July 2020, and I am awaiting the final decision.

Submitted for publication: Mothers' perceptions and experiences of skin-to skin contact after vaginal birth in Saudi Arabia: A crosssectional study

Nawal Abdulghani (70%)	Conceptualization
	Literature review
	Methodology
	Data analysis
	Validation
	Interpretation of results
	Writing – original draft
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Amanda Cooklin (10%)	Conceptualization
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	Interpretation of results
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Kristina Edvardsson (10%)	Conceptualization
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	Validation
	Interpretation of results
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# Mothers' perceptions and experiences of skin-to skin contact after vaginal birth in Saudi Arabia: A cross-sectional study

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# Conflict of interest

The authors have no conflict of interest to report.

# **Ethical Statement**

Ethical approval was obtained from La Trobe University Human Research Ethics Committee (HEC17-006) on 4 April 2017 and Saudi Arabia Ethics Committee of Directorate of Health Affairs Jeddah (A00461) on 24 April 2017.

# Funding

None declared.

# Abstract

Problem: The World Health Organization recommends immediate skin-to-skin contact after birth, however, worldwide, separation of mothers and infant still occurs.

Background: There is a lack of research estimating the rate of skin-to-skin contact and describing mothers' experiences of skin-to-skin contact in Saudi Arabia.

Aim: To estimate the rate of skin-to-skin contact and describe mothers' perceptions and experiences of immediate skin-to-skin contact after vaginal birth in two largest hospitals in Jeddah, Saudi Arabia.

Methods: A cross-sectional study conducted in 2017. A total of 254 mothers completed the survey on the postnatal ward (92 % response rate). The survey consisted of 36 closed and openended items. Data were described using summary statistics and free text comments were analysed using content analysis.

Findings: The rate of direct skin-to-skin contact was 15%. A further 54% of mothers had the baby placed on their chest/abdomen but with a sheet/gown between them. Mothers held favourable perceptions towards skin-to-skin contact and reported the practice as acceptable (67%). Most mothers did not express concerns about feeling exposed (85%) or that skin-to-skin contact was inconsistent with norms of modesty or culture (87%). The free text comments indicated that most mothers felt positive about their experience of skin-to-skin contact, while some mothers felt overwhelmed and unprepared.

Discussion and Conclusions: Skin-to-skin contact was not routinely implemented after birth and the rate was low. Mothers held positive perceptions and wanted to practice skin-to-skin contact. Policy makers and clinicians should acknowledge mothers' needs and feelings by facilitating skin-to-skin contact to achieve optimal outcomes for mothers and infants.

## Keywords:

Skin-to-skin contact, breastfeeding, mothers, survey, Saudi Arabia, quantitative.

# STATEMENT OF SIGNIFICANCE

# Problem

There is a lack of evidence to describe how mothers in Saudi Arabia perceive the practice of skin-to-skin contact.

### What is Already Known

There is evidence from other countries that mothers generally desire to have skin-to-skin contact immediately after birth, however, some clinicians may prevent the practice if they perceive that mothers are not interested in skin-to-skin contact.

## What this Paper Adds

Data from the survey and open-ended responses found that mother in Saudi Arabia held positive perceptions toward skin-to-skin contact and wanted to practice it. Mothers also did not express concerns about feeling exposed or that skin-to-skin contact was inconsistent with norms of modesty or culture.

# **INTRODUCTION**

The World Health Organization (WHO) recommends immediate and uninterrupted Skin-to-Skin Contact (SSC) within the first hour after birth and states that health care providers should support mothers to initiate breastfeeding as soon as possible (1). Skin-to-skin contact is the placement of the prone infant on the mother's bare chest or abdomen for at least the first hour after birth (1). The recognition of SSC practice has increased due to the physical, psychological and social benefits of SSC for both the mother and baby (2). The practice of SSC after vaginal birth has been shown to vary widely across the globe and the prevalence ranges between 1% to 96% in 28 low, middle, and high-income countries (3), with higher rates of SSC reported in high-income countries compared with low-income countries (3).

Recently, researchers and clinicians have shown an increased interest in mothers' perceptions and experiences of SSC after vaginal birth in many countries including Australia, Norway, Sweden, United Kingdom (4-8) and after caesarean section (9, 10). Evidence has shown that mothers generally desire to have SSC immediately after birth (5, 6, 9, 10). Skin-to-skin contact provides mothers with immediate contact with their newborn which facilitates emotional and physical connection with their babies and helps them to initiate breastfeeding (11). However, following birth, mothers and infants are often subjected to routine hospital procedures and medical interventions during the first hour, which potentially interrupt and delay initiation of SSC (12).

To date, there is a lack of studies describing how mothers perceive the practice of SSC in Middle Eastern countries, particularly in Saudi Arabia. Some studies suggest that mothers' modesty or cultural beliefs pose a barrier to their acceptance of and preference for SSC (13-15). Therefore, in this study we aimed to estimate the rate of SSC and describe mothers' perceptions and experiences of SSC after vaginal birth in the two largest public hospitals in Jeddah, Saudi Arabia. The following research questions were addressed:

- 1) What is the rate of SSC after vaginal birth in two major hospitals in Jeddah Saudi Arabia?
- 2) What are mothers' perceptions and experiences of immediate SSC after vaginal birth?
- 3) What are mothers' experiences of breastfeeding and support received during pregnancy and birth to facilitate SSC?

123

# METHODS

## Design and settings

This study is one component of a project that involves four research components, of which the earlier three have been published: (i) A systematic review of the prevalence of SSC worldwide (3), (ii) an observational study of 22 mother-infant dyads investigating the current practices and policies of SSC during the first hour after vaginal birth (16); and (iii) interviews with 20 health care providers to identify barriers and enablers to implementing SSC in the two hospitals in Jedda, Saudi Arabia (17). This paper presents the last component, which is a descriptive crosssectional study of 254 mothers on the postnatal ward. Mothers provided survey data (quantitative) and open-ended data (self-reported qualitative comments).

The data for this study were collected from the two largest public hospitals in Jeddah (A, B), Saudi Arabia. Combined, these two hospitals have over 13000 births per year. Both hospitals have birth units and postpartum units. The hospitals have an average of six birthing rooms each. After birth, mothers and infants remain in the birthing unit for up to two hours until they are transferred to the postpartum unit. Obstetricians provide care for all mothers during antenatal visits, and for primiparous mothers and high-risk pregnancies during birth, as well as assess each mother before discharge from hospital. In hospital B, family members (husband, grandmother, or sister) are permitted to attend the birth, but in hospital A this is not permitted. Following vaginal birth, women usually stay at the hospital 24-48 hours for observation, and this is extended to 2-3 days following Caesarean section, or longer if women need extra care or develop any complications.

## Participants

The inclusion criteria for this study were mothers who gave birth to a healthy newborn infant,

were over 18 years of age, had a vaginal birth in one of the two hospitals and were in the postnatal ward, and had sufficient Arabic or English language skills to communicate about the study, to understand the plain language statement and to complete the study survey. We estimated that 260 participants would be adequate to describe the rate in Jeddah based on studies in Tunisia (18) and in Yemen (19) where 64% (226/354) and 8% (17/220) of women, respectively, experienced SSC. About 510 births were estimated during the three months of data collection according to annual birth numbers in both hospital settings. We estimated that 80% would be vaginal births and babies not admitted to Special Care Nursery (SCN) (n = 408), and 80% of these would have no other ineligibility criteria (n = 326) and 80% of women would agree to participate (n = 260).

## Recruitment and data collection

Data were collected by a self-report survey between June and September 2017. The researcher (NA) identified potential participants by checking the daily postnatal admission book in both hospitals and recording all eligible mothers who met the inclusion criteria. A total number of 277 eligible mothers were approached by the researcher in person and invited to participate. They were also provided with a Participant Information Statement in either Arabic or English. Interested mothers were handed a hard copy of the survey in either Arabic or English. Mothers were given the option to complete the survey themselves or alternatively in a structured interview with the researcher. A participant's completion of the survey was taken as informed consent. Ethical approval was granted from La Trobe University Human Research Ethics Committee and the Saudi Arabia Ethics Committee of Directorate of Health Affairs Jeddah.

## Measures

This tool was a self-reported survey developed by the authors based on a literature review and their expertise (midwifery, breastfeeding management, public health and women's health). It was also piloted twice with mothers who matched the inclusion criteria. This generated valuable suggestions and comments about two items that were not clear and needed rewording. Based on this we made minor revisions to these items. The survey had 36 items that aimed to determine the rate of SSC and explore mothers' perceptions and experiences of SSC in the immediate post-birth period (first 2-3 days, e.g. mothers were recruited in the first 2-3 days following birth; as to not disturb them in the first 24 hours unless they were planning to be discharged, therefore the range was from the first 12 hours to 72 hours after birth. See Table 1. The self-reported survey was translated to Arabic and back-translated to English to ensure consistency across both language versions. The survey took approximately 10 minutes to complete and included the following measures:

*Demographic characteristics*: maternal age (years), highest level of education, employment status, nationality, parity, gestational weeks at birth, baby weight (grams), baby age (hours/days) and gender.

*Mothers' description of the timing and nature of contact with their infant following birth* were self-reported items, recorded by the following questions: (i) *When was the first time you held your baby?* The answers were recorded in minutes/hours and then categorised according to Agudelo et al and Abdulghani et al (3, 20) as "At birth or immediately" (within the first minute of birth), "Very early" (within the first 60 minutes after birth), and "Early" (between the first hour and 24 hours of life); (ii) *Did you have your baby in SSC soon after your birth?* the answers were (Yes, No "baby placed on mother's covered chest/abdomen", Not sure and No); (iii) *Duration of SSC in minutes* (only if reported yes to the previous item) was categorised as <1 minute, 1-5 minutes, 6-10 minutes, 11-15 minutes, 16-20 minutes, and >20 minutes; and (iv) *Feelings about SSC immediately after birth* was assessed by participants' responses to a single item (comfortable, comfortable after baby gets cleaned, prefer not to do SSC, or not sure).

*Breastfeeding outcomes and infant feeding* were adapted from a prior Australian study (21) and included 3 items: (i) *breastfeeding initiation time* (minutes/ hours) was categorised as ( $\leq 1$ <sup>st</sup> hour', >1<sup>st</sup> hour-24 hours', and >24 hours'), (ii ) *first feed* (breast, expressed milk or infant formula), and (iii) *infant feeding method since birth* (fully breastfeeding at the breast, breastfeeding + expressed breast milk, expressed breast milk only, breastfeeding + formula, breastfeeding + expressed breast milk + formula, expressed breast milk + formula, fully formula feeding, and baby not feeding yet).

*Mothers' perceptions about SSC* were recorded by 9 items, with responses on the 5-point Likert scale ('strongly agree'—1, 'strongly disagree'—5). For example, mothers rated their preference about placing the baby on their chest immediately after birth, rooming-in all the time, exposing parts of their body during SSC, and suitability of practicing SSC in their culture.

For those who had experienced SSC, *mothers' perceptions about SSC* were recorded using 5-point Likert scale items (strongly agree, agree, uncertain, disagree, and strongly disagree).

*Sources of information and support for SSC offered/received by mothers* were assessed in 4 items: (i) how mothers heard about SSC, (ii) where mothers received information about SSC, (iii) mothers' perceptions of support from partners (husbands), and (iv) mothers' perceptions of support from family.

The two final items were open-ended. Mothers were invited to provide free-text comments on their experience of SSC ('*If you had SSC with your baby, would you like to tell us about your experience?*') and the reasons whether or not they would consider SSC following their next birth ('*Would you consider doing skin-to-skin contact with your next baby? And why?*').

### Data analysis

Data from the survey were entered in EpiData (4.0.2.101) for cleaning and transferred to Stata 15 for analysis. Categorical and numerical data were described using appropriate summary descriptive statistics including proportions, frequency, mean, and standard deviation (SD). The Likert scale questions with 5 points response categories '1— Strongly agree, 2—Agree, 3— Uncertain, 4— Strongly disagree, 5—Disagree' were grouped into three categories: '1— Agree, 2—Uncertain, 3— Disagree'.

For the open-ended items, data were analysed by researcher (NA) using content analysis (22). Content analysis involved four stages: I) decontextualisation; II) recontextualisation; III) categorisation; and IV) compilation (22). An English-Arabic researcher checked the coding, themes and categorisation of the texts. All authors checked the translated codes and formed categories and themes independently. These were later merged and discussed iteratively until consensus was obtained about the presentation of findings.

# FINDINGS

## Characteristics of sample

Of 287 mothers eligible for participation, 277 were invited to participate; 10 were not approached because they were sleeping or busy at the time. Of those invited, 254 mothers completed the survey (response rate: 92%). The mean maternal age of participants was 31 years (range 18 to 42 years). More than half the mothers had completed graduate or postgraduate studies, however, only one third were employed. The mean gestational age at birth was 39 weeks and the average weight of babies was 3158 grams. Characteristics of the study sample are summarised in Table 1.

### Mothers' report of the practice of skin-to-skin contact

Direct SSC was reported by 15% of mothers while half of the mothers had baby placed on their chest/abdomen with cover-waterproof sheet/hospital gown (54%). One in four mothers did not experience SSC at all after birth. Among those who had direct SSC (n=39, 15%), a large proportion had minimal and short contact duration between 1-5 minutes. Almost two-thirds of the participants felt comfortable practicing SSC immediately after birth, while 20% felt comfortable with SSC only after the baby was cleaned. Only 10% of the mothers preferred not to have any SSC. Mothers' responses regarding the rate and experiences of SSC are presented in Table 2.

## Breastfeeding outcomes

Breastfeeding outcomes are also presented in Table 2. All mothers initiated breastfeeding within the first 24 hours of birth, and about half initiated breastfeeding within the first hour (45%). The majority of babies received their first feed from mothers' breasts (87%), while 13% of babies received infant formula as their first feed. During the first 2-3 days after birth, almost two-thirds of the mothers fully breastfed at the breast (69%). About a quarter reported that their infants received formula as well as breast milk (28%) and only 2% reported formula feeding.

## Mothers' perceptions about skin-to-skin contact after birth

The majority of mothers held favourable, positive perceptions toward SSC and believed that SSC had benefits for themselves and their babies (Table 3). Most of the mothers would have liked more education about SSC during antenatal visits (82%). More than half of the mothers preferred to keep babies rooming-in all the time (59%), while 33% did not wish to have baby rooming-in all the time. The majority of mothers disagreed that SSC would expose their chest and part of the abdomen that they did not want to be seen (85%) and disagreed that SSC was inconsistent with their modesty and culture (87%).
#### Mothers' experiences of skin-to-skin contact

The mothers who experienced SSC (n=39, 15%) were invited to complete additional items about their experience of having SSC immediately after birth (Table 4). Overall, participants felt that the practice of SSC was easy, and that it helped them feel close to their babies. A large proportion of the mothers (77%), felt that SSC helped them to breastfeed and 92% reported that staff in the birth unit encouraged them to practice SSC.

#### Sources of information and support for skin-to-skin contact offered or received by mothers

Summary responses to items asking about the support for SSC that mothers received during pregnancy and birth are presented in Table 5. Seventy-one percent of mothers were aware of the practice of SSC before birth (n=181). None of the mothers reported receiving any antenatal education about SSC and mothers reported that most of their information was derived from self-searching (60%), followed by informal support from family (28%), friends (15%) and having experienced SSC previously (15%). Little information about SSC was provided by doctors and midwives at the two hospitals. The majority of mothers did not have their husband nor other family members present during birth.

#### Open-ended survey responses

One third (n= 90, 35%) of participants shared their experiences and feelings about the practice of SSC in the two open-ended items. The questions were answered by mothers who had held the baby on their chest/abdomen with a cover between them (n=43); those who had SSC (n=20); and those who did not experience SSC (n=27). Table 5 presents a summary of the mothers' responses to the open-ended questions. The quotes presented in the table are identified by the mother's parity and whether or not SSC occurred.

From the free in-text responses, mothers' descriptions of SSC experiences were categorised

into the following themes: connected and attached, SSC helped with breastfeeding, SSC assisted recovery and wellbeing, the role of healthcare providers, family influence, and neither positive nor negative. These are discussed in brief below.

Mothers felt 'Connected and attached' close to their babies during SSC and found it convenient to care for the baby. Mothers felt that 'SSC helped with breastfeeding' and 'SSC assisted recovery and wellbeing'. Some mothers described that 'The role of healthcare providers' had a positive influence on their experiences because of the informative advices they received after birth, whereas another group of mothers felt unprepared for SSC and were concerned that they had not been given a choice about SSC. 'Family influence' was positive because mothers wanted family and husbands to attend the birth and support them during SSC. A few mothers had negative family circumstances, such divorce or an unwelcome pregnancy, that was reflected in a lack of interest in holding the baby immediately. 'Neither positive nor negative' was how some mothers described their experiences of SSC.

#### DISCUSSION

The rate of SSC after vaginal birth in this sample was 15%. This level of SSC practice is suboptimal and well below the WHO recommended standard of 80% after vaginal birth within the first hour (1). The short duration of SSC reported by mothers on the postnatal ward was consistent with the concurrent observational data (collected by study authors) of 22 births at these hospitals (16). Other studies in the Eastern Mediterranean Region have reported both higher and lower rates of SSC in Tunisia, 64% (18) and Yemen, 8% (19). A recent study conducted in Iran aimed to report the prevalence and determinants of delayed breastfeeding, and use of infant formula in hospital (23). In this study only 17% (n=117/700) of the mothers experienced early SSC (23). However, the authors did not define the practice of SSC.

In our findings, a large proportion of the mothers (54%) had "baby on covered chest or abdomen". This practice was also the most common one identified in the earlier observational study when 16 mother-infant dyads had "baby on covered chest or abdomen" (73%). The practice has been reported in other settings (8). For example, a recent study in Australia reported that 29% of mothers did not receive direct SSC because babies were placed on the mother's clothes (8).

Despite the low percentage of immediate and direct SSC in the first hour, generally mothers were in favour of, and positive towards SSC. These findings broadly support findings of prior studies showing that Saudi mothers wanted SSC with their newborns and believed in its benefits (4, 6, 9). In this study, mothers also expressed their comfort and acceptance of SSC even when the baby was still covered with blood and fluids. This is consistent with a study from England where mothers from three cultural groups – Bangladeshi, English and Pakistani – contextualised and accepted secretions and bodily fluids following birth (7). The free-text comments in our study confirmed mothers' positive attitudes towards SSC and explained how it helped them recover faster post-birth. These findings are consistent with other studies that reported a positive influence of SSC on the mother's birth experiences (24, 25).

Interestingly, the study findings are inconsistent with other findings about the acceptability of SSC. For example, Charpak et al (26) reported that cultural norms in Colombia, where physical contact is restricted, meant that mothers perceived SSC as inappropriate. Mothers were also uncomfortable with the fact that they were exposed to other parents or visitors in the room during SSC (26). Evidence from systematic reviews have also described that some cultural norms of traditional bathing and carrying of the baby did not align with SSC, and that mothers were reluctant to practice SSC due to lack of privacy (21, 27). In our study, women did not report concerns about feeling exposed or that SSC was against the norms of modesty in Saudi

culture. One reason for this finding may be that clinicians working in birth units were mostly female, and mothers may feel more comfortable with SSC while female-only staff are present (4, 28).

Although most mothers were aware of the practice of SSC, they would have liked more education and discussion about SSC during antenatal visits and during and after birth. They wanted to be better prepared and informed about the practice of SSC. Mukherjee et al found that lack of awareness of SSC practice among mothers in India was the main reason for low uptake of SSC practice (29). This indicates that there is a need for mothers' antenatal education classes to include education about the practice of SSC and breastfeeding for all women giving birth (28, 30).

The mothers wanted their husbands and family members to be involved in the birth and felt their presence would have supported them to practice SSC. In our sample, the presence of husband and family members was rare. There is strong evidence that mothers need family and partner support during birth (8, 9, 31, 32), since the presence of support during birth has been shown to improve outcomes for women and infants, and provides an association with positive childbirth experiences (32). Family and partner support has also been described to improve mothers' self-esteem and empower them to make an informed decision to have SSC (4).

Our findings also raise the question about 'who' makes the decision to have SSC. Participants' comments reflected that mothers felt disappointed because they were excluded from the decision to have SSC. A study conducted in Finland, where SSC is a routine practice, highlighted that it was always the clinicians' decision to separate the newborn from the mother (33). The decision to experience SSC should be encouraged and supported by clinicians in cooperation with mothers, given that in our study, most mothers would have chosen SSC, and these needs should be heard and respected. In contrast to these findings, the HCPs who

participated in the interviews at the same hospitals explained that the barriers to SSC were mothers not being interested in SSC, and a lack of professional collaboration (17). Obstetricians, midwives and nurses managing births have a role in motivating and empowering mothers to experience SSC and assist them to make well informed decisions about SSC and breastfeeding after birth.

Despite the WHO recommendations to establish SSC and breastfeeding during the first hour of birth regardless of the type of birth, our findings revealed a suboptimal proportion of mothers breastfeeding during the first hour. This is lower than what has been reported in other studies conducted in Saudi Arabia, where rates ranged from 76% to 98% (34). This could be explained by the mother-infant separation during the first hour after birth. A high level of evidence supports the association between the practice of SSC during the first hour and successful breastfeeding (2, 35-37). Feeding the baby directly at the breast during the postpartum stay is associated with increased breastfeeding at six months postpartum (38). In this study, it was evident that the beneficial practice of SSC was commonly disrupted, with potential negative consequences for breastfeeding and mother-infant connection. Clinicians need to be aware that practicing SSC leads to increased opportunities for breastfeeding during the first hour.

This study is the first, to our knowledge, to explore SSC practices in Saudi Arabia. The strengths of this study are that we collected data using a combination of closed and open-ended responses. Enabling mothers to describe their experiences of SSC after vaginal birth via free-text comments provided further insight on mothers' needs and perceptions of SSC in their own words. Mothers were engaged and motivated to share their experiences of SSC (35%). Furthermore, the high response rate (92%) reduced the risk of response bias and increased overall study validity.

Limitations of this study are that the two selected hospitals may not be representative of all

maternity hospitals in Saudi Arabia. Results, may therefore not be generalisable to the broader Saudi context. The participants in the study were all mothers of healthy full-term infants. Research in the future could survey mothers after caesarean section and mothers of preterm babies, who are even less likely to be offered SSC with their babies (39, 40), to explore their perceptions and experiences of SSC practices.

This study is one part of a larger research project that aimed to explore the practices of SSC after vaginal birth in the two major hospitals in Jeddah, Saudi Arabia. For the overall project, we used a mixed methods design that enabled us to understand the phenomena and social complexity of current practices of SSC through triangulating data from clinicians, observations of hospital practices, and mothers themselves. The findings from the observational study (16) showed that although there is a policy in place which recommends SSC after vaginal birth, the practice was not common. In addition, health care providers who participated in the interviews perceived several barriers to the implementation of SSC, including that mothers themselves were not interested in SSC (17). The findings of this current study showed that mothers wanted SSC and held positive perceptions about SSC, but they received less support from healthcare providers. Therefore, the outcome from this project has extended our knowledge about the practices of SSC in Jeddah, Saudi Arabia

Taken together, data from these mixed-methods studies showed that clinicians views are somewhat out of step with mothers' attitudes and wishes to have SSC. Greater facilitation of SSC by clinicians would be welcomed by mothers and is a key intervention to support a healthy start for mothers and their infants.

#### CONCLUSION

Despite the low rate of SSC practiced in these two hospital settings, mothers held positive attitudes towards the practice of SSC and wanted to have SSC after birth. It is important for hospitals to acknowledge mothers' needs and feelings by facilitating SSC to achieve optimal outcomes for mothers and their infants.

#### ACKNOWLEDGMENTS

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Demographic characteristics % n Age (years) 18-24 40 15.8 25-31 83 32.8 42.3 32-38 107 >39 24 9.1 Highest level of education Did not complete Secondary School 28 11.0 Completed Secondary School 83 32.7 Graduate or postgraduate education? 56.3 143 **Employment status** 84 33.1 Employed in paid work Nationality\* Saudi 216 85.0 **Marital status** Married 251 98.8 Parity Primiparous 58 22.8 196 Multipara 77.2

Table 1 Characteristics of sample (N=254)

Labor and birth

Gestational age (mean), SD, range	$39 \pm 1.10$ weeks, 36 - 42			
Baby weight (g) (mean), SD, range	$3158 \pm 425$ g, 2000 - 4200			
Baby age at survey				
Less than 12 hours	60	23.6		
Between 12-24 hours	142	55.9		
2 days	44	17.3		
3 days	4	1.6		
More than 3 days	4	1.6		
Baby gender				
Boy	137	53.9		
Girl	117	46.1		

None-Saudi mothers form Chad, Egypt, Ethiopia, Philippines, Morocco, Palestinian, Syrian, and Yemen.

Mothers' experience of SSC and breastfeeding	n	%	
First time to hold the baby	(N=254)		
At birth or immediately ( $< 1^{st}$ minute of birth)	52	20.5	
Very early (1-60 minutes of birth)	115	45.3	
Early (> 1 <sup>st</sup> - 24 hours of birth)	87	34.2	
Had your baby in SSC soon after birth	(N=254)		
Yes	39	15.3	
No, baby was on mother's covered chest or abdomen	137	53.9	
Not sure	7	2.8	
No	71	27.9	
Duration of SSC contact	(N=39)*		
1-5 minutes	31	79.5	
6-10 minutes	3	7.7	
11-15 minutes	1	2.5	
16-20 minutes	3	7.7	
>21 minutes	1	2.5	
Feeling about SSC	(N=254)		
Comfortable	170	66.9	
Comfortable after cleaning	51	20.1	
Prefer not to do SSC	26	10.2	
Not sure	7	2.8	
Timing of breastfeeding initiation	(N=254)		
$\leq 1^{st}$ hour	114	44.9	
>1 <sup>st</sup> hour-24 hours	140	55.1	
>24 hours	0	0	
First breastfeed	(N=254)		
Breast	220	86.6	
Expressed milk from cup/spoon/syringe	1	0.4	
Expressed milk in bottle	1	0.4	
Infant formula	32	12.6	
Infant feeding since birth	(N=254)		
Fully breastfeeding at the breast	175	68.9	
Breastfeeding + expressed breast milk	3	1.2	
Expressed breast milk only	1	0.4	
Breastfeeding + formula	70	27.6	
Breastfeeding + expressed breast milk + formula	1	0.4	
Fully formula feeding	4	1.6	

Table 2 Mothers' experiences of skin-to-skin contact and breastfeeding outcome

\*The total number of mothers who had only SSC = 39

Mothers' perceptions about SSC (N=254)	Agree	Uncertain	Disagree
	n (%)	n (%)	n (%)
I would like to know more about SSC during	207 (81.5)	27 (10.6)	20 (7.9)
antenatal visits			
I believe that SSC has many benefits for the baby	214 (84.2)	36 (14.2)	4 (1.6)
I believe that SSC has many benefits for myself	211 (83.1)	36 (14.1)	7 (2.8)
I would prefer to keep my baby on my chest	159 (62.6)	46 (18.1)	48 (19.3)
immediately after birth than have him/her taken away			
for routine care			
I prefer that may baby stays in my room all the time	149 (58.7)	22 (8.6)	83 (32.7)
I am afraid that my baby will get cold on my chest	11 (4.4)	37 (14.6)	206 (81)
I feel that SSC would expose a part of my body that I	28 (11)	11 (4.3)	215 (84.7)
do not want to be seen			
I think that SSC is not appropriate in my culture	24 (9.5)	10 (3.9)	220 (86.6)
(reversed item)			
Mothers' perceptions about SSC, for those who had	Agree	Uncertain	Disagree
SSC only (N=39)*	n (%)	n (%)	n (%)
I found that practicing SSC was easy for me	37 (94.9)	2 (5.1)	0
I felt closer to my baby when I had SSC	38 (97.4)	1 (2.6)	0
I felt that SSC helped me breastfeed my baby	30 (76.9)	6 (15.4)	3 (7.7)
I believe my baby was relaxed and calm during SSC	36 (92.3)	2 (5.1)	1 (2.6)
The staff in the birth unit encouraged me to do SSC	36 (92.3)	1 (2.6)	2 (5.1)

Table 3 Mothers' perceptions about skin-to-skin contact

\*The total number of mothers who had only SSC = 39

Questions/ statements	n	%
Mothers aware of SSC	(N=254)	
Yes	181	71.3
Source of SSC information	(N=181)*	
Doctors	3	1.7
Midwives	28	15.5
Antenatal classes	0	0
Family	50	27.6
Friends	27	14.9
Self-search	108	59.7
Other sources:		
Movies, TV	3	1.7
Previous experience	28	15.5
YouTube	7	3.9
Partner's (husband's) feeling about SSC	(N=254)	
Prefer me to have SSC	2	0.8
Has no preference	0	0
Prefer me not do SSC with my baby	2	0.8
Partner was not present during the birth	250	98.4
Family's feelings about SSC (N=254)		
Prefer me to have SSC	11	4.3
Have no preference	10	3.9
Prefer me not do SSC with my baby	2	0.8
Not sure	1	0.4
Family were not present during the birth	230	90.5

Table 4 Source of information and support offered/ received by mothers

\*The total number of mothers who answered Yes to question about SSC awareness=181

Table 5 Open-ended responses of mothers' experiences of skin-to-skin contact

Themes	Summary	Example quotes
Mother-infant connection and relationship	Mothers felt positive about their SSC experiences and were close, connected and attached to their babies. Mother felt that when their babies were placed SSC, they were mentally and physically reassured of baby's wellbeing.	"What a great feeling, when she [baby] was on my chest. I still feel how warm she was. I felt like she was still in my tummy." (Primipara, SSC) "My experience was great, I felt connected and attached to my baby, I liked it [SSC]. I felt happy that my baby was next to me, I can smell, and touch him and check if he is alright!" (Multipara, SSC) "It was easy to have my baby next to me, I didn't need to stand, walk and move with the painful stiches to get her [baby] from the warmer." (Multipara, SSC)
	Mothers who had adverse feelings when separated from babies, expressed negative feeling of isolation and loneliness and wanted more time to spend with their babies.	<ul> <li><i>"He was sleeping all the time when he was on my chest."</i> (Multipara, No SSC-baby on mother's covered chest/abdomen)</li> <li><i>"They [clinicians] took my daughter away, I wished if they kept her a bit longer. I felt isolated and disconnected my blood pressure was high, and when they took her [baby] away, my blood pressures went higher!"</i> (Multipara, No SSC)</li> <li><i>"I did not get enough time to spend with my son. It was so quick."</i> (Multipara, No SSC-baby on mother's covered chest/abdomen)</li> </ul>
SSC assisted mothers' recovery and wellbeing	Mothers reflected on their experiences of SSC as it helped them recover from birth quickly and it reduced their pain. Mothers stated that they were satisfied and happy with the experience of SSC and keen to do it the future.	"All the pain and discomfort I had through the 9 months of pregnancy and birth have gone when I had her placed on my tummy." (Multipara, No SSC- baby on mother's covered chest/abdomen) "I had a very complicated birth and I was extremely tired after birth when I gave birth and they [staff] placed the baby on my bare chest, I felt happy, loved, relaxed and all the pain ceased." (Primipara, SSC) "It was a great experience." (Multipara, SSC)

SSC helped with breastfeeding	Mothers described that SSC assisted them with breastfeeding and they gained confidence in breastfeeding.	"I didn't breastfeed my first child, but this baby fed very well God bless him 'Mashallah', I kept him on my chest most of the time." (Multipara, SSC) "It was great moment when my daughter placed on my chest, it [SSC] helped me with breastfeeding and strengthened my relationship with my daughter." (Multipara, SSC)
The role of healthcare providers	Mothers appreciated the support received from midwives in the form of direct advice and education and found that it was a very effective way to facilitate SSC	"This is my first experience, I liked it [SSC] and I like the way that the midwife explained about SSC was convincing and persuasive. We need more midwives to educate mothers about this practice [SSC]" (Primipara, SSC)
	Mothers described feelings of being overwhelmed when the baby was placed SSC without consent and expressed concern because they were unprepared. They wanted more education for informed decisions about SSC.	"I am disappointed with the doctors and nurses they placed the baby on my chest without my permission. Suddenly, they placed him, I was surprised and felt scared. I'd prefer if they prepared me better for this moment." (Primipara, SSC) "I had a bad experience, the nurse suddenly put my baby on my chest. She was covered with blood and fluid, I did not know, they will put her on my clothes!" (Multipara, No SSC-baby on mother's covered chest/abdomen) "Unfortunately, no one told me about it [SSC], I'd love to do it, but why they didn't tell us about SSC, no one care about us!" (Multipara, No SSC)
The family influence	Mothers wanted family and husband to attend the birth to support and bond as a family.	"I want to do SSC again next time, it was the best experience. I wish if my husband and my mother witnessed this moment and took photo for us. I wish that they [husband and mother] attended the birth to support me" (Primipara, SSC)
Neutral experience	Mothers described their experience of SSC as neither positive nor negative.	<i>"It was a normal experience"</i> (Multipara, No SSC-baby on mother's covered chest/abdomen) <i>"Normal experience"</i> (Primipara, SSC)

Some mothers had personal circumstances	"I was not keen to hold my baby, it just reminds me of the hard time I had
that discouraged them to hold the baby	with my ex-husband." (Multipara, No SSC)
because it recalled negative memories and	"I wasn't interested to hold my baby, he is number 7, I just felt a big
sadness.	responsibility caring for him and his other siblings, May God [Allah] make
Mothers were not interested in holding the	it easy for me" (Multipara, No SSC-baby on mother's covered
baby immediately when they were	chest/abdomen)
exhausted post-birth.	"I had no energy to hold him after a long birth of 10 hours contractions
	and pain Lended up with hig tears and stickes" (Primipara No SSC)
	Some mothers had personal circumstances that discouraged them to hold the baby because it recalled negative memories and sadness. Mothers were not interested in holding the baby immediately when they were exhausted post-birth.

### REFERENCES

1. World Health Organization [WHO]. Implementation guidance: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services – the revised Baby-friendly Hospital Initiative. Geneva 2018.

2. Moore E, Bergman N, Anderson G, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database of Systematic Reviews. 2016;11:CD003519. doi: <a href="https://dx.doi.org/10.1002/14651858.CD003519.pub4">https://dx.doi.org/10.1002/14651858.CD003519.pub4</a>. PubMed PMID: 27885658.

3. Abdulghani N, Edvardsson K, Amir LH. Worldwide prevalence of mother-infant skin-to-skin contact after vaginal birth: A systematic review. PLoS ONE. 2018;13:e0205696. doi: 10.1371/journal.pone.0205696.

4. Anderzen-Carlsson A, Lamy ZC, Eriksson M. Parental experiences of providing skin-to-skin care to their newborn infant—Part 1: A qualitative systematic review. International Journal of Qualitative Studies on Health and Well-being. 2014;9:24906.

5. Biro MA, Yelland JS, Brown SJ. Who is holding the baby? Women's experiences of contact with their baby immediately after birth: An Australian population-based survey. Women and Birth. 2015;28:317-22. Epub 2015/06/04. doi: 10.1016/j.wombi.2015.05.001. PubMed PMID: 26037455.

6. Dalbye R, Calais E, Berg M. Mothers' experiences of skin-to-skin care of healthy full-term newborns - a phenomenology study. Sexual & Reproductive Healthcare. 2011;2:107-11. doi:\_ https://dx.doi.org/10.1016/j.srhc.2011.03.003. PubMed PMID: 21742289.

7. Finigan V, Long T. Skin-to-skin contact: Multicultural perspectives on birth fluids and birth 'dirt'. International Nursing Review. 2014;61:270-7. doi: 10.1111/inr.12100.

8. Allen J, Parratt J, Rolfe M, Hastie C, Saxton A, Fahy K. Immediate, uninterrupted skin-to-skin contact and breastfeeding after birth: A cross-sectional electronic survey. Midwifery. 2019:102535. doi: https://doi.org/10.1016/j.midw.2019.102535.

9. Stevens J, Schmied V, Burns E, Dahlen HG. Skin-to-skin contact and what women want in the first hours after a caesarean section. Midwifery. 2019;74:140-6. doi: 10.1016/j.midw.2019.03.020.

10. Frederick AC, Busen NH, Engebretson JC, Hurst NM, Schneider KM. Exploring the skin-to-skin contact experience during cesarean section. J Am Assoc Nurse Pract. 2016;28:31-8. doi:

10.1002/2327-6924.12229. PubMed PMID: 112193714. Language: English. Entry Date: 20170921. Revision Date: 20180703. Publication Type: Article.

11. Essa RM, Ismail N. Effect of early maternal/newborn skin-to-skin contact after birth on the duration of third stage of labor and initiation of breastfeeding. Journal of Nursing Education and Practice. 2015;5:98-107.

12. Cantrill RM, Creedy DK, Cooke M, Dykes F. Effective suckling in relation to naked maternalinfant body contact in the first hour of life: an observation study. BMC pregnancy and childbirth. 2014;14:20.

13. Seidman G, Unnikrishnan S, Kenny E, Myslinski S, Cairns-Smith S, Mulligan B, et al. Barriers and enablers of kangaroo mother care practice: a systematic review. PLoS ONE. 2015;10:e0125643. Epub 2015/05/21. doi: 10.1371/journal.pone.0125643. PubMed PMID: 25993306; PubMed Central PMCID: PMCPMC4439040.

14. Brady K, Bulpitt D, Chiarelli C. An interprofessional quality improvement project to implement maternal/infant skin-to-skin contact during cesarean delivery. Journal of Obstetric, Gynecologic & Neonatal Nursing. 2014;43:488-96. doi: 10.1111/1552-6909.12469. PubMed PMID: 103975553. Language: English. Entry Date: 20140718. Revision Date: 20150818. Publication Type: Journal Article.

15. Moore E, Anderson G, Bergman N, Dowswell T. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database of Systematic Reviews. 2012;16:CD003519. doi: doi: 10.1002/14651858.CD003519.pub3. PubMed PMID: 105837636. Language: English. Entry Date: 20101029. Revision Date: 20150711. Publication Type: Journal Article.

16. Abdulghani N, Amir LH, Edvardsson K. Observational study found that skin-to-skin contact was not common after vaginal birth in Saudi Arabia. Acta Paediatrica. 2020. doi: 10.1111/apa.15232.

 Abdulghani N, Edvardsson K, Amir LH. Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: A qualitative study. Midwifery. 2020;81:102577. doi: <u>https://doi.org/10.1016/j.midw.2019.102577</u>.

18. Bouanene I, ElMhamdi S, Sriha A, Bouslah A, Soltani M. Knowledge and practices of women in Monastir, Tunisia regarding breastfeeding. Eastern Mediterranean Health Journal. 2010;16:879-85. PubMed PMID: 21473131.

19. Kempe A, Noor-Aldin Alwazer FA, Theorell T. Women's authority during childbirth and Safe Motherhood in Yemen. Sexual & Reproductive Healthcare. 2010;1(4):129-34. doi:\_ https://dx.doi.org/10.1016/j.srhc.2010.07.001. PubMed PMID: 21122611.

20. Agudelo S, Gamboa O, Rodriguez F, Cala S, Gualdron N, Obando E, et al. The effect of skin-toskin contact at birth, early versus immediate, on the duration of exclusive human lactancy in fullterm newborns treated at the Clinica Universidad de La Sabana: study protocol for a randomized clinical trial. Trials. 2016;17:521. doi: <u>https://dx.doi.org/10.1186/s13063-016-1587-7</u>. PubMed PMID: 27782829.

21. McLachlan HL, Forster DA, Amir LH, Cullinane M, Shafiei T, Watson LF, et al. Supporting breastfeeding In Local Communities (SILC) in Victoria, Australia: a cluster randomised controlled trial. BMJ Open. 2016;6:e008292. doi: 10.1136/bmjopen-2015-008292.

22. Bengtsson M. How to plan and perform a qualitative study using content analysis. NursingPlus Open. 2016;2:8-14.

 Zarshenas M, Zhao Y, Binns CW, Scott JA. Determinants of in-hospital feeding practices in Shiraz, Iran: Results of a prospective cohort study. Birth. 2019;46(1):137-45. doi: 10.1111/birt.12385.
 Giordano J, Surita FG. The role of the respectful maternity care model in São Paulo, Brazil: A cross-sectional study. Birth. 2019;46:509-16. doi: 10.1111/birt.12448.

25. Brubaker LH, Paul IM, Repke JT, Kjerulff KH. Early maternal-newborn contact and positive birth experience. Birth. 2019;46:42-50. doi: 10.1111/birt.12378.

26. Charpak N, Gabriel Ruiz-Peláez J. Resistance to implementing kangaroo mother care in developing countries, and proposed solutions. Acta Paediatrica. 2006;95:529-34. doi: 10.1111/j.1651-2227.2006.tb02279.x.

27. Chan G, Bergelson I, Smith ER, Skotnes T, Wall S. Barriers and enablers of kangaroo mother care implementation from a health systems perspective: a systematic review. Health Policy and Planning. 2017;32(10):1466-75.

28. Nigenda G, Langer A, Kuchaisit C, Romero M, Rojas G, Al-Osimy M, et al. Womens' opinions on antenatal care in developing countries: Results of a study in Cuba, Thailand, Saudi Arabia and Argentina. BMC public health. 2003;3:17. doi: 10.1186/1471-2458-3-17. PubMed PMID: 12756055.

29. Mukherjee D, Chandra Shaw S, Venkatnarayan K, Dudeja P. Skin-to-skin contact at birth for vaginally delivered neonates in a tertiary care hospital: A cross-sectional study. Medical Journal Armed Forces India. 2019;76(2):180-4. doi: <u>https://doi.org/10.1016/j.mjafi.2018.11.008</u>.

30. Otaiby TA, Jradi H, Bawazir A. Antenatal education: An assessment of pregnant women knowledge and preferences in Saudi Arabia. Journal Women's Health Care. 2013;2:139.

31. Al-Mandeel HM, Almufleh AS, Al-Damri A-JT, Al-Bassam DA, Hajr EA, Bedaiwi NA, et al. Saudi women's acceptance and attitudes towards companion support during labor: Should we implement an antenatal awareness program? Annals of Saudi Medicine. 2013;33:28-33. doi: 10.5144/0256-4947.2013.28.

32. Bohren MA, Hofmeyr GJ, Sakala C, Fukuzawa RK, Cuthbert A. Continuous support for women during childbirth. Cochrane Database of Systematic Reviews. 2017(7):CD003766. doi: 10.1002/14651858.CD003766.pub6. PubMed PMID: CD003766.

33. Niela-Vilén H, Feeley N, Axelin A. Hospital routines promote parent—infant closeness and cause separation in the birthing unit in the first 2 hours after birth: A pilot study. Birth. 2017;44:167-72. doi: 10.1111/birt.12279.

34. Al Juaid DAM, Binns CW, Giglia RC. Breastfeeding in Saudi Arabia: A review. International breastfeeding journal. 2014;9:1. doi: 10.1186/1746-4358-9-1.

35. Cleveland L, Hill CM, Pulse WS, DiCioccio HC, Field T, White-Traut R. Systematic review of skin-to-skin care for full-term, healthy newborns. Journal of Obstetric, Gynecologic & Neonatal Nursing. 2017;46:857-69. Epub 2017/09/28. doi: 10.1016/j.jogn.2017.08.005. PubMed PMID: 28950108.

36. Safari K, Saeed AA, Hasan SS, Moghaddam-Banaem L. The effect of mother and newborn early skin-to-skin contact on initiation of breastfeeding, newborn temperature and duration of third stage of labor. International breastfeeding journal. 2018;13:32. doi: 10.1186/s13006-018-0174-9.

37. Chiou S-T, Chen L-C, Yeh H, Wu S-R, Chien L-Y. Early skin-to-skin contact, rooming-in, and breastfeeding: A comparison of the 2004 and 2011 national surveys in Taiwan. Birth. 2014;41:33-8. doi: 10.1111/birt.12090.

38. Forster DA, Johns HM, McLachlan HL, Moorhead AM, McEgan KM, Amir LH. 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. 2015;5:e007512.

39. Stevens J, Schmied V, Burns E, Dahlen HG. Who owns the baby? A video ethnography of skinto-skin contact after a caesarean section. Women and Birth. 2018;31:453-62. doi: 10.1016/j.wombi.2018.02.005.

40. Brimdyr K, Cadwell K, Stevens J, Takahashi Y. An implementation algorithm to improve skinto-skin practice in the first hour after birth. Maternal & Child Nutrition. 2017;14:e12571. doi:\_ https://doi.org/10.1111/mcn.12571.

## CHAPTER TEN: DISCUSSION AND CONCLUSIONS

This chapter begins with a letter to the Editor (Abdulghani, Amir, Edvardsson, et al., 2020) that my supervisors and I were invited to write in response to pediatricians Subhash Shaw and Gopalakrishnan Shridhar from India, who were interested in our observational study (Abdulghani, Amir, & Edvardsson, 2020) and wrote a subsequent letter to the Editor (Shaw & Shridhar, 2020). In our response letter, we highlighted the key findings of this PhD thesis, discussed the need for global action to reinforce the practice of SSC policy, and the critical importance of SSC policies and guidelines during the COVID-19 pandemic. (Abdulghani, Amir, Edvardsson, et al., 2020).

This chapter discusses the findings from the systematic review of the prevalence of SSC worldwide (Study I), from the observations of mother-infant dyads during the first hour after birth (Study II), from the health care providers' interviews (Study III) and from the survey of mothers' experiences and perceptions of SSC (Study IV). These findings are merged and integrated in light of the study questions and in the context of the published literature to provide a comprehensive understanding of the current practices of SSC in Saudi Arabia. A framework model is also presented, based on this evidence, to describe potential strategies for the implementation of SSC for healthy newborn infants after vaginal birth, informed by the Behaviour Change Wheel framework developed by Michie et al. (2014). Methodological considerations and recommendations are discussed at the end of this chapter.

### **Publication: It's time for global action to reinforce mother-infant skin-toskin contact policy (Letter to Editor)**

Nawal Abdulghani (70%)	Conceptualization	
	Literature review	
	Interpretation of results	
	Writing – original draft	

#### Authors' contributions

	Writing – review & editing
Lisa Amir (Principal supervisor) (10%)	Conceptualization
	Writing – review & editing
Kristina Edvardsson (10%)	Conceptualization
	Writing – review & editing
Amanda Cooklin (10%)	Conceptualization
	Writing – review & editing

Date: 21/07/2020

Candidate: Nawa A. Principal supervisor: L

Date 21/07/2020

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#### READER'S FORUM

## It's time for global action to reinforce mother-infant skin-toskin contact policy

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We thank Dr Shaw and Dr Shridhar for their interest in our article. They provided evidence of the current low uptake practices of skinto-skin contact (SSC) in India and highlighted the challenges faced by clinicians in implementing SSC after birth including lack of clini- cians' awareness, staffing, time constraints and safety concerns.<sup>1</sup> Similarly, our observational study of the practice of SSC after birth in two major hospitals in Jeddah, Saudi Arabia, identified that SSC was not common and was not prioritised by clinicians.<sup>2</sup> This observa- tional study was one component of a larger mixed-methods research project that aimed to understand the contemporary status of SSC through triangulating data from interviewing clinicians, observations of hospital practices and surveying mothers in Saudi Arabia.

Our observational study and interviews with clinicians indicated a lack of adherence to the hospitals' policies about the practice of SSC and barriers faced by clinicians to SSC including lack of capa- bilities and motivation to implement the practice of SSC, lack of professional collaboration, staffing and time constraints, and a med- icalised birth environment that prioritised interventions over SSC.<sup>2,3</sup> In addition, analysis of the mothers' survey and the clinicians' inter- views demonstrated that while mothers held favourable perceptions towards SSC, clinicians were somewhat out of step with mothers' desire to have SSC. Therefore, it is important for hospitals to develop and strengthen policies about SSC after birth and acknowledge mothers' needs and feelings by facilitating SSC to achieve optimal outcomes for mothers and their infants.

It is also a critical time for the whole world to reinforce SSC policy and guidelines during the unprecedented situation of the COVID-19 pandemic. In China, the initial recommendations were to completely separate newborn infants from mothers with confirmed or suspected COVID-19 and to avoid breastfeeding. However, the World Health Organization recommends mothers with COVID-19 infection should be encouraged to breastfeed and newborn infants kept with their mothers with precautions including maternal face mask and hand washing. SSC enables mother-infant dyad bonding, provides initial colonisation of the baby's microbiota, increases ex- clusive breastfeeding and reduces mother's stress level which are highly needed in the current situation. Therefore, policies and guide- lines should recommend clinicians to facilitate SSC practice after birth and educate mothers about benefits of SSC and potential risks of separation.

## CONFLIC T OF INTEREST

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#### R EFER EN CE S

- 1. Shaw SC, Shridhar G. Skin-to-skin contact at birth is still an unmet need. *Acta Paediatr*. 2020. https://doi.ori/10.1111/apa.15319
- Abdulghani N, Amir LH, Edvardsson K. Observational study found that skin-to-skin contact was not common after vaginal birth in Saudi Arabia. Acta Paediatr. 2020. https://doi.ori/10.1111/apa.15232
- Abdulghani N, Edvardsson K, Amir LH. Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: a qualitative study. *Midwifery*. 2020;81:102577.

The aim of this doctoral thesis was to describe the current practices and policies for SSC and to explore health care providers' and mothers' perceptions about SSC immediately after vaginal birth for healthy term newborn infants in Saudi Arabia. This study further determined the prevalence of SSC after vaginal birth worldwide and estimated the rate of SSC in Jeddah, Saudi Arabia.

The following questions were answered in order to address the study aims:

- What is the worldwide prevalence of SSC for healthy newborn infants after vaginal birth? (Study I)
- 2 What are the current practices of, and policies about SSC in the first hour after birth in the two largest public hospitals in Jeddah, Saudi Arabia? (**Study II**)
- **3.** What are the Health Care Providers' (HCPs') perceived facilitators, barriers, and requirements for implementing SSC immediately after vaginal birth in the two largest public hospitals in Jeddah, Saudi Arabia? (**Study III**)
- **4.** From the mothers' perspectives, what is the rate of skin-to-skin contact and their perceptions and experiences of SSC immediately after vaginal birth? (**Study IV**)

#### **Research findings**

#### The global practices of SSC for healthy newborn infants after vaginal birth

In the systematic review of the prevalence of SSC (Study I), the practice of SSC varied widely among the 35 studies representing 28 low, middle and high-income countries included in the review. The practice of SSC ranged from a low of 1% in Tanzania (Penfold et al., 2010) to a high of 98% in Croatia (Zakarija-Grkovic, Boban, Jankovic, Cuze, & Burmaz, 2017). The interpretation of these findings indicates that the practices of SSC does vary widely around the world. For example, in Denmark, rates of SSC were reported to be as high as 96% in a routinely collected national data source used as a quality indicator of maternity services (Andersson, Flems, & Kesmodel, 2016). In Australia, the practice of SSC was reported as occurring in 94% of births in a retrospective audit of clinician's reports in the hospitals' electronic database (ObstetriX) (Saxton, Fahy, Rolfe, Skinner, & Hastie, 2015). However, in another Australian study, mothers' self-reported the practice at 72% (Brodribb, Kruske, & Miller, 2013). The variation in the practice between these studies was most likely due to the data collection methods used and who is reporting the practice of SSC whether mothers or clinicians.

The timing of data collection is also crucial because mothers will have better recall of the birth

experiences soon after birth rather than months after the birth. In Canada, for example, two studies reported SSC practices. However, the data were collected at different times, one at four months and one at 5-10 months (Chalmers et al., 2010; Haiek, 2012). SSC was reported as occurring less frequently when it was collected between 5 and10 months after birth (Chalmers et al., 2010). Therefore, it is important to identify "who" is reporting the data and ensure more consistency in reporting the timing of data collection to ensure the study validity.

In the Eastern Mediterranean Region where Saudi Arabia is located, only two studies about rates of SSC were identified, and these were from Tunisia (Bouanene, ElMhamdi, Sriha, Bouslah, & Soltani, 2010) and Yemen (Kempe, Noor-Aldin Alwazer, & Theorell, 2010), reporting rates of SSC of 64% and 8% respectively. While these are near-neighbours of Saudi Arabia, little is known about the practice of SSC in Saudi Arabia. Therefore, the empirical findings in this study provide an original contribution to knowledge about the practice of SSC in Saudi Arabia.

#### What happens in the first hour after vaginal birth?

#### Interruption of skin-to-skin contact is common during the first hour of birth

The first hour after birth is critical to establish mother-infant bonding. The evidence from Studies II and III found that infants were subjected to many interventions after birth which interrupted SSC in their first hour of life, including cutting the cord, placing the infant under the warmer, suction of the infant, cleaning the infant, infant assessment and measurement and special procedures required by the Ministry of Health (MOH) such as maternal thumb print and infant footprint. These activities meant that newborn infants spent most of their first hour of life under the warmer radiator, rather than with their mothers. These findings were consistent with a descriptive study on childbirth care practices in Saudi Arabia where Altaweli, McCourt, & Baron (2014) identified from interviews with head midwives, head nurses and head obstetricians in nine hospitals in Saudi Arabia, that although eight of the hospitals routinely performed suctioning, warming and drying the newborn directly after birth. Thus, the study found contradictory findings and did not report the actual practice of SSC in Saudi Arabia (Altaweli et al., 2014).

Another study conducted in Saudi Arabia by Abu Salem & Al Madani (2015) assessed the attitudes and practices of the Ten Steps to Successful Breastfeeding of pregnant women (n= 73) and mothers on the postnatal ward (n = 84) in Dammam. Mothers after birth reported that their newborn infants were often separated from them (no specific number information was given in the paper), and breastfeeding was usually delayed for hours, because all 84 (100%) newborns in this study received infant formula in the well-baby nursery (Abu Salem & Al Madani, 2015). However, the authors did not investigate the practice of SSC specifically. The findings of the study are concerning and demand urgent investigation to identify the reasons behind the routine use of formula as well as the unnecessary separation of newborn infants after birth.

A cross-sectional study in Australia reporting the incidence of immediate uninterrupted skinto-skin contact and breastfeeding after birth found that mothers experienced frequent interruptions for non-urgent procedures within the first 30 minutes (Allen et al., 2019). Similarly, an observational study conducted in France reported that in 56% (n=17/30) of participants, the practice of SSC was interrupted at least twice within the first two hours after birth for neonatal routine care (Robiquet et al., 2016). An Australian study observed 78 motherinfant dyads for the first hour (Cantrill et al., 2014). Continuous uninterrupted SSC was experienced by 33% (n=26) of mother-infant dyads. The most common reasons for separation of mother and infant were resuscitation intervention (facial oxygen, oronasopharangeal or gastric suction) 50% (n = 39), followed by the baby being held by other people 49% (n =38), infant placed under radiator 44% (n = 34), and routine practices such as wrapping the baby, Vitamin K injection, weighing 30% (n = 23), assessment of babies 30% (n = 23), and mothers' request to stop holding or not to hold the baby 17% (n = 13) (Cantrill et al., 2014).

Overall, the evidence is clear that in Saudi Arabia and in other settings, mothers are often subjected to routine procedures that could be delayed until after the first hour of birth, which interrupt the potential for optimal SSC. The following section discusses in detail the current practice of SSC in Saudi Arabia.

#### The practice and the duration of SSC are suboptimal in Jeddah, Saudi Arabia

As previously mentioned, the systematic review (Study I) described the prevalence of SSC worldwide, yet identified no evidence about the rate of SSC practice in Saudi Arabia. The

evidence from this thesis is among the first to systematically investigate the rate of SSC in the two major maternity public hospitals in Jeddah, thereby addressing this gap. The findings from the observational Study II showed that only two mother-infant dyads (n = 2/22, 9%) had direct SSC, with an average duration of 10 minutes. Furthermore, the majority of mothers had their babies placed on their chest/abdomen with a covering such as a sheet or a hospital gown between themselves and their infant (n = 16/22, 72%). These findings are consistent with what mothers reported in the survey (Study IV), that indicated the rate of direct SSC was 15% (n = 39 / 254), and the rate of babies placed on the mother's chest or abdomen separated by a cover was 54% (n = 137 / 254). The most surprising result was how brief the duration of SSC was: dyads had only 1-5 minutes of SSC contact. This suggests that there was a lack of adherence to the practice of SSC immediately after vaginal birth in the two hospitals and that the clinicians had a lack of skills or capability to perform SSC for mother-infant dyads. The primary reason for these results is that routine care was prioritised, including placing the newborn under the warmer, suctioning, measuring, and weighing newborn infant, activities that all interrupted the practice of SSC during the first hour after vaginal birth. A second plausible reason was the lack of impetus for introducing SSC. For example, clinicians have rarely seen other clinicians practicing SSC, were not personally motivated about improving SSC, or were working in a birth environment that lacked support for the practice of SSC immediately after birth. The third reason was the standard practice of using a cover or the waterproof sheet between mother and newborn infant. This indicates the lack of clinicians' procedural knowledge about the practice of SSC and the mothers' perceived need for cleanliness (Finigan & Long, 2014).

Overall, the practice of SSC in Saudi Arabia is well below the WHO recommendation that SSC should be practiced following at least 80% of births. Saudi Arabia is in the Eastern Mediterranean region. Compared to neighbouring countries, the practice of SSC in our study was lower than that reported in Tunisia (64%, n = 226 / 354) (Bouanene, ElMhamdi, Sriha, Bouslah, & Soltani, 2010), similar to that reported in Iran (17%, n = 117 / 700) (Zarshenas et al., 2019) and Turkey (14%, n = 49 / 351) (Çalik et al., 2018), but higher than in Yemen (8%) (Kempe, Noor-Aldin Alwazer, & Theorell, 2010). The practice of SSC in this study was also lower than rates reported in other developed countries, for example 88% in Australia (Ogbo et al., 2016), 81% in Canada (Chalmers et al., 2010; Haiek, 2012) and in Europe, including 98% in Croatia (Zakarija-Grkovic, Boban, Jankovic, Cuze, & Burmaz, 2018), 96% in Denmark (Andersson, Flems, & Kesmodel, 2016) and 95% in Switzerland (Gubler, Krähenmann, Roos, Zimmermann, & Ochsenbein-Kölble, 2013). These comparisons show where Saudi Arabia sits

as a developed country, and highlights the need for action to reinforce the practice and to raise the rates of SSC to achieve the WHO recommendation of 80% or higher (World Health Organization [WHO], 2018).

#### Breastfeeding practices are negatively affected by mother-infant separation

Skin-to-skin contact has been shown to increase breastfeeding initiation and exclusive breastfeeding while reducing the use of formula, leading to a successful start to breastfeeding (Bramson et al., 2010; Crenshaw et al., 2012). During the first hour of a newborn infant's life when they are placed on their mother's chest or abdomen, the newborn's nine instinctive behaviours are elicited, starting with the birth cry, and followed by relaxation, awakening, activity, rest, crawling, familiarisation, self-attach breast suckling and sleeping (Widström et al., 2019). An important finding from the observational study (Study II) was that none of the newborn infants observed over the first hour achieved or progressed through these nine instinctive stages. This was not surprising considering that most mothers were separated from their infants, 82% (n = 18 / 22), which in turn prevented the infants from progressing through these two-public hospitals in Jeddah: only 41% breastfeeding rate was relatively low in their stage of the mothers in Study IV reported initiating breastfeeding within the first hour, while all mothers had commenced breastfeeding within the first 24 hours.

In Saudi Arabia, there is inconsistency in previous studies reporting the timing of initiating breastfeeding (Al-Hreashy et al., 2008; Alyousefi et al., 2017; Alzaheb, 2016, 2017a; Amin et al., 2011; El-Gilany et al., 2012; Mosalli et al., 2012; Raheel & Tharkar, 2018). The definition of 'initiation' varied, and was defined as: breastfeeding initiated during the first hour (El-Gilany et al., 2012); within the first 24 hours (Alyousefi et al., 2017; Amin et al., 2011); or within the first 48 hours of infant's life (Alzaheb, 2016). The reported rate of early initiation of breastfeeding, within the first hour, varied from 12% according the WBTi report (World Breastfeeding Trends Initiative (WBTi), 2015) to above 90% in a systematic review (Al Juaid et al., 2014). A recent national study measured the early initiation of breastfeeding within the first hour of birth and reported it to be 44% (Ahmed & Salih, 2019). This proportion of mothers who initiated breastfeeding in the first hour is similar to our findings and the findings

of Ahmed and Salih (2019), contributes to additional evidence about the rate of timely initiation of breastfeeding within the first hour in Saudi Arabia.

In Saudi Arabia, there is adherence to the Muslim religion based on the beliefs of the holy Quran and the Sunnah teaching from the Prophet Muhmmad (Peace be up on him). The holy Quran says "Mothers shall breastfeed their children for two whole years, for those who wish to complete the term" (Surah Al-Baqarah, p.233). From the Islamic perspective, the practice of SSC is encouraged because it is one of the child's rights in Islam is to be fed, clothed, named and protected (Saeidi, Ajilian, Farhangi, & Khodaei, 2014). Al-Binali (2012) assessed breastfeeding initiation Knowledge, Attitude, and Practice (KAP) among female teachers who had at least one child aged less than five years old in Abha, Saudi Arabia. These teachers ranked the highest reason for their decision to breastfeed was their belief in the Islamic teaching from the Quran that encouraged breastfeeding (Al-Binali, 2012). In the United States, African American Muslim communities have higher breastfeeding rates than other African American communities as a whole (Kamoun & Spatz, 2018). Promoting exclusive breastfeeding in Muslim communities can be enhanced by placing greater emphasis on its religious and spiritual significance, and on Muslim individual and collective social and moral values and practices (Bensaid, 2019). Skin-to-skin contact is a preliminary step to facilitate successful breastfeeding, and the prophet Muhammed (peace be up on him) called the children and babies "God's gift" and encouraged gentleness with them. The prophet Muhammed also encouraged parents to cuddle, hold, kiss, hug and carry their children and show kindness and mercy on them (M. Saeidi et al., 2014). One type of protection for the baby is to keep the baby with the mother after birth to avoid psychological stress from separation for both the mother and infant (Christensson et al., 1995).

It is notable that the Islamic teachings are in line with the WHO recommendations and encourage the practice of SSC. Therefore, it is important in the context of Islam and in Islamic countries like Saudi Arabia, that guidelines could draw on this religious belief to promote and support the provision of SSC as routine, optimal care. The following section explains the facilitators and barriers of SSC that we identified in Saudi Arabia.

# Facilitators, barriers, and implications of immediate skin-to-skin contact after vaginal birth

#### Health care providers' challenges and opportunities to implement skin-to-skin contact

In **Study III**, health care providers believed in the importance of SSC and were aware of its benefits for both mothers and infants. However, the findings from Studies II, III, and IV indicated that HCPs lacked the capabilities to perform SSC, for example HCPs showed insufficient procedural knowledge and skills about SSC when they routinely placed a waterproof sheet on the mother's chest or abdomen. When some of the HCPs were asked about this, they reflected that the practice was incorrect. For example, one of the HCPs said "To be honest, placing the sheet on the mother's chest is a wrong practice, but maybe the intention is to keep the mother clean." These findings were in agreement with Alenchery et al. (2018) and Finigan and Long (2014) who found that the most important barriers to implementing SSC practice was the clinicians' lack of knowledge and technical skills to perform SSC. The explanation for this was because of the inadequate training and education that hospitals provided for the clinicians about SSC practices. Alenchery et al. (2018) explained that ongoing training for existing staff and new staff as well as postgraduates, and constant reminders in the form of workshops with audio-visual aids or posters in the obstetrics ward are key interventions likely to improve SSC at birth. Further discussions about the organisational challenges related providing training and education for clinicians are presented later in this chapter.

The second challenge faced by HCPs, highlighted in **Study III**, was the lack of collaboration and teamwork between HCPs'. Midwives and nurses expressed regret at not performing the practice of SSC, but this was in order to protect themselves from criticism from medical colleagues. In addition, some obstetricians stated that SSC was not part of their job and they expected the midwives and nurses to educate and encourage women to do SSC. These problems may not have affected the practice of SSC directly, however, it does suggest that midwives and nurses felt less confident and less supported to implement SSC independently. Hussein, Dahlen, Ogunsiji, and Schmied (2018) explained that midwives and nurses in some Arab countries often follow the doctors' orders blindly because of the dominant medical model of care. Scamell, Altaweli, and McCourt (2017) have described how the birth system in Saudi Arabia is constructed on a hierarchical medical system in which doctors are superior to midwives and nurses. Through effective communication and collaboration, doctors, nurses and midwives are likely to able to overcome the barriers of SSC and success in fully implementing SSC after birth (Brady, Bulpitt, & Chiarelli, 2014). The collaboration between obstetricians, midwives, nurses and paediatricians can bring a unique perspective to implement the practice of SSC after birth, and any challenges could be discussed and resolved by working collaboratively. This would facilitate the implementation of SSC. A further discussion about this recommendation is included later in the chapter.

#### Mothers' experiences and perceptions about immediate skin-to-skin contact

In **Study IV**, a large proportion of the mothers had positive experiences and held favourable perceptions toward immediate SSC (67%) and expressed positive responses about SSC in the free text comments. For example, mothers reported feeling close and connected to their babies and that SSC aided their recovery and well-being. These findings, confirmed other studies which identified that mothers generally wanted to practice SSC and described SSC as a heart-warming experience that brought unique sense of joy and happiness to their lives (Anderzen-Carlsson, Lamy, & Eriksson, 2014; Dalbye et al., 2011). Mothers' positive feelings and emotions experienced during SSC can be explained by the mutual interaction between the mother and her newborn infant, which act as a generator releasing energy to the mother which in turn brings feelings of happiness, satisfaction and peace (Dalbye et al., 2011). It has been also suggested that the increase in the mother's oxytocin level during the first hour after birth is related to maternal-infant bonding and sense of connection (Handlin et al., 2009; Nissen, Lilja, Widström, & Uvnás-Moberg, 1995; Uvnas-Moberg & Eriksson, 1996).

Despite the positive feelings that mothers had from SSC in **Study IV**, they received minimal education from their HCPs and most of their knowledge about SSC was based on self-searching for information (60%), or on information from family and friends (28% and 15% respectively), with limited education provided by doctors (2%) and midwives (15%). This reflects the key role that the families played in discussing or providing informal education to the mothers to do SSC, even more so than clinicians. These findings highlight the need for antenatal education by health care providers that should be provided to mothers to enhance the practice of SSC.

The attendance of husband and family was rare at the birth (**Study IV**), but mothers showed interest in the presence of husband and family at birth to feel close to their family (**Study IV**). Jahlan (2016) reported that Saudi mothers wanted their husbands to attend birth to support and share this special time for the family and to improve their birthing experiences. However, other

studies have shown that a significant number of Saudi women preferred not to have a supportive companion during child birth (Al-Mandeel et al., 2013).

It was also imperative in **Study IV** to find out about the influence of mothers' cultural and traditional views on SSC. Mothers did not express concerns with exposing their chest or abdomen in front of the (female) doctors. However, these findings are in contrast to those by Brimdyr, Widstrom, Cadwell, Svensson, and Turner-Maffei (2012) who found that mothers' modesty was a significant barrier to implement the practice of SSC after vaginal and caesarean birth. This is very encouraging to note that mothers, even if they wear modest clothes or have a cultural tradition to cover the body, still wanted to have SSC and experience the positive benefits for themselves and their baby.

#### The differences between health care providers' perceptions and mothers' perceptions

In **Study III**, one of the HCPs perceived barriers to SSC was that mothers were not interested in SSC because of the need for cleanliness and they wanted babies to be taken to the nursery. In contrast to these findings, many mothers in **Study IV** expressed their comfort and acceptance of SSC immediately after vaginal birth (67%). On the other hand, when SSC did occur, some mothers felt disappointed that they were not informed before the infant was placed on their chest and felt unprepared for that moment.

There are several explanations for the differences between HCPs and mother perceptions. Firstly, in **Study III**, HCPs described that there was a lack of communication and trusted relationships between mothers and health professionals. In addition, mothers in **Study IV** expressed concerns because they were not given a choice about SSC. They also reported that they did not receive education and support from HCPs about the importance of SSC. Previous studies conducted in Saudi Arabia showed that the relationship between women and HCPs is unequal, and medically dominated in Saudi Arabian maternity services, where women are expected to leave all important decisions to the HCPs as they are perceived to know best (Altaweli, McCourt, Scamell, & Curtis Tyler, 2019; Jahlan et al., 2016; Scamell et al., 2017). In the traditional medical model, women are not viewed as active participants in their birth and women often give themselves over to the health professionals (Hussein et al., 2018). Models of care that are based on continuity of care and have adopted women-centred concepts such as midwifery-led models of care are shown to be effective in supporting women during birth and

assisting the mother to make informed decisions (Sandall, Soltani, Gates, Shennan, & Devane, 2016).

In Australia, the midwifery model of care has positively influenced immediate newborn care and encouraged early and sustained mother-infant contact (Biro et al., 2015; Stevens, Schmied, Burns, & Dahlen, 2018). The midwifery model of care ensures that mothers receive continuous support and that they are informed and involved in decision making, as well as reduces the conflicting advice that women receives from HCPs (Sandall et al., 2016).

Further, the HCPs have been found to hold negative perceptions about SSC, and to assume that SSC is unfavourable for mothers, and that newborns need to be taken from the mother so that she can rest. Some studies have supported these views from mothers. For example, Jahlan et al (2016) who reported the voices of women who gave birth in Saudi Arabia, found that women were dissatisfied with immediate skin to skin contact after birth and the practice of rooming-in policy. Women described leaving the infant with them as neglect, feeling, ignored, and as a lack of support from nurses. Abu Salem & Al Madani (2015) also reported that women requested their babies to be taken to the nursery so they could rest, so rooming-in was only for short periods.

These differences in the perceptions of HCPs and mothers created challenges that prevented the practice of SSC from occurring after birth. However, identifying these factors and working with mothers collaboratively would facilitate the practice of SSC. Further suggestions are made about this collaboration under the recommendation section.

#### The organisational challenges

#### Lack of policy adherence

Although evidence from **Study II** and **Study III** showed that both hospitals had policies recommending SSC immediately after birth, staff did not follow these, indicating a lack of adherence to the policies. This could be explained by the ineffective dissemination of policies because the majority of the HCPs who participated in the interviews were not aware of the policies nor the information about the practice of SSC in their workplace or hospital. The problem with the current policies in the two hospitals could be interpreted as follows: firstly, the definition of SSC was not explained well and did not provide a set of procedures to

demonstrate the practice of SSC. This is not only in the Saudi context even from the systematic review (**Study I**), we identified a heterogeneity of definition SSC among studies conducted worldwide. The second reason was that there was an absence of strategies that ensured the practice of SSC was routinely implemented after birth, and then design an evaluation to understand the clinician's uptake of the policy.

Developing and implementing the Baby Friendly Hospital Initiative (BFHI) has been proven to facilitate the improvement of the practice of SSC and breastfeeding, which is Step Four in the BFHI (Mosher et al., 2016; World Health Organization [WHO], 2018). Twenty-nine hospitals in Saudi Arabia (7%) are accredited with BFHI, including 27 governmental and two private hospitals (UNICEF & World Health Organization, 2017). Recently, there has been some progress in promoting breastfeeding support from the Ministry of Health (MOH) in Saudi Arabia. This involves training courses and educational resources in English and Arabic for health care providers and for mothers. The MOH also launched a supportive plan for breastfeeding called "Breastfeeding support: close to the mother" (Ministry of Health, 2018). It is promising to see the advances in these decisions, however, there is limited information about evidence published about these plans for dissemination of this training and education.

#### Lack of training and education

The findings from Study **II, III and IV** revealed that health professionals had inadequate training and education about SSC and this significantly hindered SSC implementation. The lack of training and education led to HCPs even within the same hospital having conflicting knowledge about placing the infant on the mothers' chest or abdomen without barriers, and about the timing and duration of SSC. Other studies however, found that hospitals which provide clinicians with group discussions about SSC, ongoing education, workshops, videos and teaching posters, were more successful at implementing the practice of SSC (Chan, Labar, Wall, & Atuna, 2016; Haxton et al., 2012). Brimdyr et al. (2012) argued that education of staff alone was insufficient to sustain the practice of SSC. However, the exposure to training combined with education was an effective strategy to change and sustain the practice of SSC in other settings. Therefore, implementing the practice of SSC needs more than the traditional way of training and education. It needs behaviour change interventions for the main providers of care, and also for the recipients of the care. Further information about this strategy is presented later in this chapter.

#### Shortage of health professionals

The two study hospitals have more than 15,000 births per year which provides a big challenge with inadequate staffing of obstetricians, midwives, and nurses. The staff shortages affected the quality of care that women received during birth and hindered HCPs capacity to provide SSC. In **Study III**, HCPs complained about the shortage of staff and pressure to care for the mother and the newborn infant as well as other mandatory tasks and documentation. Health care providers on the whole agreed that the workload was unsustainable. In accordance with these findings, previous studies have demonstrated that adequate staffing is needed to increase the consistency of mother-infant SSC (Chan, Bergelson, Smith, Skotnes, & Wall, 2017; Koopman et al., 2016). Shortage of staff and work overload are universal problems in health care where HCPs required to complete several tasks during the first two hours after birth included transferring the mother to the postnatal ward and empty the beds ready for upcoming admissions. These processes made the application of SSC difficult for HCPs.

# Strategies to implement skin-to-skin contact for healthy newborn infants after vaginal birth

Over the last decade an increasing number of theories and frameworks have been developed in response to a need for a theoretical basis for intervention implementation strategies in order to facilitate implementation (Nilsen, 2015). Translating research evidence into routine clinical practice is notoriously difficult, however, behavioural interventions are often used to change practice (Craig et al., 2008; Michie & Johnston, 2004, 2012). The Behaviour Change Wheel (BCW) consists of three layers in which two of these layers are the COM-B (capability, opportunity, motivation and behaviour) model and the Theoretical Domain Framework (TDF). I explained this in Chapter Five: Theoretical Frameworks in detail.

The traditional approach of education and training through sharing information with consumers and providing direct advice may not be the optimal way to change and sustain the right practice (Brimdyr et al., 2012; Michie & Johnston, 2004). While information is still important, it is not enough to change the behaviour toward a certain practice. It is based on the assumption that consumers lack knowledge for example, but it does not take into account the barriers which negatively influence that behviour. In this study, HCPs perceived the practice of SSC to be valuable and important for mothers. Also, "in the hospital policy they have been told to perform the practice of SSC after birth", but without investigation of the personal limitations or barriers to the practice which may in result in resistance to change.

Several studies have developed interventions to implement the practice of SSC after vaginal birth. For example, Brimdyr et al. (2012) used realistic evaluation to examine the effectiveness of two 5-day training techniques on sustained optimal SSC that support Step 4 of the revised Baby-Friendly Hospital Initiative (BFHI). In that study, the authors used Practice, Reflection, Education and training, Combined with the Ethnography for Sustainable Success (PRECESS) program to implement the practice of SSC. They found that the program alone or combined with education was an effective strategy to change and sustain the standard of care for skin-toskin practice (Brimdyr et al., 2012). In another study Brimdyr, Cadwell, Stevens, and Takahashi (2017) developed the Skin-to-Skin Implementation Algorithm to analyse the implementation of SSC in the first hour after birth (Brimdyr et al., 2017). The algorithm is used as a tool to identify barriers, and opportunities for improvement to achieving the standard of care for babies (Brimdyr et al., 2017). In addition, Haxton et al. (2012) conducted an implementation study using the Iowa Model of Evidence-Based Practice to Improve Quality Care (Titler et al., 2001) to implement the practice of SSC for a minimum of one hour immediately after birth. The implementation of this Iowa model was found to be a practical way to improve the practice of SSC (Haxton et al., 2012).

In all of these implementation studies, the process was to deliver educational programs in a systematic way to health care providers and policy makers. However, they do not tackle the underlying behaviour causing the lack of adherence to the practices, nor the wide range of psychological, social and contextual factors that need to be addressed in an effective intervention strategy. Therefore, the Behaviour Change Wheel (BCW), as described in Chapter Five, aids the development of interventions to implement a practice such as the practice of SSC. The BCW is a powerful tool for designing behaviour change interventions through setting out a systematic method for understanding behaviour, and linking this understanding to a simple method of analyzing what needs to be changed. Behaviour change intervention design process consists of three stages: The first stage is understanding the behaviour by identify what is the problem need to be solved? And what behaviour (s) needed to change and in what way? through using the Theoretical Domain Framework (TDF). The second stage is identify intervention options by knowing what will it take to bring about the desired behaviour change? Through using COM-B model (stands for Capability, Opportunity, Motivation and Behaviour).

The third stage is identifying implementation options by specifying the intervention content and how should this be implemented for example through education, persuasion, training or changing the environment (Michie et al., 2014).

In the case of promoting the implementation of immediate, continuous and uninterrupted SSC after vaginal birth as routine practice, this is achieved through understanding the behaviour of routine separation of mother infant dyads during the first hour of birth (**Study I**), identifying factors influencing the lack of adherence to this behaviour (**Study III and IV**) and linking the COM-B framework with the appropriate interventions. Figure 3, illustrates the three targeted levels: organisations, HCPs and mothers and linked to COM-B framework to achieve optimal practice of SSC.

Based on the studies conducted in this doctoral thesis (**II**, **III**, **IV**), the key findings in this thesis are presented in Table 7, aligned with the COM-B and TDF framework. The table presents the three important targeted levels that need a behaviour change namely: Organisation, HCPs and mothers (shown in the left hand column). The second column shows the barriers identified within each level according to the key findings of this thesis. The third column clusters what needs to be changed according to the TDF, which then explains the context of the targeted behaviour, and whether effective change will be improved by targeting capability or motivation. Then these pathways are linked to the proposed intervention in the last columns. For example, in this study HCPs had placed the sheet on the mothers' chest and separated the newborn infant from the mother. This shows that lack of knowledge and skills about how to provide SSC, which can be addressed through education and training. Another example is HCPs were reluctant to perform SSC, this is linked to their emotions, which could be targeted through incentivization and role-modelling.



*Figure 3 A framework to implement the practice of SSC after vaginal birth guided by the COM-B theory (Michie et al., 2014)* 

Targeted level	Evidence	TDF	СОМ-В	Proposed intervention
Organisational	-Lack of informative and supportive policies that	Reinforcement	Automatic	Incentivisation
level	prioritise the practice of SSC and breastfeeding over		motivation	Environmental restructuring
	other routine procedures i.e. infant weight, suction and			Training and education
	measurement			
	-Lack of physical resources (bedside cots, room	Environmental context	Physical	Enablement
	restructure, gown design)	and resources	opportunity	Environmental restructuring
	-Shortage of the staff and heavy workload			Restriction
				Training
Health care	-Placing a waterproof sheet between mother and infant/	Skills	Physical	Training
providers level	swaddle the infant during SSC		capability	
	-The presence of mother's clothes and/or infant clothing			
	or wraps			
	-HCPs did not always know the definition of SSC,	Procedural knowledge	Psychological	Education
	starting time, duration, eligibility for SSC		capability	
	-Interruptions of SSC were common in their first hour of			
	newborn infant's life			
	-Short time of SSC			
	-HCPs need a designated leader/or staff responsible to	Memory, attention and	-	Training
	remind them to routinely practice SSC	decision process		Modelling
				Environmental restructuring

Table . Summary of the evidence, application of TDF and COM-B and proposed intervention
				Enablement
				Employment
	-Lack of teamwork and interprofessional collaboration Social influence		Social	Enablement
	to support SSC implementation		opportunity	Environmental restructuring
				Modelling
				Restriction
	-Nurses' and midwives' lack of confidence and	Beliefs about	Reflective	Education
	disempowered to implement SSC	capabilities	motivation	Persuasion
				Modelling
				Enablement
	-HCPs afraid of infant falling/or risk of Sudden	Beliefs about		Education
	Unexpected Postnatal Collapse	consequences		
	-Midwives idea to change the design of hospital gown	Positive intention and		Incentivisation
	(backward for easy access to mother chest)	goal		
	-HCPs regret about not doing SSC	Emotion	Automatic	Persuasion
			motivation	Incentivisation
				Coercion
				Modelling
				Enablement
Maternal level	-Mothers did not feel prepared for SSC	Skills	Physical	Training
			capability	
	-Mothers would have liked more education about SSC	Knowledge	Psychological	Education
	during antenatal visits		capability	

-Mothers' positive perceptions toward SSC	Emotion	Automatic	Persuasion
-Some mother had concerns about modesty and cultura		motivation	Incentivisation
beliefs			Coercion
-Some mothers preferred not to keep babies			Modelling
rooming-in all the time			Enablement
-Mothers were concerned that they had not been given	a Social influence	Social	Enablement
choice about SSC		opportunity	Environmental restructuring
-Mothers wanted family and husbands to attend the birt	h		Modelling
and support them during SSC			Restriction

### **Strengths and limitations**

This thesis is the first mixed-method study to explore the practices of SSC after vaginal birth for healthy newborn infants in Saudi Arabia, triangulating data from mother-infant dyads observations, HCPs interviews and a mothers' survey. The use of a mixed method approach enabled an in-depth integration of the data which facilitated the development of potential strategies to improve the practice of SSC. This study provided evidence of the rate of SSC in the two largest public hospitals in Jeddah, Saudi Arabia. This study also highlighted the challenges faced by HCPs, mothers, and the hospitals on implementing immediate, continuous and uninterrupted SSC after vaginal birth. The use of the Behaviour Change Wheel framework provided practical guidance reflecting on the key findings from the study. This was extended to possible behaviour change constructs, which could potentially increase and sustain the implementation of SSC after vaginal birth in Saudi Arabia and globally.

As with every study, there are limitations to this research. This study involved data from two hospitals in Jeddah and therefore, the findings of the study cannot be generalised for the whole country of Saudi Arabia, as the practice may vary across the country. However, a strength of this study was the use of a variety of methods, validating and confirming the quantitative findings from the observations and the surveys. The three types of data can provide validation for each other and also create a solid foundation for drawing conclusions about complex phenomena (Plano Clark, 2019). The methodological considerations for each study are explained next.

### Study I: Systematic review design

Although the review had included studies form low, middle and high-income countries, most of the study included in the reviews did not define the practice of SSC, the time it was initiated after the birth, or the duration of infant SSC with the mother. This makes it hard to compare consistently across studies the rates, timing and duration of SSC. The other limitation was that most studies included were not based on national data, nor were the studies designed to report the prevalence of SSC specifically. Therefore, the finding of the systematic review cannot be generalised due to the quality of studies included and the evidence form the review is still mixed and inconsistent, so more consistent application of definitions in research would be helpful.

### Study II: Non-participants observations research design

The observational approach has many strengths, since it provides an opportunity to obtain data from multiple dimensions, capture the actual practice within its natural environment that includes the social setting, participants' characteristics and how they behave in a particular situation (Salmon, 2015). In this study, the observations allowed the researcher to access the physical setting of the birth unit, which provided a great advantage to understand the actual practice of SSC. Observational data are perceived to be more reliable than self-report data as the data obtained from observations are objective and not influenced by misunderstandings or other forms of reporting bias from the participants (Mulhall, 2003).

One of the disadvantages of using direct observations is that the presence of the researcher during the observation may influence participants' behaviour toward the practice (Mulhall, 2003; Salmon, 2015). However, in this study the clinicians were not informed that the practice of SSC was under study specifically. Instead, they were informed more generally that the study was about hospital practices during the first hour after birth to avoid any biases or changes to their practice. It was also requested by the La Trobe Ethics Committee to avoid specifying SSC in the title of the study. If the research methodology is replicated, the observational study can be further strengthened by the use of two observers, one for the mother and one for the baby. Video recording could be used to observe the first hour, however, in our modest culture, women would not feel comfortable being recorded while giving birth.

A limitation in Study II was the validation process of the tool. Although the tool was reviewed by a panel of experts, it was not internally or externally validated during development, nor was the reliability measured or published. To ensure the feasibility and practicality of the tool I practiced using the tool in two settings in Australia and Saudi Arabia. The Birthing room tool has also been used in another published study (Stevens, Schmied, Burns, & Dahlen, 2018)().

### Study III: Semi-structure interview design

There are four fundamental concepts that need to be considered when interpreting findings from qualitative research: credibility, dependability, confirmability and transferability (Hoskins & Mariano, 2004). These concepts are used to establish trustworthiness or the

'true value" of collected data. *Credibility* is defined as the truth of the finding as perceived by the participants and another experts in the field (Hoskins & Mariano, 2004). To attain the research credibility, I had prolonged engagement with participants in the field study, supporting my reflexivity about the data collected. An external check of the data analysis by English–Arabic researchers also enhanced the credibility results.

*Dependability* means having reliable findings and transparent processes and interpretation that facilitate other researchers to follow the process of the analysis and the interpretation. In this study I argue that the credibility and dependability of the findings were strengthened as all the data were coherently and systematically analysed using inductive coding and categorisation. The confirmation of coding and categorisation with the two English–Arabic researchers and the research team's effort to reflect on and discuss the emerging findings during the analysis ensured that categories and themes accounted for all the data.

*Confirmability* is defined as the objectivity of the findings (Hoskins & Mariano, 2004). Confirmability was supported in this study by having the two English–Arabic researchers who were familiar with the maternity field provides constructive feedback on the finding of the study. In addition, I believe that the views of the multidisciplinary research team with background in midwifery, nursing, public health, breastfeeding management and women's health, enriched the analysis and confirmed the findings, conclusions and recommendations reported in this study.

*Transferability* refers to the ability to transfer the results of the study to other settings or groups as a part of trustworthiness. To strengthen the transferability of research findings, the researcher should provide detailed information about the context of the study which includes describing research settings, participants and research background (Hoskins & Mariano, 2004). I ensured the transferability in the study by providing a rich description of the context in Saudi Arabia, descriptions of participants' demographics, procedure of data collection and systemic method used to analyse the data and by providing quotations that represented diversity of the clinicians' views. However, one limitation was the risk for bias due to involvement of only female obstetricians, midwives, and nurses. Future research may interview male clinicians and other professionals such as paediatricians because they may give a different perspective on provision of SSC to mothers in a modest culture or in general.

### Study IV: Cross-sectional research design

The major strength of the survey data was the high response rate (92%) which reduced the risk of response bias and increased overall study validity. Another strength was running the pilot test twice, firstly in Australia and then in Saudi Arabia, to ensure the measures were acceptable and feasible for participants. The study was limited in that the survey measures were study specific, designed by the authors for this purpose, as no validated tools are available. In the survey I did not measure the internal validity *women's ratings of*, and therefore may have missed some important information compared to using a specific clinical measure or assessment of SSC, so this is a potential limitation.

### Recommendations

This thesis summarises research related to the practices of SSC and challenges to the implementation of SSC in Jeddah, Saudi Arabia. Some questions have been answered and many others have been raised based on the finding from this thesis, and the synthesis of a larger body of the literature. Conclusions and recommendations are made in relation to policy, practice, and future research as follows:

### **Policy**

### For the organisation, it is recommended to:

- Develop a national guideline on SSC and update regularly (EFCNI et al., 2018).
- Implement routine collection of information about SSC, including, time started and duration of SSC.
- Develop or update a policy for SSC, in which the practice should be clearly defined and include explanations about the timing of SSC and about the newborn position.
- Update the immediate care policy and delay non-urgent procedures and interruptions for mother-infant dyads after the first hour of birth.
- Explain the position of the newborn infant and the description of the procedure during the practice of SSC.
- Develop hospital guidelines to implement the practice and to adopt new methods to inform the staff about new or existing policies and monitor how clinicians sustain the practice.
- Consider the implementation of BFHI policy.
- Promotion of SSC practice in Muslim communities which can be enhanced by emphasising its religious and spiritual significance, highlighting Muslim individual

and collective social and moral values and practices.

 Adoption of midwifery models of care and continuity of care that encourages woman-centred care. These are evidence-based and shown to support mothers' needs and meet their expectations and aspirations; and recognise their rights to selfdetermination in terms of choice, control and continuity of care; and addresses their social, emotional, physical, psychological, spiritual and cultural needs and expectations (NMBA 2006).

### For health care providers' level:

- A unit guideline on SSC is adhered to by all health care providers (EFCNI et al., 2018).
- Health care providers should maintain observation of the infant's `breathing, colour and muscle tone whilst in skin-to-skin contact, and also be aware about newborn monitoring to avoid Unexpected Postnatal Collapse (SUPC) (The Royal Children's Hospital Melbourne, 2020; The Royal Women's Hospital, 2019).
- Education and training on SSC technique and early breastfeeding is attended by all responsible healthcare providers.

### For mothers or parents

- Parents are informed by healthcare providers before birth about the importance and provision of postnatal safe skin-to-skin contact(EFCNI et al., 2018).
- Maternal SSC is provided as early and as continuously as possible ((EFCNI et al., 2018).
- The provision of the father, and other support persons to attend the birth and involved in ensure continuous SSC when the mother is not able to do so.

### **Practice**

### At the organisational level, it is recommended to:

- Develop and implement a guideline on SSC after birth.
- SSC should be uninterrupted, when necessary routine care such as newborn assessment is needed it can be still be performed while the newborn is place on the mother's chest. SSC also has benefits for babies on reducing the pain felt during painful postnatal procedures.

### At the health care providers level, it is recommended to:

• Promote effective communication and collaboration between HCPs through explaining the role and responsibility to support the practice of SSC and limited the

interruption.

- Take the initiative to develop SSC Champion modelling who can facilitate the practice and encourage staff to routinely implement the practice.
- Ensure that mothers receive support to initiate early SSC and breastfeeding and not to interrupt before breastfeeding is completed.
- Provide mothers with adequate support at birth and should respect mothers' choices by facilitating SSC to achieve optimal outcomes for mothers and infants.

### At the mothers' level

• Parents are verbally informed by healthcare professionals about the importance of early SSC.

### Future research

To address concerns about the provision of SSC after vaginal birth, further innovative research is needed on:

- A larger-scale, population-based study on the practice of SSC during the first hour after birth in Saudi Arabia.
- Further research clinical trials and implementation studies of interventions supporting SSC after birth in hospitals in Saudi Arabia using the BCW framework.
- The feasibility of implementing the practice of SSC after caesarean birth with healthy full-term infants.
- The effect of religion on enhancing the practices of SSC.

### Conclusion

This doctoral thesis aimed to determine the prevalence of SSC worldwide and to explore the current practices of skin-to-skin contact immediately after vaginal birth for healthy term newborn infants in the two largest public hospitals in Jeddah, Saudi Arabia. Rates of SSC were sub-optimal and subjected to many interruptions during the first hour of birth in the two hospitals in which most mothers experienced only a brief time of SSC. The practice of placing the baby with the mother, but with a cover between mother and baby wascommon however, showing that with proper instruction, intervention, actual SSC could be achieved. The HCPs perceived barriers to providing SSC were a lack of skills and motivations to implement the practice of SSC, a lack of professional collaboration, low staffing and time constraints, and a medicalised birth environment that prioritised interventions over SSC. The HCPs views were that mothers were not interested in SSC, which was in direct opposition to mothers' desire to hold their infants immediately after birth. Mothers did not express concerns about feeling exposed or that skin-to-skin contact was inconsistent with norms of modesty or culture.

Overall, I considered the barriers and enablers identified throughout this thesis as well as the organisations' positions in careful planning for recommendations that support the practice of SSC, which is a simple, useful and cost-free method to enhance maternal and parental birth experience and maternal and infant health. These recommendations include developing policy and guidelines that support mother, father and newborn infant SSC as early as possible and maintained continuously. These evidence-based recommendations would support the improved provision of SSC and increase the practice in Saudi Arabia and globally more in line with WHO recommendations for immediate, continuous and uninterrupted SSC after birth.

# **EPILOGUE**

As the four years of my PhD journey has come to an end, undertaking this research project, facing the challenges and rising above them, has transformed the way I deal with things as a mother and a researcher. Ihad my third child Rawan (born, October, 21, 2016) during the first year of my PhD study. I was very keen to have SSC after caesarean birth. My wish became true, I held Rawan SSC for 20 minutes. Even though SSC was interrupted, I was fortunate to experience it within the first hour of birth. I had many SSC experiences with Rawan even after the first hour and was pleased to see the outcome of it, as I was able to exclusively breastfeed Rawan for the first six months and continue breastfeeding for 15 months.

As a researcher, applying a mixed methods approach to answer the research questions and explore SSC practices in Saudi Arabia, it was very challenging in both data collection and analysis. The data collection experiences entailed collecting three different sets of data concurrently using different data collection tools in a short period of time. I had to work six days a week to be able to gather all the data. However, it was worthwhile experience to listen to the personal experiences of the obstetricians, midwives and nurses and their challenges about the topic, their stories were incredible and I learned a lot from them. It was also valuable to hear from the women during this busy time and how they liked the study and were engaged to share their experiences. Even though we provided no incentives for participation in the study, both clinicians and mothers were enthusiastic to do so.

Learning about different methods and how to analyse and interpret the data was also a challenge but with an eagerness to learn and the support of my supervisors, I was able to face these challenges and deal with them, which, I feel proud of. My experience with disseminating the findings of each study which involved writing the manuscripts, responding to the reviewers' comments, presenting the findings in conferences, meeting experts in the field and even contacting authors for the systematic review to provide more information about their studies, all have enormously enhanced and enriched my research skills which I am pleased and fortunate to have – not many PhD students would be able to do so much during their enrolment.

Even though during the end my PhD and the current situation of COVID-19 has delayed

my progress, beside other responsibilities, home schooling and not been able to access the University facilities, I was supported from my supervisors and family to get the PhD finished. I learned how to survive in hard situations!

My aspiration when I started this PhD could be described as idealistic. I was convinced that undertaking a PhD was something you did when you wanted to help change something significantly. I am not sure that my PhD has changed the practice of SSC in Saudi Arabia, however I think it has demonstrated how important the practice of SSC after birth is and what is required to be implemented in Saudi Arabia, which I am proud to have played a part in documenting. I hope by doing this work I was able to share the clinicians' experiences and be the mothers' voice to advocate their rights to have SSC.

# **APPENDICES**

- 1) Ethics Approvals
  - a) La Trobe Human Research Ethics Committee
  - b) Saudi Arabia Ethics Committee of Directorate of Health Affairs Jeddah
- 2) Publication: Observational study found that skin-to-skin contact was not commonafter vaginal birth in Saudi Arabia (Study II)
- 3) Conference posters
  - a) Observational study
  - b) Systematic Review
- 4) Study Flyer
- 5) Participants Information Statements (PIC)
  - a) Mothers observation English
  - b) Mothers observation Arabic
  - c) HCPs interviews
  - d) Survey of new mothers English
  - e) Survey of new mothers Arabic
- 6) Consent forms
  - a) Pregnant women observation session English
  - b) Pregnant women observation session Arabic
  - c) Health care providers observation
  - d) Health care providers interviews
  - e) Withdraw form English
  - f) Withdraw form Arabic
- 7) The Birthing Room Observational Tool permission email
- 8) The Birthing Room Observational Tool
- 9) Health Care Providers Interview Guided Questions
  - a) English version
  - b) Arabic version
- 10) Mothers' survey
  - a) English version
  - b) Arabic version

# **REFERENCES**

- Abdollahpour, S., Khosravi, A., & Bolbolhaghighi, N. (2016). The effect of the magical hour on post-traumatic stress disorder (PTSD) in traumatic childbirth: a clinical trial. *Journal of Reproductive and Infant Psychology*, *34*(4), 403-412. doi:http://dx.doi.org/10.1080/02646838.2016.1185773
- Abdulghani, N., Amir, L. H., & Edvardsson, K. (2020). Observational study found that skin-to-skin contact was not common after vaginal birth in Saudi Arabia. *Acta Paediatrica*. doi:10.1111/apa.15232
- Abdulghani, N., Amir, L. H., Edvardsson, K., & Cooklin, A. (2020). It's time for global action to reinforce mother-infant skin-to-skin contact policy. *Acta Paediatrica*. doi:10.1111/apa.15369
- Abdulghani, N., Edvardsson, K., & Amir, L. H. (2018). Worldwide prevalence of motherinfant skin-to-skin contact after vaginal birth: A systematic review. *PLoS ONE*, 13, e0205696. doi:10.1371/journal.pone.0205696
- Abdulghani, N., Edvardsson, K., & Amir, L. H. (2020). Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: A qualitative study. *Midwifery*, 81, 102577. doi:https://doi.org/10.1016/j.midw.2019.102577
- Abeling, B. A., & Thacker, A. D. (2013). The impact of kangaroo care on pain in term newborns receiving intramuscular injections. *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, 42, S89-S89. doi:`10.1111/1552-6909.12182
- Abu Salem, L. Y., & Al Madani, M. M. (2015). Pregnant and lactating mothers' attitudes and practice of the Ten Steps to Successful Breastfeeding at King Fahd Hospital of University (KFHU)-Khobar, Saudi Arabia: Appraisal of Baby Friendly Hospital Initiatives. *Journal of Education and Practice*, 6(11), 9-18.
- Academy of Breastfeeding Medicine [ABM]. (2010). ABM clinical protocol# 7: Model breastfeeding policy (revision 2010). *Breastfeeding Medicine*, *5*(4), 173-177. Retrieved from <u>http://www.sabctx.org/assets/protocol-7---model-hospital-policy-(2010-revision).pdf</u>
- Aghdas, K., Talat, K., & Sepideh, B. (2014). Effect of immediate and continuous motherinfant skin-to-skin contact on breastfeeding self-efficacy of primiparous women: A randomised control trial. *Women and Birth*, 27(1), 37-40. doi:10.1016/j.wombi.2013.09.004
- Agudelo, S., Díaz, D., Maldonado, M. J., Acuña, E., Mainero, D., Pérez, O., . . . Molina, C. (2020). Effect of skin-to-skin contact at birth on early neonatal hospitalization. *Early Human Development, 144*, 105020. doi:https://doi.org/10.1016/j.earlhumdev.2020.105020
- Ahmed, A. E., & Salih, O. A. (2019). Determinants of the early initiation of breastfeeding in the Kingdom of Saudi Arabia. *International Breastfeeding Journal*, *14*, 13. doi:10.1186/s13006-019-0207-z
- 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, 10-10. doi:10.1186/1746-4358-7-10
- Al-Hreashy, F. A., Tamim, H. M., Al-Baz, N., Al-Kharji, N. H., Al-Amer, A., Al-Ajmi, H., & Eldemerdash, A. A. (2008). Patterns of breastfeeding practice during the first 6 months of life in Saudi Arabia. *Saudi Medical Journal*, 29(3), 427-431.
- Al-Jassir, M. S., El-Bashir, B. M., Moizuddin, S. K., & Abu-Nayan, A. A. (2006). Infant feeding in Saudi Arabia: Mothers' attitudes and practices. *Eastern Mediterranean Health Journal*, 12(1-2), 6-13.

- Al-Jawaldeh, A., & Abul-Fadl, A. (2018). Assessment of the baby friendly hospital initiative implementation in the Eastern Mediterranean Region. *Children*, 5(3), 41.
- Al-Madani, M. M., & Abu-Salem, L. Y. (2017). Health professionals' perspectives on breastfeeding support practices. *Saudi Journal of Medicine & Medical Sciences*, 5(2), 116-123. doi:10.4103/1658-631x.204875
- Al-Mandeel, H. M., Almufleh, A. S., Al-Damri, A.-J. T., Al-Bassam, D. A., Hajr, E. A., Bedaiwi, N. A., & Alshehri, S. M. (2013). Saudi women's acceptance and attitudes towards companion support during labor: Should we implement an antenatal awareness program? *Annals of Saudi Medicine*, 33, 28-33. doi:10.5144/0256-4947.2013.28
- Al-Mazrou, Y. Y., Farag, M. K., Baldo, M. H., Al-Shehri, S. N., & Al-Jefry, M. A. (1995). Study design and methodology. *Journal of Tropical Pediatrics*, *41*(S\_1), 1-7.
- Al-Mutairi, N. F., Al-Omran, Y. A., & Parameaswari, P. J. (2017). Breastfeeding practice and knowledge among women attending primary health-care centers in Riyadh 2016. *Journal of Family Medicine and Primary Care*, 6(2), 392-398. doi:10.4103/jfmpc.jfmpc\_243\_17
- Al-Qahtani, A. M., Mohamed, H., & Ahmed, A. M. (2020). Knowledge, attitude and practice of Saudi women in Najran area towards breastfeeding during Ramadan. *Sudanes Journal of Paediatrics*, 20(1), 42-48. doi:10.24911/sjp.106-1569847908
- al-Sekait, M. A. (1989). The traditional midwife in Saudian villages. *Journal of the Royal Society of Health, 109*(4), 137, 140. doi:10.1177/146642408910900408
- Al-Shahri, M. Z. (2002). Culturally sensitive caring for Saudi patients. *Journal of Transcultural Nursing*, 13(2), 133-138.
- Al-Suleiman, S. A., Al-Sibai, M. H., Al-Jama, F. E., El-Yahia, A. R., Rahman, J., & Rahman, M. S. (2004). Maternal mortality: A twenty-year survey at the King Faisal University Hospital, Al-Khobar, Eastern Saudi Arabia. *Journal of Obstetrics and Gynaecology*, 24(3), 259-263. doi:10.1080/01443610410001660742
- Al Asmri, M., Almalki, M. J., Fitzgerald, G., & Clark, M. (2020). The public health care system and primary care services in Saudi Arabia: A system in transition. *Eastern Mediterranean Health Journal*, 26(4), 468-476. doi:10.26719/emhj.19.049
- Al Juaid, D. A. M., Binns, C. W., & Giglia, R. C. (2014). Breastfeeding in Saudi Arabia: A review. *International Breastfeeding Journal*, 9, 1. doi:10.1186/1746-4358-9-1
- Alanazy, W., Rance, J., & Brown, A. (2019). Exploring maternal and health professional beliefs about the factors that affect whether women in Saudi Arabia attend antenatal care clinic appointments. *Midwifery*, 76, 36-44. doi:10.1016/j.midw.2019.05.012
- Albokhary, A. A., & James, J. P. (2014). Does cesarean section have an impact on the successful initiation of breastfeeding in Saudi Arabia? *Saudi Medical Journal*, *35*(11), 1400-1403.
- Alenchery, A. J., Thoppil, J., Britto, C. D., de Onis, J. V., Fernandez, L., & Suman Rao, P. N. (2018). Barriers and enablers to skin-to-skin contact at birth in healthy neonates - a qualitative study. *BMC Pediatrics*, 18, 48. doi:10.1186/s12887-018-1033-y
- Allen, J., Parratt, J., Rolfe, M., Hastie, C., Saxton, A., & Fahy, K. (2019). Immediate, uninterrupted skin-to-skin contact and breastfeeding after birth: A cross-sectional electronic survey. *Midwifery*, 79, 102535. doi:https://doi.org/10.1016/j.midw.2019.102535
- Almalki, M., FitzGerald, G., & Clark, M. (2011). Health care system in Saudi Arabia: An overview. *Eastern Mediterranean Health Journal*, *17*(10), 784-793.

- Almutairi, W. M., & Ludington-Hoe, S. M. (2016). Kangaroo care education effects on nurses' knowledge and skills confidence. *Journal of Continuing Education in Nursing*, 47(11), 518-524. doi:10.3928/00220124-20161017-11
- Alshebly, M., & Sobaih, B. (2016). Attitudes of saudi mothers towards breastfeeding. Sudanese Journal of Paediatrics, 16(1), 31-36.
- Alsulaimani, N. A. (2019). Exclusive breastfeeding among Saudi mothers: Exposing the substantial gap between knowledge and practice. *Journal of Family Medicine and Primary Care*, 8(9), 2803-2809. doi:10.4103/jfmpc.jfmpc\_533\_19
- Altaweli, R., McCourt, C., & Baron, M. (2014). Childbirth care practices in public sector facilities in Jeddah, Saudi Arabia: a descriptive study. *Midwifery*, *30*(7), 899-909.
- Altaweli, R. (2015). Interventions during the second stage of labour: an exploration of what may affect their use in Jeddah, Saudi Arabia. (Unpublished Doctoral thesis), City University London.
- Altaweli, R., McCourt, C., Scamell, M., & Curtis Tyler, K. (2019). Ethnographic study of the use of interventions during the second stage of labor in Jeddah, Saudi Arabia. *Birth*, 46, 500–508. doi:10.1111/birt.12395
- Alwelaie, Y. A., Alsuhaibani, E. A., Al-Harthy, A. M., Radwan, R. H., Al-Mohammady, R. G., & Almutairi, A. M. (2010). Breastfeeding knowledge and attitude among Saudi women in Central Saudi Arabia. *Saudi Medical Journal*, 31(2), 193-198.
- Alyousefi, N. A., Alharbi, A. A., Almugheerah, B. A., Alajmi, N. A., Alaiyashi, S. M., Alharbi, S. S., & Alnoumasi, Z. K. (2017). Factors influencing Saudi mothers success in exclusive breastfeeding for the first six months of infant life: a crosssectional observational study. *International Journal of Medical Research & Health Sciences*, 6, 68-78.
- Alzaheb, R. (2016). Factors associated with the initiation of breastfeeding within the first 48 hours of life in Tabuk, Saudi Arabia. *International Breastfeeding Journal*, 11, 21. doi:<u>https://dx.doi.org/10.1186/s13006-016-0079-4</u>
- Alzaheb, R. (2017a). Factors influencing exclusive breastfeeding in Tabuk, Saudi Arabia. *Clinical Medicine Insights: Pediatrics, 11*, 1179556517698136.
- Alzaheb, R. (2017b). A Review of the factors associated with the timely initiation of breastfeeding and exclusive breastfeeding in the Middle East. *Clinical Medicine Insights: Pediatrics, 11*, 1179556517748912. doi:10.1177/1179556517748912
- American Academy of Pediatrics [AAP]. (2012). Breastfeeding and the use of human milk. *Pediatrics*, *129*(3), e827-e841. Retrieved from http://pediatrics.aappublications.org/content/129/3/e827.full#content-block
- Amin, T., Hablas, H., & Al Qader, A. A. (2011). Determinants of initiation and exclusivity of breastfeeding in Al Hassa, Saudi Arabia. *Breastfeeding Medicine*, 6(2), 59-68. doi:https://dx.doi.org/10.1089/bfm.2010.0018
- Andersson, C. B., Flems, C., & Kesmodel, U. S. (2016). The Danish National Quality Database for Births. *Clinical Epidemiology*, *8*, 595-599. doi:<u>https://dx.doi.org/10.2147/CLEP.S99492</u>
- Anderzen-Carlsson, A., Lamy, Z. C., & Eriksson, M. (2014). Parental experiences of providing skin-to-skin care to their newborn infant—Part 1: A qualitative systematic review. *International Journal of Qualitative Studies on Health and Well-being*, 9, 24906.
- Anderzen-Carlsson, A., Lamy, Z. C., Tingvall, M., & Eriksson, M. (2014). Parental experiences of providing skin-to-skin care to their newborn infant--part 2: a qualitative meta-synthesis. *International Journal of Qualitative Studies on Health* and Well-being, 9, 24907. doi:10.3402/qhw.v9.24907
- Andres, V., Garcia, P., Rimet, Y., Nicaise, C., & Simeoni, U. (2011). Apparent lifethreatening events in presumably healthy newborns during early skin-to-skin contact. *Pediatrics*, 127(4), e1073-1076. doi:<u>https://dx.doi.org/10.1542/peds.2009-</u>

<u>3095</u>

- Association of Women's Health Obstetric and Neonatal Nurses [AWHONN]. (2016). Immediate and sustained skin-to-skin contact for the healthy term newborn afterbirth: AWHONN practice brief number 5. *Journal of Obstetric, Gynecologic, and Neonatal Nursing : JOGNN, 45*(6), 842-844. doi:http://dx.doi.org/10.1016/j.jogn.2016.09.001
- *The Australian National Breastfeeding Strategy: 2019 and Beyond.* (2019). Canberra ACT: COAG Health Council Retrieved from <u>https://consultations.health.gov.au/population-health-and-sport-division/breastfeeding/</u>.
- Aydin, D., Sahiner, N. C., & Ciftci, E. K. (2017). Non-pharmacological strategies used to reduce procedural pain in infants by nurses at family health centres. *The Journal* of the Pakistan Medical Association, 67(6), 889-894.
- Azzeh, F. S., Alazzeh, A. Y., Hijazi, H. H., Wazzan, H. Y., Jawharji, M. T., Jazar, A. S., .
  . Hasanain, T. A. (2018). Factors associated with not breastfeeding and delaying the early initiation of breastfeeding in Mecca Region, Saudi Arabia. *Children*, 5(1), 8.
- Baby-Friendly USA. (2019). "Interim Guidelines and Evaluation Criteria for Facilities Seeking and Sustaining BabyFriendly Designation. Albany, NY: Baby-Friendly USA Retrieved from <u>https://www.babyfriendlyusa.org/wp-</u> content/uploads/2019/12/US-Interim-GEC\_191107\_CLEAN.pdf.
- Badr, H. A., & Zauszniewski, J. A. (2017). Kangaroo care and postpartum depression: The role of oxytocin. *International Journal of Nursing Sciences*, 4(2), 179-183. doi:10.1016/j.ijnss.2017.01.001
- Baldisserotto, M. L., Theme Filha, M. M., & da Gama, S. G. N. (2016). Good practices according to WHO's recommendation for normal labor and birth and women's assessment of the care received: the "birth in Brazil" national research study, 2011/2012. *Reproductive Health*, 13(3), 124. doi:10.1186/s12978-016-0233-x
- Baldo, M. H., Al-Mazrou, Y. Y., Farag, M. K., Aziz, K. M. S., & Khan, M. U. (1995). Antenatal care, attitudes, and practices. *Journal of Tropical Pediatrics*, 41(Supplement\_1), 21-29. doi:10.1093/tropej/41.Supplement\_1.21
- Becher, J. C., Bhushan, S. S., & Lyon, A. J. (2012). Unexpected collapse in apparently healthy newborns--a prospective national study of a missing cohort of neonatal deaths and near-death events. *Archives of Disease in Childhood - Fetal and Neonatal Edition*, 97(1), F30-34. doi:10.1136/adc.2010.208736
- Beijers, R., Cillessen, L., & Zijlmans, M. A. (2016). An experimental study on motherinfant skin-to-skin contact in full-terms. *Infant Behavior & Development*, 43, 58-65. doi:<u>https://dx.doi.org/10.1016/j.infbeh.2016.01.001</u>
- Beiranvand, S., Valizadeh, F., Hosseinabadi, R., & Pournia, Y. (2014). The effects of skin-to-skin contact on temperature and breastfeeding successfulness in full-Term newborns after cesarean delivery. *International Journal of Pediatrics*, 2014, 846486. doi:<u>https://dx.doi.org/10.1155/2014/846486</u>
- Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *NursingPlus Open*, 2, 8-14.
- Bensaid, B. (2019). Breastfeeding as a fundamental islamic human right. *Journal of Religion and Health*. doi:10.1007/s10943-019-00835-5
- Bergman, N. J. (2014). The neuroscience of birth and the case for zero separation. *Curationis*, *37*(2), 1-4. doi:10.4102/curationis.v37i2.1440
- BFHI Australia. (2019). *BFHI Skin-to-Skin Audit Tool*. Retrieved from <u>https://www.midwives.org.au/resources/bfhi-information-pack-maternity-facilities</u>.
- Bigelow, A., Power, M., Maclellan-Peters, J., Alex, M., & McDonald, C. (2012). Effect

of mother/Infant skin-to-skin contact on postpartum depressive symptoms and maternal physiological stress. *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing, 41*(3), 369-382. doi:10.1111/j.1552-6909.2012.01350.x

- Biro, M. A., Yelland, J. S., & Brown, S. J. (2015). Who is holding the baby? Women's experiences of contact with their baby immediately after birth: An Australian population-based survey. *Women and Birth*, 28, 317-322. doi:10.1016/j.wombi.2015.05.001
- Bloomer, M. J., Cross, W., Endacott, R., O'Connor, M., & Moss, C. (2012). Qualitative observation in a clinical setting: Challenges at end of life. *Nursing & Health Sciences*, 14(1), 25-31.
- Bohren, M. A., Hofmeyr, G. J., Sakala, C., Fukuzawa, R. K., & Cuthbert, A. (2017). Continuous support for women during childbirth. *Cochrane Database of Systematic Reviews*(7), CD003766. doi:10.1002/14651858.CD003766.pub6
- Bowen G. A. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9(2), 27-40. doi:10.3316/QRJ0902027
- Bouanene, I., ElMhamdi, S., Sriha, A., Bouslah, A., & Soltani, M. (2010). Knowledge and practices of women in Monastir, Tunisia regarding breastfeeding. *Eastern Mediterranean Health Journal*, *16*, 879-885.
- Brady, K., Bulpitt, D., & Chiarelli, C. (2014). An interprofessional quality improvement project to implement maternal/infant skin-to-skin contact during cesarean delivery. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 43, 488-496. doi:10.1111/1552-6909.12469
- Bramson, L., Lee, J. W., Moore, E., Montgomery, S., Neish, C., Bahjri, K., & Melcher, C. L. (2010). Effect of early skin-to-skin mother-infant contact during the first 3 hours following birth on exclusive breastfeeding during the maternity hospital stay. *Journal of Human Lactation*, 26(2), 130-137. doi:https://doi.org/10.1177/0890334409355779
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi:10.1191/1478088706qp0630a
- Brimdyr, K., Cadwell, K., Stevens, J., & Takahashi, Y. (2017). An implementation algorithm to improve skin-to-skin practice in the first hour after birth. *Maternal & Child Nutrition*, 14, e12571. doi:<u>https://doi.org/10.1111/mcn.12571</u>
- Brimdyr, K., Cadwell, K., Svensson, K., Takahashi, Y., Nissen, E., & Widström, A.-M. (2020). The nine stages of skin-to-skin: practical guidelines and insights from four countries. *Maternal & Child Nutrition*, e13042. doi:10.1111/mcn.13042
- Brimdyr, K., Cadwell, K., Widström, A.-M., Svensson, K., & Phillips, R. (2019). The effect of labor medications on normal newborn behavior in the first hour after birth: A prospective cohort study. *Early Human Development*, 132, 30-36.
- Brimdyr, K., Widstrom, A. M., Cadwell, K., Svensson, K., & Turner-Maffei, C. (2012). A realistic evaluation of two training programs on implementing skin-to-skin as a standard of care. *Journal of Perinatal Education*, 21(3), 149-157. doi:https://dx.doi.org/10.1a891/1058-1243.21.3.149
- Brodribb, W., Kruske, S., & Miller, Y. D. (2013). Baby-Friendly Hospital accreditation, in-hospital care practices, and breastfeeding. *Pediatrics*, *131*(4), 685-692. doi:10.1542/peds.2012-2556
- Brubaker, L. H., Paul, I. M., Repke, J. T., & Kjerulff, K. H. (2019). Early maternalnewborn contact and positive birth experience. *Birth*, 46, 42-50. doi:10.1111/birt.12378
- Buckley, S. J. (2009). *Gentle birth, gentle mothering: A doctor's guide to natural children and gentle early parenting choices.* Berkeley, CA: Celestial Arts.
- Buckley, S. J. (2015). Executive summary of hormonal physiology of childbearing: evidence and implications for women, babies, and maternity Care. *The Journal of*

Perinatal Education, 24(3), 145-153. doi:10.1891/1058-1243.24.3.145

- Burns, E., Fenwick, J., Schmied, V., & Sheehan, A. (2012). Reflexivity in midwifery research: The insider/outsider debate. *Midwifery*, 28(1), 52-60. doi:https://doi.org/10.1016/j.midw.2010.10.018
- Byaruhanga, R. N., Bergström, A., Tibemanya, J., Nakitto, C., & Okong, P. (2008). Perceptions among post-delivery mothers of skin-to-skin contact and newborn baby care in a periurban hospital in Uganda. *Midwifery*, 24(2), 183-189.
- Bystrova, K., Ivanova, V., Edhborg, M., Matthiesen, A., Ransjö-Arvidson, A., Mukhamedrakhimov, R., . . . Widström, A. (2009). Early contact versus separation: effects on mother--infant interaction one year later. *Birth: Issues in Perinatal Care, 36*(2), 97-109. doi:10.1111/j.1523-536X.2009.00307.x
- Cadwell, K., Brimdyr, K., & Phillips, R. (2018). Mapping, measuring, and analyzing the process of skin-to-skin contact and early breastfeeding in the first hour after birth. *Breastfeeding Medicine*, 13(7), 485-492. doi:10.1089/bfm.2018.0048
- Calais, E., Dalbye, R., Nyqvist, K., & Berg, M. (2010). Skin-to-skin contact of fullterm infants: An explorative study of promoting and hindering factors in two Nordic childbirth settings. *Acta Paediatrica*, 99(7), 1080-1090. doi:https://dx.doi.org/10.1111/j.1651-2227.2010.01742.x
- Çalik, K. Y., Karabulutlu, Ö., & Yavuz, C. (2018). First do no harm interventions during labor and maternal satisfaction: A descriptive cross-sectional study. *BMC Pregnancy and Childbirth*, 18, 415. doi:10.1186/s12884-018-2054-0
- Callaghan-Koru, J. A., Estifanos, A. S., Sheferaw, E. D., de Graft-Johnson, J., Rosado, C., Patton-Molitors, R., . . . Baqui, A. (2016). Practice of skin-to-skin contact, exclusive breastfeeding and other newborn care interventions in Ethiopia following promotion by facility and community health workers: Results from a prospective outcome evaluation. *Acta Paediatrica*, 105(12), e568-e576. doi:10.1111/apa.13597
- Cantrill, R. M., Creedy, D. K., Cooke, M., & Dykes, F. (2014). Effective suckling in relation to naked maternal-infant body contact in the first hour of life: an observation study. *BMC Pregnancy and Childbirth*, 14, 20.
- Cederfeldt, J., Carlsson, J., Begley, C., & Berg, M. (2016). Quality of intra-partum care at a university hospital in Nepal: A prospective cross-sectional survey. *Sexual & Reproductive Healthcare*, 7, 52-57. doi:https://dx.doi.org/10.1016/j.srhc.2015.11.004
- Chalmers, B., Kaczorowski, J., Darling, E., Heaman, M., Fell, D. B., O'Brien, B., & Lee, L. (2010). Cesarean and vaginal birth in Canadian women: a comparison of experiences. *Birth*, 37(1), 44-49.
- Chan, G., Bergelson, I., Smith, E. R., Skotnes, T., & Wall, S. (2017). Barriers and enablers of kangaroo mother care implementation from a health systems perspective: a systematic review. *Health Policy and Planning*, 32(10), 1466-1475.
- Chan, G., Labar, A. S., Wall, S., & Atuna, R. (2016). Kangaroo mother care: a systematic review of barriers and enablers. *Bulletin of the World Health Organization*, 94(2), 130-141. doi:10.2471/BLT.15.157818
- Chan, G. J., Valsangkar, B., Kajeepeta, S., Boundy, E. O., & Wall, S. (2016). What is kangaroo mother care? Systematic review of the literature. *Journal of Global Health*, 6(1), 010701. doi:<u>https://dx.doi.org/10.7189/jogh.06.010701</u>
- Charpak, N., & Gabriel Ruiz-Peláez, J. (2006). Resistance to implementing kangaroo mother care in developing countries, and proposed solutions. *Acta Paediatrica*, 95, 529-534. doi:10.1111/j.1651-2227.2006.tb02279.x
- Chiou, S.-T., Chen, L.-C., Yeh, H., Wu, S.-R., & Chien, L.-Y. (2014). Early skin-to-skin contact, rooming-in, and breastfeeding: A comparison of the 2004 and 2011 national surveys in Taiwan. *Birth*, *41*, 33-38. doi:10.1111/birt.12090

- Christensson, K., Cabrera, T., Christensson, E., Uvnäs–Moberg, K., & Winberg, J. (1995). Separation distress call in the human neonate in the absence of maternal body contact. *Acta Paediatrica*, 84(5), 468-473. doi:10.1111/j.1651-2227.1995.tb13676.x
- Christiansen, T., & Lauritsen, J. (2010). Comprehensive Data Management and Basic Statistical Analysis System. Odense Denmark. Retrieved from <u>Http://www.epidata.dk</u>
- Cleveland, L., Hill, C. M., Pulse, W. S., DiCioccio, H. C., Field, T., & White-Traut, R. (2017). Systematic review of skin-to-skin care for full-term, healthy newborns. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 46, 857-869. doi:10.1016/j.jogn.2017.08.005
- Conde-Agudelo, A., & Diaz-Rossello, J. L. (2016). Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *Cochrane Database of Systematic Reviews*(8), CD002771. doi:https://dx.doi.org/10.1002/14651858.CD002771.pub4
- Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: the new medical research council guidance. *BMJ*, 337, a1655. doi:10.1136/bmj.a1655
- Crenshaw, J. T. (2014). Healthy birth practice #6: Keep mother and baby together- It's best for mother, baby, and breastfeeding. *Journal of Perinatal Education*, 23(4), 211-217. doi:https://dx.doi.org/10.1891/1058-1243.23.4.211
- Crenshaw, J. T., Cadwell, K., Brimdyr, K., Widström, A.-M., Svensson, K., Champion, J. D., . . . Winslow, E. H. (2012). Use of a video-ethnographic intervention (PRECESS immersion method) to improve skin-to-skin care and breastfeeding rates. *Breastfeeding Medicine*, 7(2), 69-78. doi:10.1089/bfm.2011.0040
- Creswell, W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Thousand Oaks, CA: SAGE Publications.
- Creswell, W., & Creswell, D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Thousand Oaks, California: SAGE Publications.
- Crowe, S., Prost, A., Hossen, M., Azad, K., Kuddus, A., Roy, S., . . . Sen, A. (2015). Generating insights from trends in newborn care practices from prospective population-based studies: Examples from India, Bangladesh and Nepal. *PLoS ONE*, 10(7). doi:<u>http://dx.doi.org/10.1371/journal.pone.0127893</u>
- Dalbye, R., Calais, E., & Berg, M. (2011). Mothers' experiences of skin-to-skin care of healthy full-term newborns a phenomenology study. *Sexual & Reproductive Healthcare*, 2, 107-111. doi:<u>https://dx.doi.org/10.1016/j.srhc.2011.03.003</u>
- De Vaus, D. (2016). What Is a Survey. *Research Methods for Postgraduates*, 5(3), 202-211.
- Denzin, N. K., & Lincoln, Y. S. (2000). *Handbook of qualitative research*. Thousand Oaks, California.: SAGE Publications.
- EFCNI, Bergman NJ, Westrup B, Kuhn P, Daly M, Bertoncelli N, ... K, K. (2018). Very early and continuous skin-to-skin contact. Retrieved from <u>https://newborn-health-standards.org/skin-to-skin-contact/#</u>.
- El-Gilany, A. H., Sarraf, B., & Al-Wehady, A. (2012). Factors associated with timely initiation of breastfeeding in Al-Hassa province, Saudi Arabia. *Eastern Mediterranean Health Journal*, 18(3), 250-254.
- El-Gilany, A. H., Shady, E., & Helal, R. (2011). Exclusive breastfeeding in Al-Hassa, Saudi Arabia. *Breastfeeding Medicine*, 6(4), 209-213. doi:<u>https://dx.doi.org/10.1089/bfm.2010.0085</u>
- El Mouzan, M. I., Al Omar, A. A., Al Salloum, A. A., Al Herbish, A. S., & Qurachi, M. M. (2009). Trends in infant nutrition in Saudi Arabia: compliance with WHO

recommendations. Annals of Saudi Medicine, 29(1), 20-23.

- Eldeek, B. S., Tayeb, S. O., & Habiballah, S. B. (2012). Knowledge, attitudes and practice of mothers toward breast feeding at Well Baby Clinic, King Abdulaziz University Hospital. *Journal of American Science*, 8(4), 157-162.
- Essa, R. M., & Ismail, N. (2015). Effect of early maternal/newborn skin-to-skin contact after birth on the duration of third stage of labor and initiation of breastfeeding. *Journal of Nursing Education and Practice*, *5*, 98-107.
- Feldman-Winter, L., Goldsmith, J. P., AAP Committee on fetus and newborn, & AAP Task force on sudden infnat death syndrome. (2016). Safe sleep and skin-to-skin care in the neonatal period for healthy term newborns. *Pediatrics*, 138(3), e20161889. doi:10.1542/peds.2016-1889
- Ferrarello, D., & Hatfield, L. (2014). Barriers to skin-to-skin care during the postpartum stay. MCN: The American Journal of Maternal Child Nursing, 39(1), 56-61. doi:10.1097/01.NMC.0000437464.31628.3d
- Finigan, V., & Long, T. (2014). Skin-to-skin contact: Multicultural perspectives on birth fluids and birth 'dirt'. *International Nursing Review*, 61, 270-277. doi:10.1111/inr.12100
- Flacking, R., & Dykes, F. (2016). Cross-national ethnography in neonatal intensive care units. Ethnographic research in maternal and child health, 98-116.
- Fleming, P. J. (2012). Unexpected collapse of apparently healthy newborn infants: The benefits and potential risks of skin-to-skin contact. *Archives of Disease in Childhood Fetal and Neonatal Edition*, 97(1), F2-3.
- 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*, e007512.
- Frederick, A. C., Busen, N. H., Engebretson, J. C., Hurst, N. M., & Schneider, K. M. (2016). Exploring the skin-to-skin contact experience during cesarean section. *Journal of the American Association of Nurse Practitioners*, 28(1), 31-38. doi:10.1002/2327-6924.12229
- Fritz, J., Walker, D. M., Cohen, S., Angeles, G., & Lamadrid-Figueroa, H. (2017). Can a simulation-based training program impact the use of evidence based routine practices at birth? Results of a hospital-based cluster randomized trial in Mexico. *PLoS ONE [Electronic Resource]*, 12(3), e0172623. doi:https://dx.doi.org/10.1371/journal.pone.0172623
- Gangal, P., Bhagat, K., Prabhu, S., & Nair, R. (2007). *Breast crawl: Initiation of breastfedding by the breast crawl*. Retrieved from <u>http://www.breastcrawl.org/</u>.
- General Authority for Statistics (GAS). (2019). Population estimates: Population by age group and gender 2019 in Saudi Arabia.
- Ghanbari-Homayi, S., Fardiazar, Z., Mohammad-Alizadeh-Charandabi, S., Meedya, S., Jafarabadi, M. A., Mohammadi, E., & Mirghafourvand, M. (2020). Skin-to-skin contact, early initiation of breastfeeding and childbirth experience in first time mothers: A cross sectional study. *Journal of Neonatal Nursing*, 26(2), 115-119. doi:https://doi.org/10.1016/j.jnn.2019.08.003
- Giordano, J., & Surita, F. G. (2019). The role of the respectful maternity care model in São Paulo, Brazil: A cross-sectional study. *Birth, 46*, 509-516. doi:10.1111/birt.12448
- Grol, R., & Wensing, M. (2004). What drives change? Barriers to and incentives for achieving evidence-based practice. *Medical Journal of Australia*, 180(6 Suppl), S57.
- Grol, R., Wensing, M., Eccles, M., & Davis, D. (2013). *Improving patient care: the implementation of change in health care:* John Wiley & Sons, Incorporated.

- Gubler, T., Krähenmann, F., Roos, M., Zimmermann, R., & Ochsenbein-Kölble, N. (2013). Determinants of successful breastfeeding initiation in healthy term singletons: a Swiss university hospital observational study. *Journal of Perinatal Medicine*, 41(3), 331-339. doi:10.1515/jpm-2012-0102
- Haiek, L. N. (2012). Measuring compliance with the Baby-Friendly Hospital Initiative. *Public Health Nutrition*, 15(5), 894-905.
- Hakala, M., Kaakinen, P., Kääriäinen, M., Bloigu, R., Hannula, L., & Elo, S. (2017). The realization of BFHI Step 4 in Finland Initial breastfeeding and skin-to-skin

contact according to mothers and midwives. *Midwifery*, *50*, 27-35. doi:<u>http://dx.doi.org/10.1016/j.midw.2017.03.010</u>

- Handlin, L., Jonas, W., Petersson, M., Ejdeback, M., Ransjo-Arvidson, A. B., Nissen, E., & Uvnas-Moberg, K. (2009). Effects of sucking and skin-to-skin contact on maternal ACTH and cortisol levels during the second day postpartum-influence of epidural analgesia and oxytocin in the perinatal period. *Breastfeeding Medicine*, 4(4), 207-220. doi:<u>https://dx.doi.org/10.1089/bfm.2009.0001</u>
- Haxton, D., Doering, J., Gingras, L., & Kelly, L. (2012). Implementing skin-to-skin contact at birth using the Iowa model. *Nursing for Women's Health*, 16(3), 220-230. doi:10.1111/j.1751-486X.2012.01733.x
- Healthy Children Project. Our story. Retrieved from https://centerforbreastfeeding.org/about/our-story/
- Hegazi, M. A., Allebdi, M., Almohammadi, M., Alnafie, A., Al-Hazmi, L., & Alyoubi, S. (2019). Factors associated with exclusive breastfeeding in relation to knowledge, attitude and practice of breastfeeding mothers in Rabigh community, Western Saudi Arabia. World Journal of Pediatrics, 15(6), 601-609. doi:10.1007/s12519-019-00275-x
- Heidarzadeh, M., Hakimi, S., Habibelahi, A., Mohammadi, M., & Shahrak, S. P. (2016). Comparison of breast crawl between infants delivered by vaginal delivery and cesarean section. *Breastfeeding Medicine*, 11(6), 305-308. doi:<u>http://dx.doi.org/10.1089/bfm.2015.0168</u>
- Henderson, A. (2011). Understanding the Breast Crawl. *Nursing for Women's Health*, *15*(4), 296-307. doi:10.1111/j.1751-486X.2011.01650.x
- Hesse-Biber, S. N. (2010). *Mixed methods research: merging theory with practice:* Guilford Publications.
- Ho, N. T., Li, F., Lee-Sarwar, K. A., Tun, H. M., Brown, B. P., Pannaraj, P. S., ... Kuhn, L. (2018). Meta-analysis of effects of exclusive breastfeeding on infant gut microbiota across populations. *Nature Communications*, 9(1), 4169. doi:10.1038/s41467-018-06473-x
- Hongo, H., Nanishi, K., Shibanuma, A., & Jimba, M. (2015). Is baby-friendly breastfeeding support in maternity hospitals associated with breastfeeding satisfaction among japanese mothers? *Maternal & Child Health Journal*, 19(6), 1252-1262. doi:10.1007/s10995-014-1631-8
- Hoskins, C. N., & Mariano, C. (2004). *Research in nursing and health: Understanding and using quantitative and qualitative methods* (Vol. 23). New York, NY: Springer Publishing Company.
- Hussein, S. A. A., Dahlen, H. G., Ogunsiji, O., & Schmied, V. (2018). Women's experiences of childbirth in Middle Eastern countries: A narrative review. *Midwifery*, 59, 100-111. doi:<u>https://doi.org/10.1016/j.midw.2017.12.010</u>
- Jahlan, I. (2016). *Perspectives on Birthing Services in Saudi Arabia*. (PhD Thesis), Monash University,
- Jahlan, I., Plummer, V., McIntyre, M., & Moawed, S. (2016). What women have to say about giving birth in Saudi Arabia. *Middle East Journal of Nursing*, 101(3031), 1-9.

Jeddah Population. (2017). *World Population Review*. Retrieved from <u>http://worldpopulationreview.com/world-cities/jeddah-population/</u>

- Johnson, K. (2013). Maternal-infant bonding: A review of literature. *International Journal of Childbirth Education*, 28(3), 17-22.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112-133. doi:10.1177/1558689806298224
- Johnston, C., Campbell-Yeo, M., Disher, T., Benoit, B., Fernandes, A., Streiner, D., ... Zee, R. (2017). Skin-to-skin care for procedural pain in neonates. *Cochrane Database of Systematic Reviews*, 2, CD008435. doi:<u>https://dx.doi.org/10.1002/14651858.CD008435.pub3</u>
- Jonas, W., & Woodside, B. (2016). Physiological mechanisms, behavioral and psychological factors influencing the transfer of milk from mothers to their young. *Horm Behav*, 77, 167-181. doi:10.1016/j.yhbeh.2015.07.018
- Kalmakoff, S., Gray, A., & Baddock, S. (2017). Predictors of supplementation for breastfed babies in a Baby-Friendly hospital. *Women and Birth*. doi:10.1016/j.wombi.2017.08.131
- Kamoun, C., & Spatz, D. (2018). Influence of Islamic traditions on breastfeeding beliefs and practices among African American Muslims in West Philadelphia: A mixedmethods study. *Journal of Human Lactation*, 34(1), 164-175. doi:10.1177/0890334417705856
- Karimi, F. Z., Sadeghi, R., Maleki-Saghooni, N., & Khadivzadeh, T. (2019). The effect of mother-infant skin to skin contact on success and duration of first breastfeeding: A systematic review and meta-analysis. *Taiwanese Journal of Obstetrics and Gynecology*, 58(1), 1-9. doi:<u>https://doi.org/10.1016/j.tjog.2018.11.002</u>
- Keemer, F. (2013). Breastfeeding self-efficacy of women using second-line strategies for healthy term infants in the first week postpartum: An Australian observational study. *International Breastfeeding Journal*, 8, 18. doi:https://dx.doi.org/10.1186/1746-4358-8-18
- Kempe, A., Noor-Aldin Alwazer, F. A., & Theorell, T. (2010). Women's authority during childbirth and Safe Motherhood in Yemen. *Sexual & Reproductive Healthcare*, *1*(4), 129-134. doi:<u>https://dx.doi.org/10.1016/j.srhc.2010.07.001</u>
- Khan, J., Vesel, L., Bahl, R., & Martines, J. C. (2015). Timing of breastfeeding initiation and exclusivity of breastfeeding during the first month of life: Effects on neonatal mortality and morbidity- a systematic review and meta-analysis. *Maternal and Child Health Journal*, 19(3), 468-479. doi:10.1007/s10995-014-1526-8
- Khresheh, R. M., & Ahmad, N. M. (2018). Breastfeeding self efficacy among pregnant women in Saudi Arabia. *Saudi Medical Journal*, 39(11), 1116-1122. doi:10.15537/smj.2018.11.23437
- Kim, B. Y. (2016). Factors that influence early breastfeeding of singletons and twins in Korea: A retrospective study. *International Breastfeeding Journal*, 12, 4. doi:<u>https://dx.doi.org/10.1186/s13006-016-0094-5</u>
- Klaus, M. (1998). Mother and infant: Early emotional ties. *Pediatrics*, 102(S-E1), 1244-1246.
- Koopman, I., Callaghan-Koru, J. A., Alaofin, O., Argani, C. H., & Farzin, A. (2016). Early skin-to-skin contact for healthy full-term infants after vaginal and caesarean delivery: a qualitative study on clinician perspectives. *Journal of Clinical Nursing*, 25(9/10), 1367-1376. doi:10.1111/jocn.13227
- Lau, Y., Tha, P. H., Ho-Lim, S. S. T., Wong, L. Y., Lim, P. I., Citra Nurfarah, B. Z. M., & Shorey, S. (2017). An analysis of the effects of intrapartum factors, neonatal characteristics, and skin-to-skin contact on early breastfeeding initiation. *Maternal* & Child Nutrition, e12492. doi:<u>http://dx.doi.org/10.1111/mcn.12492</u>

- Lauria, L., Spinelli, A., & Grandolfo, M. (2016). Prevalence of breastfeeding in Italy: A population based follow-up study. *Annali Dell'Istituto Superiore di Sanita*, 52(3), 457-461. doi:https://dx.doi.org/10.4415/ANN\_16\_03\_18
- Leech, N. L., & Onwuegbuzie, A. J. (2009). A typology of mixed methods research designs. *Quality & quantity, 43*(2), 265-275.
- Lewin, K. (1975). *Field theory in social science : selected theoretical papers*. Westport, Conn: Westport, Conn : Greenwood Press.
- Ludington-Hoe, S. M. (2011). Thirty years of kangaroo care science and practice. *Neonatal Network*, 30(5), 357-362. doi:10.1891/0730-0832.30.5.357
- Macfarlane, A. J., Rocca-Ihenacho, L., & Turner, L. R. (2014). Survey of women's experiences of care in a new freestanding midwifery unit in an inner city area of London, England: 2. Specific aspects of care. *Midwifery*, 30(9), 1009-1020. doi:10.1016/j.midw.2014.05.008
- Mahmood, I., Jamal, M., & Khan, N. (2011). Effect of mother-infant early skin-to-skin contact on breastfeeding status: A randomized controlled trial. *Journal of the College of Physicians and Surgeons Pakistan, 21*(10), 601-605. Retrieved from <u>http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/437/CN-</u>00893437/frame.html
- Map open source In. Retrieved from <u>http://www.mapsopensource.com/saudi-arabia-map.html</u>
- Marin Gabriel, M. A., Del Rey Hurtado de Mendoza, B., Jiménez Figueroa, L., Medina, V., Iglesias Fernández, B., Vázquez Rodríguez, M., . . . Medina Malagón, L. (2013). Analgesia with breastfeeding in addition to skin-to-skin contact during heel prick. *Archives of Disease in Childhood Fetal and Neonatal Edition*, 98(6), F499-503. doi:10.1136/archdischild-2012-302921
- Marin Gabriel, M. A., Llana Martin, I., Lopez Escobar, A., Fernandez Villalba, E., Romero Blanco, I., & Touza Pol, P. (2010). Randomized controlled trial of early skin-to-skin contact: effects on the mother and the newborn. *Acta Paediatrica*, 99(11), 1630-1634. doi:<u>https://dx.doi.org/10.1111/j.1651-2227.2009.01597</u>.
- Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*: SAGE Publications.
- Martinez-Galiano, J. M., & Delgado-Rodriguez, M. (2014). Influence of an education program of pregnant women on delivery. *Journal of Maternal-Fetal & Neonatal Medicine*, 27(7), 719-723. doi:<u>https://dx.doi.org/10.3109/14767058.2013.836486</u>
- Mbalinda, S., Hjelmstedt, A., Nissen, E., Odongkara, B. M., Waiswa, P., & Svensson, K. (2018). Experience of perceived barriers and enablers of safe uninterrupted skinto-skin contact during the first hour after birth in Uganda. *Midwifery*, 67, 95-102. doi:<u>https://doi.org/10.1016/j.midw.2018.09.009</u>
- McLachlan, H. L., Forster, D. A., Amir, L. H., Cullinane, M., Shafiei, T., Watson, L. F., . . Small, R. (2016). Supporting breastfeeding In Local Communities (SILC) in Victoria, Australia: A cluster randomised controlled trial. *BMJ Open*, 6(2), e008292. doi:<u>https://dx.doi.org/10.1136/bmjopen-2015-008292</u>
- Mekonnen, A. G., Yehualashet, S. S., & Bayleyegn, A. D. (2019). The effects of kangaroo mother care on the time to breastfeeding initiation among preterm and LBW infants: A meta-analysis of published studies. *International Breastfeeding Journal*, 14, 12. doi:10.1186/s13006-019-0206-0
- Michie, S., Atkins, L., & West, R. (2014). *The behaviour change wheel : a guide to designing interventions*. Great Britain: Silverback Publishing.
- Michie, S., & Johnston, M. (2004). Changing clinical behaviour by making guidelines specific. *BMJ*, *328*(7435), 343. doi:10.1136/bmj.328.7435.343
- Michie, S., & Johnston, M. (2012). Theories and techniques of behaviour change: Developing a cumulative science of behaviour change. *Health Psychology Review*,

6(1), 1-6. doi:10.1080/17437199.2012.654964

- Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: a consensus approach. *Quality and Safety in Health Care*, 14(1), 26-33. doi:10.1136/qshc.2004.011155
- Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, 6, 42. doi:10.1186/1748-5908-6-42
- Ministry of Health. (2018). *Breastfeeding Support: Close to Mothers*. Retrieved from <u>https://www.moh.gov.sa/en/HealthAwareness/EducationalContent/BabyHealth/Pages/Breastfeeding.aspx</u>.
- Ministry of Health [MOH]. (2007). *Annual Statistical Book*. Retrieved from https://www.moh.gov.sa/en/ministry/statistics/book/pages/default.aspx.
- Ministry of Health [MOH]. (2019). *Annual Statistical Book*. Retrieved from <u>https://www.moh.gov.sa/Ministry/Statistics/book/Pages/default.aspx</u>.
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., . . . Group, P.-P. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews*, 4(1), 1. doi:10.1186/2046-4053-4-1
- Moore, E., Anderson, G., Bergman, N., & Dowswell, T. (2012). Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*, *16*, CD003519. doi:doi: 10.1002/14651858.CD003519.pub3.
- Moore, E., Bergman, N., Anderson, G., & Medley, N. (2016). Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*, 11, CD003519.
  doi:https://dx.doi.org/10.1002/14651858.CD002510.mth4

doi:https://dx.doi.org/10.1002/14651858.CD003519.pub4

- Moreira, M. E., Gama, S. G., Pereira, A. P., Silva, A. A., Lansky, S., Souza Pinheiro, R., .
  . . Carmo Leal, M. (2014). Clinical practices in the hospital care of healthy newborn infant in Brazil. *Cadernos de Saude Publica, 30 Suppl 1*, S1-12.
- Morelius, E., Ortenstrand, A., Theodorsson, E., & Frostell, A. (2015). A randomised trial of continuous skin-to-skin contact after preterm birth and the effects on salivary cortisol, parental stress, depression, and breastfeeding. *Early Human Development*, 91(1), 63-70. doi:https://dx.doi.org/10.1016/j.earlhumdev.2014.12.005
- Morse, J. M. (2003). Perspectives of the observer and the observed. *Qualitative Health Research*, *13*(2), 155-157.
- Mosalli, R., El-Azim, A. A., Qutub, M. A., Zagoot, E., Janish, M., & Paes, B. A. (2012). Perceived barriers to the implementation of a baby friendly initiative in Jeddah, Saudi Arabia. *Saudi Medical Journal*, *33*(8), 895-900.
- Mosher, C., Sarkar, A., Hashem, A. A., Hamadah, R. E., Alhoulan, A., AlMakadma, Y. A., . . . Senok, A. (2016). Self-reported breast feeding practices and the Baby Friendly Hospital Initiative in Riyadh, Saudi Arabia: prospective cohort study. *BMJ Open*, 6(12), e012890. doi:<u>https://dx.doi.org/10.1136/bmjopen-2016-012890</u>
- Mukherjee, D., Chandra Shaw, S., Venkatnarayan, K., & Dudeja, P. (2019). Skin-to-skin contact at birth for vaginally delivered neonates in a tertiary care hospital: A cross-sectional study. *Medical Journal Armed Forces India*, 76(2), 180-184. doi:https://doi.org/10.1016/j.mjafi.2018.11.008
- Mulhall, A. (2003). In the field: notes on observation in qualitative research. *Journal of Advanced Nursing*, *41*(3), 306-313. doi:10.1046/j.1365-2648.2003.02514.x
- Munn, Z., Moola, S., Riitano, D., & Lisy, K. (2014). The development of a critical appraisal tool for use in systematic reviews addressing questions of prevalence. *International journal of health policy and management*, *3*(3), 123.

doi:10.15171/ijhpm.2014.71

- Myles, M. F., & Fraser, D. (2003). *Myles Textbook for Midwives*. Philadelphia, UNITED STATES: Elsevier.
- Nahidi, F., Dorri, F., Ravari, M., & Akbarzade, A. (2011). Effect of early skin-to-skin contact of mother and newborn on mother's satisfaction. *Journal of Nursing & Midwifery*, 20(71), 61-61.
- Nahidi, F., Tavafian, S. S., Haidarzade, M., & Hajizadeh, E. (2014). Opinions of the midwives about enabling factors of skin-to-skin contact immediately after birth: a descriptive study. *Journal of Family & Reproductive Health*, 8(3), 107-112.
- NEOVITA Study Group. (2016). Timing of initiation, patterns of breastfeeding, and infant survival: prospective analysis of pooled data from three randomised trials. *The Lancet Global Health*, *4*(4), e266-e275.
- Nickel, N. C., Taylor, E. C., Labbok, M. H., Weiner, B. J., & Williamson, N. E. (2013). Applying organisation theory to understand barriers and facilitators to the implementation of baby-friendly: A multisite qualitative study. *Midwifery*, 29(8), 956-964. doi:https://dx.doi.org/10.1016/j.midw.2012.12.001
- Niela-Vilén, H., Feeley, N., & Axelin, A. (2017). Hospital routines promote parent–infant closeness and cause separation in the birthing unit in the first 2 hours after birth: A pilot study. *Birth, 44*, 167-172. doi:10.1111/birt.12279
- Nigenda, G., Langer, A., Kuchaisit, C., Romero, M., Rojas, G., Al-Osimy, M., . . . Lindmark, G. (2003). Womens' opinions on antenatal care in developing countries: Results of a study in Cuba, Thailand, Saudi Arabia and Argentina. *BMC Public Health*, *3*, 17. doi:10.1186/1471-2458-3-17
- Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation Science*, *10*, 53. doi:10.1186/s13012-015-0242-0
- Nissen, E., Lilja, G., Widström, A.-M., & Uvnás-Moberg, K. (1995). Elevation of oxytocin levels early post partum in women. *Acta Obstetricia et Gynecologica Scandinavica*, 74(7), 530-533. doi:10.3109/00016349509024384
- Nissen, E., Svensson, K., Mbalinda, S., Brimdyr, K., Waiswa, P., Odongkara, B. M., & Hjelmstedt, A. (2019). A low-cost intervention to promote immediate skin-to-skin contact and improve temperature regulation in Northern Uganda. *African Journal* of Midwifery and Women's Health, 13(3), 1-12. doi:10.12968/ajmw.2018.0037
- Nyqvist, K. H., Anderson, G. C., Bergman, N., Cattaneo, A., Charpak, N., Davanzo, R., . . . Widstrom, A. M. (2010). Towards universal kangaroo mother care: Recommendations and report from the first european conference and seventh international workshop on kangaroo mother care. *Acta Paediatrica, 99*(6), 820-826. doi:<u>https://dx.doi.org/10.1111/j.1651-2227.2010.01787.x</u>
- Nyqvist, K. H., Anderson, G. C., Bergman, N., Cattaneo, A., Charpak, N., Davanzo, R., . . . Widström, A. M. (2010). State of the art and recommendations. kangaroo mother care: Application in a high-tech environment. *Acta Paediatrica*, 99(6), 812. doi:10.1111/j.1651-2227.2010.01794.x
- Ogbo, F. A., Eastwood, J., Page, A., Arora, A., McKenzie, A., Jalaludin, B., . . . Eapen,
   V. (2016). Prevalence and determinants of cessation of exclusive breastfeeding in the early postnatal period in Sydney, Australia. *International Breastfeeding Journal*, *12*, 16. doi:10.1186/s13006-017-0110-4
- Otaiby, T. A., Jradi, H., & Bawazir, A. (2013). Antenatal education: An assessment of pregnant women knowledge and preferences in Saudi Arabia. *Journal Women's Health Care*, 2, 139.
- Penfold, S., Hill, Z., Mrisho, M., Manzi, F., Tanner, M., Mshinda, H., . . . Armstrong Schellenberg, J. R. (2010). A large cross-sectional community-based study of newborn care practices in southern Tanzania. *PLoS ONE*, 5(12), e15593. doi:<u>https://dx.doi.org/10.1371/journal.pone.0015593</u>

- Phillippi, J., & Lauderdale, J. (2018). A guide to field notes for qualitative research: context and conversation. *Qualitative Health Research*, 28(3), 381-388. doi:10.1177/1049732317697102
- Phillips, R. (2013). The sacred hour: Uninterrupted skin-to-skin contact immediately after birth. *Newborn & Infant Nursing Reviews*, 13(2), 67-72. doi:10.1053/j.nainr.2013.04.001
- Plano Clark, V. L. (2019). Meaningful integration within mixed methods studies: Identifying why, what, when, and how. *Contemporary Educational Psychology*, 57, 106-111. doi:<u>https://doi.org/10.1016/j.cedpsych.2019.01.007</u>
- Polit, D. F., & Beck, C. T. (2018). *Essentials of nursing research: appraising evidence for nursing practice*. Philadelphia: Wolters Kluwer Health.
- Quran Translation. Surah Al-Baqarah [2:233]. Retrieved from https://quran.com/2/233
- Rabbitt, E. (2003). *Insider research: the implications of conducting research in your home locale*. Paper presented at the AARE/NZARE Conference https://www.aare.edu.au/data/publications/2003/rab03740.pdf
- Raheel, H., & Tharkar, S. (2018). Why mothers are not exclusively breast feeding their babies till 6 months of age? Knowledge and practices data from two large cities of the Kingdom of Saudi Arabia. *Sudanese Journal of Paediatrics*, *18*(1), 28-38.
- Rasheed, P., & Khan, A. (1990). A multifactorial study of birth place options: improving health care delivery in Saudi Arabia. *International Journal of Gynecology & Obstetrics*, 33(3), 229-234. doi:10.1016/0020-7292(90)90006-7
- Redshaw, M., & Henderson, J. (2015). Safely delivered: a national survey of women's experience of maternity care 2014. *National Perinatal Epidemiology Unit, Oxford*.
- Redshaw, M., Hennegan, J., & Kruske, S. (2014). Holding the baby: Early mother-infant contact after childbirth and outcomes. *Midwifery*, *30*(5), e177-187. doi:10.1016/j.midw.2014.02.003
- Rehmani, R., Elzubair, A. G., Al Maani, M., Chaudary, I. Y., Al Qarni, A., Khasshogi, T., & Al Shuaibi, A. (2013). Population-based health survey in eastern region of Saudi Arabia. *East Mediterr Health J*, 19(5), 417-425.
- Robiquet, P., Zamiara, P. E., Rakza, T., Deruelle, P., Mestdagh, B., Blondel, G., . . .
  Subtil, D. (2016). Observation of skin-to-skin contact and analysis of factors linked to failure to breastfeed within 2 hours after birth. *Breastfeeding Medicine*, *11*, 126-132. doi:<u>https://dx.doi.org/10.1089/bfm.2015.0160</u>
- Saatsaz, S., Rezaei, R., Sharifnia, S., Kheirkhah, F., Moulookzadeh, M., & Haji, H. F. (2011). Effect of mother and newborn skin to skin contact on postpartum blues. *Journal of Babol University of Medical Sciences*, 13(3), 60-65. Retrieved from <u>http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/629/CN-00890629/frame.html</u>
- Saeidi, M., Ajilian, M., Farhangi, H., & Khodaei, G. H. (2014). Rights of Children and Parents in Holy Quran. *International Journal of Pediatrics*, 2(3.2), 103-113. doi:10.22038/ijp.2014.3462
- Saeidi, R., Abadi, M., Saeidi, A., & Robatsangi, M. (2014). The effectiveness of mother infant interaction on infantile colic. *Iranian Journal of Neonatology*, 5(1), 34-38. Retrieved from <u>http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/907/CN-</u>00977907/frame.html doi:10.22038/IJN.2013.2090
- Safari, K., Saeed, A. A., Hasan, S. S., & Moghaddam-Banaem, L. (2018). The effect of mother and newborn early skin-to-skin contact on initiation of breastfeeding, newborn temperature and duration of third stage of labor. *International Breastfeeding Journal*, 13, 32. doi:10.1186/s13006-018-0174-9
- Salmon, J. (2015). Using observational methods in nursing research. *Nursing Standard*, 29(45), 36-41.

- Samra, N. M., Taweel, A. E., & Cadwell, K. (2013). Effect of intermittent kangaroo mother care on weight gain of low birth weight neonates with delayed weight gain. *The Journal of Perinatal Education*, 22(4), 194-200. doi:10.1891/1058-1243.22.4.194
- Sandall, J., Soltani, H., Gates, S., Shennan, A., & Devane, D. (2016). Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews*, 4, CD004667. doi:<u>https://dx.doi.org/10.1002/14651858.CD004667.pub5</u>
- Sandin-Bojö, A. K., Hashimoto, M., Kanal, K., & Sugiura, Y. (2012). Intrapartum care at a tertiary hospital in Cambodia: A survey using the Bologna Score. *Midwifery*, 28(6), e880-885. doi:10.1016/j.midw.2011.10.014
- Sapsford, R. (2007). Survey Research (2nd ed.). London: SAGE Publications.
- Saxton, A., Fahy, K., & Hastie, C. (2014). Effects of skin-to-skin contact and breastfeeding at birth on the incidence of PPH: A physiologically based theory. *Women & Birth: Journal of the Australian College of Midwives*, 27(4), 250-253. doi:https://dx.doi.org/10.1016/j.wombi.2014.06.004
- Saxton, A., Fahy, K., Rolfe, M., Skinner, V., & Hastie, C. (2015). Does skin-to-skin contact and breast feeding at birth affect the rate of primary postpartum haemorrhage: Results of a cohort study. *Midwifery*, *31*(11), 1110-1117. doi:10.1016/j.midw.2015.07.008
- Scamell, M., Altaweli, R., & McCourt, C. (2017). Sarah's birth. How the medicalisation of childbirth may be shaped in different settings: Vignette from a study of routine intervention in Jeddah, Saudi Arabia. *Women and Birth*, 30(1), e39-e45. doi:10.1016/j.wombi.2016.08.002
- Schneider, Z., Whitehead, D., LoBiondo-Wood, G., Faan, P. R., Haber, J., & Faan, P. R. (2016). Nursing and midwifery research: methods and appraisal for evidence based practice. Chatswood, NSW: Elsevier Australia a division of Reed International Books Australia Pty Ltd.
- Schreier, M. (2014). Chapter 12: Qualitative content analysis In *The SAGE Handbook of Qualitative Data Analysis* (pp. 170-183).
- Schwandt, T. (2006). Opposition redirected. International Journal of Qualitative Studies in Education, 19(6), 803-810. doi:10.1080/09518390600979323
- Seidman, G., Unnikrishnan, S., Kenny, E., Myslinski, S., Cairns-Smith, S., Mulligan, B., & Engmann, C. (2015). Barriers and enablers of kangaroo mother care practice: a systematic review. *PLoS ONE*, 10, e0125643. doi:10.1371/journal.pone.0125643
- Senarath, U., Fernando, D. N., & Rodrigo, I. (2007). Effect of training for care providers on practice of essential newborn care in hospitals in Sri Lanka. *JOGNN: Journal* of Obstetric, Gynecologic & Neonatal Nursing, 36(6), 531-541. doi:10.1111/j.1552-6909.2007.00183.x
- Shaw, S. C., & Shridhar, G. (2020). Skin-to-skin contact at birth is still an unmet need. *Acta Paediatrica*, 109, 1688-1688. doi:10.1111/apa.15319
- Şimşek, S., & Karahan, N. (2017). Assessment of The impact of mother-infant skin-toskin contact at childbirth on breastfeeding. *Konuralp Medical Journal*, 9(1), 70-77. doi:10.18521/ktd.296559
- Sobel, H. L., Silvestre, M. A., Mantaring, J. B., 3rd, Oliveros, Y. E., & Nyunt, U. S. (2011). Immediate newborn care practices delay thermoregulation and breastfeeding initiation. *Acta Paediatrica*, 100(8), 1127-1133. doi:<u>https://dx.doi.org/10.1111/j.1651-2227.2011.02215.x</u>
- StataCorp. (2017). Stata Statistical Software: Release 15. College Station: TX: StataCorp LLC.
- Stevens, J., Schmied, V., Burns, E., & Dahlen, H. G. (2018). Who owns the baby? A video ethnography of skin-to-skin contact after a caesarean section. *Women and*

Birth, 31, 453-462. doi:10.1016/j.wombi.2018.02.005

- Stevens, J., Schmied, V., Burns, E., & Dahlen, H. G. (2019). Skin-to-skin contact and what women want in the first hours after a caesarean section. *Midwifery*, 74, 140-146. doi:10.1016/j.midw.2019.03.020
- Suarez-Cortes, M., Armero-Barranco, D., Canteras-Jordana, M., & Martinez-Roche, M. E. (2015). Use and influence of delivery and birth plans in the humanizing

delivery process. *Revista Latino-Americana de Enfermagem, 23*(3), 520-526. doi:<u>https://dx.doi.org/10.1590/0104-1169.0067.2583</u>

- Takahashi, Y., Tamakoshi, K., Matsushima, M., & Kawabe, T. (2011). Comparison of salivary cortisol, heart rate, and oxygen saturation between early skin-to-skin contact with different initiation and duration times in healthy, full-term infants. *Early Human Development*, 87(3), 151-157. doi:https://dx.doi.org/10.1016/j.earlhumdev.2010.11.012
- Tashakkori, A., & Teddlie, C. (2003). Mixed methods handbook in social and behavioral research. In. Thousand Oaks, CA: Sage Publications.
- The Royal Children's Hospital Melbourne. (2020). *Skin to skin care for the newborn*. Retrieved from

https://www.rch.org.au/rchcpg/hospital\_clinical\_guideline\_index/Skin\_to\_skin\_ca re\_for\_the\_newborn/#parent-preparation.

- The Royal Women's Hospital. (2019). Infant feeding breastfeeding the healthy term baby. Retrieved from <u>https://thewomens.r.worldssl.net/images/uploads/downloadable-records/clinical-</u> guidelines/infant-feeding-breastfeeding-the-healthy-term-baby\_110219.pdf
- The Saudi Arabia Tourism Guide. (2019). The Saudi Arabian Provinces Retrieved from http://www.saudiarabiatourismguide.com/provinces/
- Thompson, K., Matyas, M., Abate, S., & Goffredo, D. (2015). Discovering apparent lifethreatening events in the first 24 hours of birth: A case study. *Journal of Neonatal Nursing*, 21(5), 209-212. doi:10.1016/j.jnn.2015.04.009
- Titler, M. G., Kleiber, C., Steelman, V. J., Rakel, B. A., Budreau, G., Everett, L. Q., . . . Goode, C. J. (2001). The Iowa model of evidence-based practice to promote quality care. *Critical Care Nursing Clinics of North America*, *13*(4), 497-509.
- Tomori, C., Gribble, K., Palmquist, A. E. L., Ververs, M.-T., & Gross, M. S. (2020). When separation is not the answer: Breastfeeding mothers and infants affected by COVID-19. *Maternal & Child Nutrition*, e13033. doi:10.1111/mcn.13033
- Turenne, J. P., Heon, M., Aita, M., Faessler, J., & Doddridge, C. (2016). Educational intervention for an evidence-based nursing practice of skin-to-skin contact at birth. *Journal of Perinatal Education*, 25(2), 116-128. doi:https://dx.doi.org/10.1891/1058-1243.25.2.116
- Twinn, S. (2003). Status of mixed methods research in nursing. *Handbook of mixed methods in social and behavioral research*, 541-556.
- UNICEF. (2020). *Infant and young child feeding in the context of COVID-19*. Retrieved from <u>https://www.unicef.org/documents/infant-and-young-child-feeding-context-covid-19</u>.
- UNICEF, & World Health Organization. (2017). Country experiences with the babyfriendly hospital initiative: Compendium of case studies of the baby-friendly hospital initiative. *New York: UNICEF*.
- Upadhyay, R. P., Rai, S. K., & Anand, K. (2012). Community neonatal practices and its association with skilled birth attendance in rural Haryana, India. *Acta Paediatrica*, *101*(12), e535-e539. doi:10.1111/j.1651-2227.2012.02833.x
- Uvnas-Moberg, K., & Eriksson, M. (1996). Breastfeeding: physiological, endocrine and behavioural adaptations caused by oxytocin and local neurogenic activity in the nipple and mammary gland. *Acta Paediatrica*, 85(5), 525-530.

doi:10.1111/j.1651-2227.1996.tb14078.x

- Varendi, H., Porter, R. H., & Winberg, J. (1994). Does the newborn baby find the nipple by smell? *Lancet*, *344*, 989-990. doi:10.1016/S0140-6736(94)91645-4
- Vila-Candel, R., Duke, K., Soriano-Vidal, F. J., & Castro-Sanchez, E. (2018). Affect of early skin-to-skin mother–infant contact in the maintenance of exclusive

breastfeeding: Experience in a Health Department in Spain. *Journal of Human Lactation*, 32(2), 304-312. doi:10.1177/0890334416676469

- Vittner, D., Xiaomei, C., Ludington-Hoe, S. M., & McGrath, J. M. (2017). A survey of skin-to-skin contact with perinatal nurses. *Applied Nursing Research*, *33*, 19-23. doi:10.1016/j.apnr.2016.09.006
- Walker, K. F., O'Donoghue, K., Grace, N., Dorling, J., Comeau, J. L., Li, W., & Thornton, J. G. (2020). Maternal transmission of SARS-COV-2 to the neonate, and possible routes for such transmission: A systematic review and critical analysis. *BJOG: An International Journal of Obstetrics & Gynaecology*. doi:10.1111/1471-0528.16362
- Watkins, H. C., Morgan, M. C., Nambuya, H., Waiswa, P., & Lawn, J. E. (2018). Observation study showed that the continuity of skin-to-skin contact with lowbirthweight infants in Uganda was suboptimal. *Acta Paediatrica*, 107(9), 1541-1547. doi:doi:10.1111/apa.14344
- Widström, A. M., Brimdyr, K., Svensson, K., Cadwell, K., & Nissen, E. (2019). Skin-toskin contact the first hour after birth, underlying implications and clinical practice. *Acta Paediatrica*, 108(7), 1192-1204. doi:10.1111/apa.14754
- Widström, A. M., Lilja, G., Aaltomaa-Michalias, P., Dahllöf, A., Lintula, M., & Nissen,
  E. (2011). Newborn behaviour to locate the breast when skin-to-skin: A possible method for enabling early self-regulation. *Acta Paediatrica*, 100(1), 79-85.
- Widström, A. M., Ransjö-Arvidson, A., Christensson, K., Matthiesen, A. S., Winberg, J., & Uvnäs-Moberg, K. (1987). Gastric suction in healthy newborn infants effects on circulation and developing feeding behaviour. *Acta Paediatrica*, 76(4), 566-572.
- Wood, M. J., & Ross-Kerr, J. (2010). *Basic steps in planning nursing research: From question to proposal*: Jones & Bartlett Publishers.
- World Breastfeeding Trends Initiative (WBTi). (2015). *Kingdom of Saudi Arabia*. Retrieved from <u>https://www.worldbreastfeedingtrends.org/wbti-country-report.php?country\_code=SA</u>.
- World Health Organization. (2003). Kangaroo mother care: A practical guide. Retrieved from <u>http://apps.who.int/iris/bitstream/10665/42587/1/9241590351.pdf</u>
- World Health Organization (WHO). (2020a). *Breastfeeding and COVID-19* Retrieved from <u>https://www.who.int/publications/i/item/10665332639</u>.
- World Health Organization (WHO). (2020b). Pregnancy, childbirth, breastfeeding and COVID-19. Retrieved from <u>https://www.who.int/reproductivehealth/publications/emergencies/COVID-19-</u> pregnancy-ipc-breastfeeding-infographics/en/.
- World Health Organization [WHO]. (2018). Implementation guidance: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services – the revised Baby-friendly Hospital Initiative. Geneva Retrieved from

https://apps.who.int/iris/bitstream/handle/10665/272943/9789241513807eng.pdf?sequence=19&isAllowed=y.

- Yang, I., Corwin, E. J., Brennan, P. A., Jordan, S., Murphy, J. R., & Dunlop, A. (2016). The infant microbiome: Implications for infant health and neurocognitive development. *Nursing Research*, 65(1), 76-88. doi:10.1097/NNR.00000000000133
- Young, R. (2013). The Importance of Bonding. International Journal of Childbirth

*Education*, 28(3), 11-16.

- Zakarija-Grkovic, I., Boban, M., Jankovic, S., Cuze, A., & Burmaz, T. (2018). Compliance with WHO/UNICEF BFHI standards in Croatia after implementation of the BFHI. *Journal of Human Lactation*, 34(1), 106-115. doi:10.1177/0890334417703367
- Zarshenas, M., Zhao, Y., Binns, C. W., & Scott, J. A. (2019). Determinants of in-hospital feeding practices in Shiraz, Iran: Results of a prospective cohort study. *Birth*, 46(1), 137-145. doi:10.1111/birt.12385



**University Human Ethics Committee** 

### **RESEARCH OFFICE**

### MEMORANDUM

То:	Dr Lisa Amir, School of Nursing & Midwifery, College of SHE
Student:	Nawal Abdulghnai
From:	Senior Human Ethics Officer, La Trobe University Human Ethics Committee
Subject:	Review of Human Ethics Committee Application No. 17-006
Title:	Exploring hospital practices immediately after birth in Saudi Arabia: A mixed method study
Date:	4 April, 2017

Thank you for your recent correspondence in relation to the research project referred to above. The project has been assessed as complying with the *National Statement on Ethical Conduct in Human Research*. I am pleased to advise that your project has been granted ethics approval and you may commence the study now.

### The project has been approved from the date of this letter until 8 May, 2020

Please note that your application has been reviewed by a sub-committee of the University Human Ethics Committee (UHEC) to facilitate a decision before the next Committee meeting. This decision will require ratification by the UHEC and it reserves the right to alter conditions of approval or withdraw approval at that time. You will be notified if the approval status of your project changes. The UHEC is a fully constituted ethics committee in accordance with the National Statement under Section 5.1.29.

The following standard conditions apply to your project:

- Limit of Approval. Approval is limited strictly to the research proposal as submitted in your application while taking into account any additional conditions advised by the UHEC.
- Variation to Project. Any subsequent variations or modifications you wish to make to your project must be formally notified to the UHEC for approval in advance of these

modifications being introduced into the project. This can be done using the appropriate form: *Modification to Project – Human Ethics* which is available on the Human Ethics website at <a href="http://www.latrobe.edu.au/researchers/ethics/human-ethics">http://www.latrobe.edu.au/researchers/ethics/human-ethics</a> If the UHEC considers that the proposed changes are significant, you may be required to submit a new application form for approval of the revised project.

- Adverse Events. If any unforeseen or adverse events occur, including adverse effects on
  participants, during the course of the project which may affect the ethical acceptability
  of the project, the Chief Investigator must immediately notify the Senior Human Ethics
  Officer. An Adverse Event Form Human Ethics is available at the Research Office
  website (see above address). Any complaints about the project received by the
  researchers must also be referred immediately to the Senior Human Ethics Officer.
- Withdrawal of Project. If you decide to discontinue your research before its planned completion, you must advise the UHEC and clarify the circumstances.
- **Monitoring.** All projects are subject to monitoring at any time by the University Human Ethics Committee.
- Annual Progress Reports. If your project continues for more than 12 months, you are required to submit a Progress Report annually, on or just prior to 12 February. The form is available on the Research Office website (see above address). Failure to submit a Progress Report will mean approval for this project will lapse.
- Auditing. An audit of the project may be conducted by members of the UHEC.
- **Final Report.** A Final Report (see above address) is required within six months of the completion of the project or by **8 November, 2020.**

If you have any queries on the information above or require further clarification please email: **humanethics@latrobe.edu.au** or contact me by phone.

On behalf of the University Human Ethics Committee, best wishes with your research!

Kind regards,

Ms Sara Paradowski Senior Human Ethics Officer Executive Officer – University Human Ethics Committee Ethics and Integrity / Research Office La Trobe University Bundoora, Victoria 3086 P: (03) 9479 – 1443 / F: (03) 9479 - 1464 http://www.latrobe.edu.au/researchers/ethics/human-ethics Appendix 1.b: Saudi Ethics approval



الملكة لعربي اليووية Kingdom of Saudi Arabia

مديرية الشؤون الصحية بمحافظة جدة Directorate of Health Affairs - Jeddah (۲۰۲/۲۷۰)

Subject: Ethical Approval of Research Proposal.

Medical Research and Studies Department

### Date: 04. APR. 2017

## To: La Trobe University, JLC

We would Like to inform you that the following Research:

Research Name:	Nawal Gamel Abdulghani , Assoc/Prof. Lisa Amir , Dr Kristina		
	Edvardsson, Prot. Della Forster		
<b>Research Number:</b>	00795		
<b>Approval Number:</b>	A00461		
Research Topic:	earch Topic: Exploring hospital practices immediately after birth in Saudi Arabia A mixed method study.		
Approval Period:	Period: One year from the date of this letter		

The IRP in the Directorate of health Affairs in Jeddah with registration Numbers (H-02-J-002) at the National Committee of Medical and bioethics has reviewed the research proposal and gave permission to start the research to the Hospitals:

1. Maternity and Children's Hospital In Jeddah (Al-Mesadea).

2. Maternity and Children's Hospital in Jeddah (Al-Aziziyah ).

Taking into consideration the following:

- 1. Follow the laws of the National Committee for medical and bioethics.
- 2. In the event of any change in the research plan you must obtain the approval of the research department.
- 3. Service not affected at the facilities concern.
- 4. Safeguard the rights and privacy of Persons subject to research.
- 5. The use of information for purposes of scientific research.
- 6. Submit a report on the progress of the study to the research department every six months.



Received: 28 August 2019 DOI: 10.1111/apa.15232

Revised: 13 February 2020 Accepted: 14 February 2020

### **BRIEF REPORT**

# ACTA PÆDIATRICA WILEY

# Observational study found that skin-to-skin contact was not common after vaginal birth in Saudi Arabia

Nawal Abdulghani<sup>1,2</sup> Lisa H. Amir<sup>2</sup> Kristina Edvardsson<sup>2</sup>

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<sup>2</sup>Judith Lumley Centre, School of Nursing and Midwifery, La Trobe University, Melbourne, Vic., Australia

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Skin-to-skin contact (SSC) involves placing the prone newborn infant on the mother's bare chest or abdomen for at least 60 minutes after birth, regardless of the delivery method.<sup>1</sup> The World Health Organization (WHO) recommends that SCC occurs in at least 80% of births, unless there are medically justifiable reasons for delayed contact,<sup>1</sup> but the global prevalence varies considerably.<sup>2</sup> Research from the Middle East is scarce, particularly in Saudi Arabia. This study investigated SCC practices and policies, and breastfeeding initiation, by observing mother-infant dyads in the first hour after vaginal birth in two hospitals in Jeddah, Saudi Arabia. Both had high patient-staff ratios and delivered approximately 7000 and 6000 babies per year, as previously described.<sup>3</sup>

We used observations, field notes and reviewed guidelines for immediate neonatal postpartum care. The data were collected between June and September 2017. Women were included if they were over 18, had a healthy, low-risk singleton term pregnancy and were able to hold their baby immediately after birth. We observed the dyads with the validated Birthing Room Audit Tool, developed by Cantrill et al, which describes each minute of the first hour after birth.<sup>3</sup> The tool has four sections: the practice of SSC and any events occurring immediately after birth, the nine instinctive newborn behaviours in the first hour,<sup>3</sup> the maternal experience of initiating breastfeeding and the assistance they received to breastfeed.<sup>4</sup> Field notes were collected before and after birth describing the contextual, physical environment and what else was happening that was relevant to SSC. Hospital policy and guidelines were also collected for analysis. The observational data were entered in EpiData 4.0.2.101 (EpiData Software) and transferred to Stata 15 (StataCorp LLC) for analysis. We used descriptive analysis and displayed the results graphically for each infant. Data collected from field notes, policies and procedures were analysed using a content analysis approach.

Ethical approval was provided by La Trobe University Human Research Ethics Committee, Melbourne, Australia (HEC17-006), and the Saudi Arabia ethics committee of the Directorate of Health Affairs, Jeddah (A00461). Mothers and clinicians gave written consent. Although both hospitals mentioned SSC in their policies, one provided more detailed information about timing and infant positioning.

The study observed 22 healthy mother-infant dyads for the first hour after birth. The mean maternal age was 30 years, and 16 mothers (73%) were Saudi nationals. All the infants were healthy with 10/10 Apgar scores at 1 and 5 minutes. A detailed description of each infant's care during the first hour is presented in Figure 1, including the SSC duration, events that interrupted SSC, who interrupted SCC and breastfeeding practices.

We noted that 18 mothers (82%) held their babies and 16 had the infant placed on their chest or abdomen with a barrier, such as a sheet or a hospital gown, for an average of 4 minutes. The other two dyads had direct SSC. The most common events that separated dyads within the first hour were placing the baby under a warmer, measuring and weighing the baby and providing vitamin K injections (100%), dressing the infant (95%) and oral and nasal suction (77%). SSC was prevented while clinicians completed assessments and routine care (32%). Field notes indicated several SSC barriers, including the design of the hospital gown and how the furniture was arranged in the birth room.

Only nine (41%) of the 22 mothers initiated breastfeeding within the first hour after birth. The audit tool classified three as fed well, as the babies' chins were well placed on the mother's areola and they made effective sucking sounds. Another four demonstrated a few sucks, one baby was licking the nipple and one was unable to latch on despite the midwife's help. Half of the 22 mothers were offered help to breastfeed: two needed full assistance with positioning and

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**FIGURE 1** Flow chart of skin-to-skin contact observation among 22 mother-infant dyads, in Jeddah, Saudi Arabia, in the first hour after vaginal birth. Events interrupting SSC (alphabetically): A, baby assessed; D, baby dressed; F, baby foot stamped; H, mother did not want to hold baby; I, routine injections; M, baby measured; O, baby held by others; P, staff prevented; R, placed under radiant heater; Res, active resuscitation; S, oral/nasal suction; SH, mother went for shower or to toilet. Other abbreviations; Nur, nurse; Mid, midwife; Obs, obstetrician

attachment, three mothers received hands-on support, three just received verbal instructions and three mothers declined assistance or were not ready to breastfeed. None of the infants progressed through all nine instinctive stages of newborn infant behaviours within the first hour.

This was the first study to address SSC practice after vaginal birth in Saudi Arabia. SSC was uncommon, indicating lack of adherence to hospital policies and the WHO recommendations.<sup>1</sup> Policymakers and stakeholders should update current policies and provide ongoing support for SSC practices in Saudi Arabia. Separating mothers and infants was an important barrier to both SSC and timely breastfeeding. A brief period when the infants lay on their mothers' covered chests or abdomens was common in both hospitals and clinicians' views about this practice varied.<sup>5</sup> SSC interruptions could be reduced by clinicians performing procedures during SSC.

Maternity services in Saudi Arabia could educate staff and expectant parents about SSC. They could also increase SSC by changing hospital policies to prioritise SSC over routine care, provide SCC training in birth units and use SSC champions to encourage staff to adopt this practice.

### ACKNOWLEDGEMENTS

We thank Dr Ruth Cantrill for her guidance about the audit tool and the women and clinicians who participated.

### CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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Nawal Abdulghani (D https://orcid.org/0000-0003-3693-9573 Lisa H. Amir (D https://orcid.org/0000-0002-2510-1399 Kristina Edvardsson (D https://orcid.org/0000-0001-6883-3664

### REFERENCES

- World Health Organization. Implementation Guidance: Protecting, Promoting and Supporting Breastfeeding in Facilities Providing Maternity and Newborn Services – The Revised Baby-Friendly Hospital Initiative. Geneva, Switzerland: WHO; 2018.
- Abdulghani N, Edvardsson K, Amir LH. Worldwide prevalence of mother-infant skin-to-skin contact after vaginal birth: a systematic review. PLoS One. 2018;13:e0205696.
- Abdulghani N, Edvardsson K, Amir LH. Health care providers' perception of facilitators and barriers for the practice of skin-to-skin contact in Saudi Arabia: a qualitative study. *Midwifery*. 2020;81:102577.
- 4. Cantrill RM, Creedy DK, Cooke M, Dykes F. Effective suckling in relation to naked maternal-infant body contact in the first hour of life: an observation study. *BMC Pregnancy Childbirth*. 2014;14:20.
- 5. Widstrom AM, Brimdyr K, Svensson K, Cadwell K, Nissen E. Skinto-skin contact the first hour after birth, underlying implications and clinical practice. *Acta Paediatr.* 2019;108(7):1192-1204.


#### Worldwide prevalence of mother-infant skin-to-skin

#### contact after vaginal birth: A systematic review

Nawal Abdulghani a,b, Kristina Edvardsson, a Lisa H Amir a

<sup>a</sup> Judith Lumley Centre, La Trobe University, Australia, <sup>b</sup> Nursing Faculty, Umm Al-Qura University, Saudi Arabia





# Are you an obstetrician, midwife, or nurse managing births?

**Researcher: Nawal Abdulghani** 



Ngabd14@gmail.com

+966 554727670



You are invited to take part in a study titled

### Exploring hospitals practices immediately after vaginal birth in Saudi Arabia

The aim of the study is to explore what care mothers and newborn infants received immediately after birth

I am looking for obstetricians and midwives to participate in focus group discussions.

If you would like to participate please contact me



#### Appendix 5.a: PIS for pregnant women observation; English



College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

#### Participant Information Statement for Pregnant Women: Observation

#### Title of the project: Exploring hospitals practices immediately after vaginal birth with healthy fullterm newborn infants in Saudi Arabia

My name is Nawal Gamel Abdulghani, and I am a PhD candidate at the Judith Lumley Centre, La Trobe University. I am undertaking a research project leading to my thesis under the supervision of Associate Professor Lisa Amir (Principal Supervisor), Dr. Kristina Edvardsson (Co-Supervisor), and Professor Della Forster (Co-Supervisor).

You are invited to participate in this research project. However, before you decide whether or not you wish to participate it is important for you to know why the research is being undertaken and what it will involve. Please take time to read the following information carefully. Do not hesitate to ask questions if anything is unclear to you. Take time to decide whether or not you wish to participate.

#### What is the aim of this research project?

This research project aims to identify the current practices of skin-to-skin contact immediately after normal birth for healthy term newborn infants, and to explore factors perceived by health care providers and mother to be barriers or facilitators for skin-to-skin contact immediately birth in the two largest public hospitals in Jeddah, Saudi Arabia.

#### Who will be invited in this research project?

You are invited to take a part in this research project because you are:

- A healthy pregnant woman over 18 years of age
- Intending to breastfeed
- At least 36 weeks' gestation
- Planning to have your baby at Maternity and Children's Hospital or Al-Aziziyah Maternity and Children's Hospital in Jeddah, Saudi Arabia.

#### What does participation in this research project involve?

Your participation involves giving your permission for the researcher (Nawal) to attend and observe

the birth. The observation includes continuous observation for 60 minutes after the birth, with the possibility of up to 120 minutes to see the obstetricians' and midwives' practices and the care you and your baby receive after birth.

If you agree to participate in this project, you will be asked to sign a consent form and provide your contact details. You are kindly requested to notify the researcher when you are going to the hospital to give birth. The researcher also will contact the birth unit reception each day to ask about the presence of any pregnant women who have agreed to participate in this study.

When birth is imminent, the researcher will enter the room with your permission to observe and will be equipped with clip board, watch, and pen. At the moment of birth, the researcher will record the time of birth and activities in the birth unit. The data will be collected using a form called the Birthing Room Audit. At the end, the researcher will thank you and the staff before leaving the room.

#### Do I have to take part in this research project?

Your participation is very important because the observation will discover the care that birthing women and their newborn infants receive after birth. The study findings will shed light on the quality of information that birthing women receive about breastfeeding and skin-to-skin contact after birth. Participation in this research project is completely voluntary, and you are under no obligation to consent to participate. It is not anticipated that you will face any risks by participating in the project. If you feel that presence of the researcher in the room is an inconvenience to you, you can ask the researcher to leave the room at any time. Pseudonyms (made-up names) will be used when we report the findings.

You have the right to withdraw from participation in this project at any time. You may also request that data arising from your participation are not used in the research project provided that this right is exercised within four weeks of the completion of your participation in the project. You can do this by completing the "Withdrawal of Consent Form".

#### What will happen to information about me?

The recorded data will be entered into a spreadsheet program. All the collected data will be stored in a secure lockable cabinet at the Judith Lumley Centre, La Trobe University. Only the student researcher and her supervisors will have access to the data. The research data and records will be kept for 7 years post publication. Then, the data will be confidentially shredded or deleted. The data collected for this research project will not be used in other research projects.

#### How will I be informed of the final results of this research project?

Publication of the findings of this study in journals and/or conference presentation, will involve the information being presented as aggregated results of all participants. No individual identifying data will be published.

If you want any further information concerning this project or if you have any problems which may be related to your involvement in the project (for example, feelings of distress), you can contact the researcher, Nawal Abdulghani. Phone number +61452566109 or +966554727670 , e-mail <u>18729960@students.latrobe.edu.au</u> or <u>ngabd14@gmail.com</u>

If you would like to contact the researchers	If you have any complaints or concerns about
about any aspect of this study, please contact	your participation in the study that the
the chief investigator:	researcher has not been able to answer to
Assoc/Prof. Lisa Amir	your satisfaction, you may contact the Senior
P: +61 3 9479 8775	Human Ethics Officer, Ethics and Integrity,
E: l.amir@latrobe.edu.au	Research Office, La Trobe University, Victoria,
	3086, Australia
Or co-investigators:	P: +61 3 9479 1443
Dr Kristina Edvardsson	E: humanethics@latrobe.edu.au
P: +61394798804	
E: K.Edvardson@latrobe.edu.au	
Professor Della Forster	
P: +61 3 9479 8783	
E: d.forster@latrobe.edu.au	

Thank you for your participation

Nawal Abdulghani

#### Appendix 5.b PIS pregnant women observation. Arabic



College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

#### المعلومات التوضيحية لملاحظة النساء الحوامل

#### عنوان المشروع: استكشاف ممارسات المستشفيات مباشرة بعد الولادة طبيعية مع الأطفال الأصحاء حديثي الولادة في المملكة العربية السعودية

أنا إسمي نوال جميل عبد الغني، طالبة دكتوراه في مركز جوديث ليوملي، جامعة لا تروب. أنا أقوم بإجراء مشروع بحثي يؤدي إلى رسالة الدكتوراه تحت إشراف أستاذ مشارك ليزا أمير (المشرفه الأساسية) و الدكتوره كريستينا إدفاردسون (مشرفه مشاركه) والبروفسوره ديلا فورستر (مشرفه مشاركه)

انتِ مدعوه للمشاركة في هذا المشروع البحثي ولكن قبل أن تقرري ما إذا كنت ترغبين في المشاركة أو لا من المهم بالنسبة لك أن تعرفي السبب من إجراء البحث وما يتضمنه. نرجو أن تتمهلي وتأخذي وقت لقراءة المعلومات التالية. لا تترددي في طرح الأسئلة إذا كان أي شيء غير واضح لك. الرجاء أخذ وقتك لتقرري ما إذا كنتِ ترغبين في المشاركة أو لا.

#### ما هو الهدف من هذا المشروع البحثي؟

يهدف هذا المشروع البحثي للتعرف على الممارسات الحالية من ملامسة جلد الطفل لجلد الأم مباشرتاً بعد الولادة الطبيعية للأطفال حديثي الولادة الأصحاء، واستكشاف العوامل التي ينظر إليها من قبل مقدمي الرعاية الصحية والأم أن تكون حواجز أو مساعدات على القيام بملامسة جلد الطفل لجلد الأم مباشرتاً بعد الولادة في اثنين من أكبر المستشفيات العامة في جدة، المملكة العربية السعودية.

من المدعون للمشاركة في هذا المشروع البحثى؟

أنتِ مدعو للمشاركة في هذا المشروع البحثي لأنك:

- امرأة صحيحة حامل وعمرك أكثر من 18 عاما

- وترغبين في ارضاع طفلك الرضاعة الطبيعية

ـ عدد أسابيع حملك لا تقل عن 36 أسبوع.

- تخططين أن تلدي طفلك في مستشفى الولادة والأطفال أو مستشفى الولادة والأطفال في العزيزية في جدة، المملكة العربية السعودية.

#### ماذا تتضمن مشاركتك في هذا المشروع البحثي؟

تتضمن مشاركتك إعطاء الإذن للباحثه لحضور ومراقبة ولادتك. وتكون المراقبة حول الممارسات والرعاية التي يقدمها أطباء النساء والولادة والقابلات لك ولطفلك بعد الولادة وتكون المراقبة لمدة ٦٠ دقيقة في جميع الحالات، مع إمكانية أن تصل إلى 120 دقيقة.

إذا وافقتى على المشاركه في هذا البحث فسيطلب منك التوقيع على استمارة الموافقة وإعطاء تفاصيل الاتصال الخاصة بك. نرجو

)

منكم التكرم بإبلاغ الباحثه عند الذهاب إلى المستشفى للولادة. الباحثه أيضاً ستتواصل مع استقبال وحدة الولادة كل يوم لتسأل عن .وجود أي النساء الحوامل الذين وافقوا على المشاركة في هذه الدراسة.

عندما تقترب ولادتك فإن الباحثه ستدخل غرفة الولادة للملاحظه ومعها حامل الأوراق وساعة وقلم. في لحظة الولادة، فإن الباحثة ستسجل وقت الولادة والأنشطة في وحدة الولادة. سيتم جمع البيانات باستخدام نموذج يسمى التدقيق في غرفة الولادة. في النهاية فإن .الباحثه ستقوم بشكرك والطاقم الطبي قبل مغادرة الغرفة.

#### هل لا بد لي من المشاركة في هذا المشروع البحثي؟

مشاركتك مهمة جدا لأنها ستمكننا من استكشاف الرعاية التي تتلاقاها النساء وأطفالهن بعد الولادة. ونتائج هذه الدراسة ستسلط الضوء على نوعية المعلومات التي تتلاقاها النساء حول الرضاعة الطبيعية وملامسة جلد الطفل لجلد الأم بعد الولادة. المشاركة في هذا المشروع البحثي هو تطوعي تماما وأنتِ غير ملزمة بالموافقة على المشاركة. من غير المتوقع أن تتعرضي لأي مخاطر من خلال وقت. وسيتم استخدام أسماء مستعارة عند كتابة النتائج.

من حقك الإنسحاب من المشاركه في هذا البحث في أي وقت. كما يمكنك أيضاً طلب أن البيانات الناشئة عن مشاركتكِ أن لا تستخدم في المشروع البحثي شريطة أن هذا الحق يمارس في غضون أربعة أسابيع من الانتهاء من مشاركتكِ في المشروع. يمكنك القيام بذلك عن طريق تعبئة "استمارة سحب الموافقه".

#### ماذا سيحدث للمعلومات عنى؟

سوف يتم إدخال البيانات المسجلة في برنامج جدول بيانات. وسيتم تخزين جميع البيانات التي تم جمعها في خزانة مقفله آمنه في مركز جوديث ليوملي في جامعة لا تروب. الباحثه الطالبه والمشرفين فقط يمكنهم الإطلاع والوصول إلى البيانات. بعد سبع سنوات سيتم تمزيق وحذف البيانات بسرية تامه. لن يتم استخدام البيانات التي تم جمعها لهذا المشروع البحثي في أي مشاريع بحثية أخرى.

#### كيف سيتم إبلاغي بالنتائج النهائية لهذا المشروع البحثي؟

نتائج هذه الدراسة سيتم نشر ها في المجلات العلمية أو عرضها في المؤتمرات، وسوف تشمل المعلومات التي يتم عرضها كنتائج مجمعة من جميع المشاركين. لن يتم نشر أي معلومات تعرف عن الافراد المشاركين.

إذا أردت أي معلومات أخرى عن هذا البحث أو إذا كان لديك أي مشاكل قد تكون ذات صلة عن مشاركتكم في البحث (على سبيل المثال، الشعور بالحزن او القلق)، يمكنك الاتصال بالباحثه نوال عبد الغني. رقم هاتف +61452566109 أو +966554727670 أو البريد الإلكتروني 18729960 أو gmail.com

إذا اردت التواصل مع الباحثين لأي سبب يخص هذا البحث	إذا كان لديك أي شكاوى أو استفسارات حول مشاركتكِ في
نرجو منك التواصل مع المشرفة الأساسيه أو المشرفين	الدراسة اذا لم يكن الباحث قادر أعلى الإجابة حتى يصل
المشاركين	لإرضائكم، يمكنك الاتصال بمدير الموظفين بمكتب أخلاقيات
أستاذ مشارك ليزا أمير	البحث الإنساني والأخلاق والنزاهة، مكتب البحوث، جامعة لا
8775 9479 3 61 :تليفون	تروب، فيكتوريا، 3086
l.amir@latrobe.edu.au : ايميل	1443 9479 3 61+ :تليفون
دكتوره كرستينا أدفاردسون	ایمیل: humanethics@latrobe.edu.au
61394798804 :تليفون	
ايميل: K.Edvardson@latrobe.edu.au	
البرفسوره ديلا فروستر	
8783 8479 8 61 51 :تليفون	
ايميل: <u>d.forster@latrobe.edu.au</u>	

شكراً لمشاركتكِ.

الباحثه/ نوال عبد الغني

Appendix 5.c: PIS HCPs interviews



College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

#### Participant Information for face-to-face interview with Health Care Providers

### Title of the project: Exploring the hospitals practices immediately after vaginal birth with healthy full-term newborn infants in Saudi Arabia

My name is Nawal Gamel Abdulghani, and I am a PhD candidate at the Judith Lumley Centre, La Trobe University. I am undertaking a research project leading to my thesis under the supervision of Associate Professor Lisa Amir (Principal Supervisor), Dr. Kristina Edvardsson (Co-Supervisor), and Professor Della Forster (Co-Supervisor).

You are invited to participate in this research project. However, before you decide whether or not you wish to participate it is important for you to know why the research is being undertaken and what it will involve. Please take time to read the following information carefully. Do not hesitate to ask questions if anything is unclear to you. Take time to decide whether or not you wish to participate.

#### What is the aim of this research project?

This research project aims to identify the current practices of skin-to-skin contact immediately after normal birth for healthy term newborn infants, and to explore factors perceived by health care providers and mother to be barriers or facilitators for skin-to-skin contact immediately birth in the two largest public hospitals in Jeddah, Saudi Arabia.

#### Who will be invited in this research project?

You are invited to take a part in this research project because you are:

- An obstetrician who has worked in the birth unit within the last 12 months.
- A midwife or a nurse who has worked in the birth unit within the last 12 months.
- Working at the Maternity and Children's Hospital or Al-Aziziyah Maternity and Children's Hospital.

#### What does participation in this research project involve?

Your participation involves being a part of group discussion, which will take approximately 45-60 minutes. The discussion will be conducted in English and audio-recorded. The audio recording will later be transcribed. To maintain confidentiality, names and places of work will not be identified. Pseudonyms will be used in reporting findings.



#### Do I have to take part in this research project?

Your participation in this research project is very helpful because the information you provide will increase knowledge about barriers and enablers for skin-to-skin care and practices in Jeddah, Saudi Arabia. This knowledge can be used to develop strategies to increase the implementation of skin-to-skin contact within the two selected public hospitals in Jeddah. Participation in this research project is completely voluntary, and you are under no obligation to consent to participate. It is not anticipated that you will face any risks by participating in the project. If responding to any of the questions is experienced as distressing or difficult, you can refrain from answering the question.

You have the right to withdraw from active participation in this project. It is important to note the it may not be possible to withdraw an individual's data from the recorded focus group discussion, depending on how the data is recorded.

#### What will happen to information about me?

The recorded data that you have provided will be transcribed. All the collected data will be stored in a secure lockable cabinet at the Judith Lumley Centre, La Trobe University. Only the student researcher and her supervisors will have access to the data. The research data and records will be kept for 7 years post publication. Then, the data will be confidentially shredded or deleted. The data collected for this research project will not be used in other research projects.

#### How will I be informed of the final results of this research project?

If you wish to be informed of the overall final results of the study, we will send you a summary of the research findings. You would need to provide us with your e-mail address for this purpose. Publication of the findings of this study in journals and/or conference presentation, will involve the information being presented as aggregated results of all participants. No individual identifying data will be publicised.

If you want any further information concerning this project or if you have any problems which may be related to your involvement in the project (for example, feelings of distress), you can contact the researcher, Nawal Abdulghani. Phone number +61452566109 or +966554727670 , e-mail <u>18729960@students.latrobe.edu.au</u> or <u>ngabd14@gmail.com</u>



If you would like to contact the researchers about	If you have any complaints or concerns about
any aspect of this study, please contact the chief	your participation in the study that the
investigator:	researcher has not been able to answer to
Associate Professor Lisa Amir	your satisfaction, you may contact the Senior
P: +61 3 9479 8775	Human Ethics Officer, Ethics and Integrity,
E: l.amir@latrobe.edu.au	Research Office, La Trobe University,
	Victoria, 3086, Australia
Or co-investigators:	P: +61 3 9479 1443
Dr Kristina Edvardsson	E: humanethics@latrobe.edu.au
P: +61394798804	
E: K.Edvardson@latrobe.edu.au	
Professor Della Forster	
P: +61 3 9479 8783	
E: d.forster@latrobe.edu.au	

Thank you for your participation.

Nawal Abdulghani.





#### Participant Information Statement for Survey of New Mothers

### Title of the project: Exploring the hospitals practices immediately after normal birth with healthy full-term newborn infants in Saudi Arabia

My name is Nawal Gamel Abdulghani, and I am a PhD candidate at the Judith Lumley Centre, La Trobe University. I am undertaking a research project leading to my thesis under the supervision of Associate Professor Lisa Amir (Principal Supervisor), Dr. Kristina Edvardsson (Co-Supervisor), and Professor Della Forster (Co-Supervisor).

You are invited to participate in this research project. However, before you decide whether or not you wish to participate it is important for you to know why the research is being undertaken and what it will involve. Please take time to read the following information carefully. Do not hesitate to ask questions if anything is unclear to you. Take time to decide whether or not you wish to participate.

#### What is the aim of this research project?

This research project aims to identify the current practices of skin-to-skin contact immediately after normal birth for healthy term newborn infants, and to explore factors perceived by health care providers and mother to be barriers or facilitators for skin-to-skin contact immediately birth in the two largest public hospitals in Jeddah, Saudi Arabia.

#### Who will be invited in this research project?

You are invited to take a part in this research project because you are:

- Over 18 years of age
- Intending to breastfeed
- Recently gave birth to a healthy infant
- A mother who had vaginal birth

#### What does participation in this research project involve?

Your participation involves completing an anonymous questionnaire, which will take approximately 10 minutes. An English or Arabic version of the questionnaire will be available for you to complete. Once you complete the questionnaire, please place it in the designated box, which is located in the nursing station.

#### Do I have to take part in this research project?



Your participation in this research project is very helpful because the information you provide will increase the knowledge about mothers' perceptions of skin-to-skin contact. This knowledge Is essential in efforts aimed at improving the quality of care that women receive. Participation in this research project is completely voluntary. and you are under no obligation to consent to participate. It is not anticipated that you will face any risks by participating in the project. If responding to any of the questions is experienced as distressing or difficult you can refrain from answering the question. It is important to note that it will not be possible to withdraw an individual's data because the questionnaire is anonymous.

#### What will happen to information about me?

The questionnaire with the answers you have provided will be kept in a secure lockable cabinet at the Judith Lumley Centre, La Trobe University. Only the student researcher and her supervisors will have access to the data. The research data and records will be kept for 7 years post publication. Then, the data will be confidentially shredded or deleted. The data collected for this research project will not be used in other research projects.

#### How will I be informed of the final results of this research project?

Publication of the findings of this study in journals and/or conference presentation, will involve the information being presented as aggregated results of all participants. No individual identifying data will be published.

If you want any further information concerning this project or if you have any problems which may be related to your involvement in the project (for example, feelings of distress), you can contact the researcher, Nawal Abdulghani. Phone number +61452566109 or +966554727670 , e-mail <u>18729960@students.latrobe.edu.au</u> or <u>ngabd14@gmail.com</u>

If you would like to contact the researchers	If you have any complaints or concerns about
about any aspect of this study, please contact	your participation in the study that the
the chief investigator:	researcher has not been able to answer to
Assoc/Prof. Lisa Amir	your satisfaction, you may contact the Senior
P: +61 3 9479 8775	Human Ethics Officer, Ethics and Integrity,
E: l.amir@latrobe.edu.au	Research Office, La Trobe University, Victoria,
	3086, Australia.
Or the co-investigators:	P: +61 3 9479 1443
Dr Kristina Edvardsson	E: humanethics@latrobe.edu.au
P: +61394798804	
E: K.Edvardson@latrobe.edu.au	
Professor Della Forster	
P: +61 3 9479 8783	
E: d.forster@latrobe.edu.au	

Thank you for your participation.

Nawal Abdulghani

Appendix 5.e: PIS Survey of new mothers, Arabic



College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

#### المعلومات التوضيحية لاستبيان النساء الحوامل

#### عنوان المشروع: استكشاف ممارسات المستشفيات مباشرة بعد الولادة طبيعية مع الأطفال الأصحاء حديثي الولادة في المملكة العربية السعودية

أنا إسمي نوال جميل عبد الغني، طالبة دكتوراه في مركز جوديث ليوملي، جامعة لا تروب. أنا أقوم بإجراء مشروع بحثي يؤدي إلى رسالة الدكتوراه تحت إشراف أستاذ مشارك ليزا أمير (المشرفه الأساسية) و الدكتوره كريستينا إدفاردسون (مشرفه مشاركه) والبروفسوره ديلا فورستر (مشرفه مشاركه)

انتِ مدعوه للمشاركة في هذا المشروع البحثي ولكن قبل أن تقرري ما إذا كنت ترغبين في المشاركة أو لا من المهم بالنسبة لك أن تعرفي السبب من إجراء البحث وما يتضمنه. نرجو أن تتمهلي وتأخذي وقت لقراءة المعلومات التالية. لا تترددي في طرح الأسئلة إذا كان أي شيء غير واضح لك. الرجاء أخذ وقتك لتقرري ما إذا كنتِ ترغبين في المشاركة أو لا.

#### ما هو الهدف من هذا المشروع البحثي؟

يهدف هذا المشروع البحثي للتعرف على الممارسات الحالية من ملامسة جلد الطفل لجلد الأم مباشرتاً بعد الولادة الطبيعية للأطفال حديثي الولادة الأصحاء، واستكشاف العوامل التي ينظر إليها من قبل مقدمي الرعاية الصحية والأم أن تكون حواجز أو مساعدات على القيام بملامسة جلد الطفل لجلد الأم مباشرتاً بعد الولادة في اثنين من أكبر المستشفيات العامة في جدة، المملكة العربية السعودية

#### من المدعون للمشاركة في هذا المشروع البحثي؟

أنتِ مدعو للمشاركة في هذا المشروع البحثي لأنك:

۔ عمرك أكثر من 18 عاما

- وترغبين في ارضاع طفلك الرضاعة الطبيعية

وضعتي طفلاً سليماً.

ـ ولدتي ولادة طبيعيه.

#### ماذا تتضمن مشاركتك في هذا المشروع البحثي؟

مشاركتك تتضمن تعبئة استبيان بدون أسماء والذي يستغرق تقريباً ١٠ دقائق. الاستبيان متوفر باللغة العربيه واللغة الانجليزيه. عند الإنتهاء من تعبئة الاستبيان يرجى وضعه في صندوق مخصص عند محطة التمريض.

#### هل لا بد لي من المشاركة في هذا المشروع البحثي؟

مشاركتك مهمه جداً لإنها تفيدنا بمعرفة نظرة الأمهات عن ملامسة جلد الطفل لجلد الأم. هذه المعرفة أساسية في الجهود الرامية إلى تحسين نوعية الرعاية التي تتلقاها النساء. المشاركة في هذا المشروع البحثي هو تطوعي تماما وأنت غير ملزمة بالموافقة على المشاركة. من غير المتوقع أن تتعرضي لأي مخاطر من خلال المشاركة في البحث. اذا كانت الإجابة عن أي سؤال صعبه او غير مريحه يمكنك عدم الإجابة عن السؤال. من المهم أن تعلمي أنه من الصعب أن نسحب المعلومات الفردية من البيانات المجمعة لأن المعلومات غير معرفة بأسماء.





#### ماذا سيحدث للمعلومات عنى؟

الاستبيان مع الإجابات سيتم حفظها في خزانة مقفله آمنه في مركز جوديث ليوملي في جامعة لا تروب. الباحثه والمشر فين فقط يمكنهم الإطلاع والوصول إلى البيانات. بعد سبع سنوات سيتم تمزيق وحذف البيانات بسرية تامه. لن يتم استخدام البيانات التي تم جمعها لهذا المشروع البحثي في أي مشاريع بحثية أخرى.

#### كيف سيتم إبلاغي بالنتائج النهائية لهذا المشروع البحثي؟

نتائج هذه الدراسة سيتم نشر ها في المجلات العلمية أو عرضها في المؤتمرات، وسوف تشمل المعلومات التي يتم عرضها كنتائج مجمعة من جميع المشاركين. لن يتم نشر أي معلومات تعرف عن الافراد المشاركين.

إذا أردت أي معلومات أخرى عن هذا البحث أو إذا كان لديك أي مشاكل قد تكون ذات صلة عن مشاركتكم في البحث (على سبيل المثال، الشعور بالحزن او القلق)، يمكنك الاتصال بالباحثه نوال عبد الغني. رقم هاتف +61452566109 أو +966554727670 أو البريد الإلكتروني 18729960 أو ngabd14@gmail.com

إذا اردت التواصل مع الباحثين لأي سبب يخص هذا البحث نرجو	إذا كان لديك أي شكاوي أو استفسارات حول مشاركتكِ في
منك التواصل مع المشرفة الأساسيه أو المشرفين المشاركين	الدراسة اذا لم يكن الباحث قادر أ على الإجابة حتى يصل
أستاذ مشارك ليزا أمير	لإرضائكم، يمكنك الاتصال بمدير الموظفين بمكتب أخلاقيات
8775 9479 3 61 :تليفون	البحث الإنساني والأخلاق والنزاهة، مكتب البحوث، جامعة لا
l.amir@latrobe.edu.au: ايميل	تروب، فيكتوريا، 3086
دكتوره كرستينا أدفار دسون	1443 9479 1413 :تليفون
61394798804+ :تليفون	ايميل: humanethics@latrobe.edu.au
ايميل: K.Edvardson@latrobe.edu.au	
البرفسوره ديلا فروستر	
8783 9479 3 61 :تليفون	
ايميل: <u>d.forster@latrobe.edu.au</u>	

شكراً لمشاركتكِ.

الباحثه/ نوال عبد الغني



Appendix 6.a: Consent forms for pregnant women observation session, English College of Science, Health and Engineering **School of Nursing and Midwifery Judith Lumley Centre** 

#### **Consent Form for Pregnant Women: Observation**

#### Title of the project: Exploring the hospitals practices immediately after vaginal birth with healthy full-term newborn infants in Saudi Arabia

I have read and understood the participant information statement and consent form, and any questions I have asked have been answered to my satisfaction. I agree to participate in the project, realising that I may withdraw at any time. I agree that research data provided by me or with my permission during the project may be included in a thesis, presented at conferences and published in journals on the condition that neither my name nor any other identifying information is used.

I agree to be observed by the researcher	Yes	🗌 No
AND		
I agree to allow the researcher to record the data on the	observation sh	neet

Signature:

Date

Name	of researchers	:
- tanic	of rescarences	•

Signature:

Date

Appendix 6.b: Consent form for pregnant women observation session Arabic



College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

#### استمارة موافقة لملاحظة النساء الحوامل

عنوان المشروع: استكشاف ممارسات ملامسة المستشفيات مباشرة بعد الولادة طبيعية مع الأطفال الأصحاء حديثي الولادة في المملكة العربية السعودية

لقد قرأت وفهمت المعلومات التوضيحيه للمشاركين، وقد أجيبت جميع أسئلتي وأنا راضيه عن ذلك. أنا موافقه على المشاركة في المشروع وأعلم أنه يمكنني الانسحاب في أي وقت. أنا موافقه على أن البيانات البحثية التي أخبرتكم بها أو أذنت لكم بها خلال المشروع البحثي يمكن أن تدرج في الرسالة، وتعرض في المؤتمرات وتنشر في المجلات العلمية بشرط أن لا يتم استخدام اسمي ولا أي معلومات تدل على هويتي.

أوافق أن يتم ملاحظتي من قبل الباحثه نعم [] لا []

إسم المشاركه:

بيانات التواصل:

التوقيع:

التاريخ:

إسم الباحثه:

التوقيع: التاريخ:

Appendix 6.c: Consent form for HCPs observation



College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

#### Consent Form for Obstetrician's and Midwife's: Observation

Title of the project: Exploring hospitals practices immediately after vaginal birth with healthy fullterm newborn infants in Saudi Arabia

I have read and understood **the participant information statement and consent form,** and any questions I have asked have been answered to my satisfaction. I agree to participate in the project, realising that I may withdraw at any time. I agree that research data provided by me or with my permission during the project may be included in a thesis, presented at conferences and published in journals on the condition that neither my name nor any other identifying information is used.

I agree to be observed by the researcher	Yes	No	
AND			
I agree to allow the researcher to record the data on the observation sheet			
	Yes	No	

Name	of P	artic	ipant:
	-		

Signature	<b>:</b> :
-----------	------------

Date

Name of researchers:

Signature:

Date



#### **Consent Form for Health Care Provider's Interviews**

#### Title of the project: Exploring hospitals practices immediately after vaginal birth with healthy full-term newborn infants in Saudi Arabia

I have read and understood the participant information statement and consent form, and any questions I have asked have been answered to my satisfaction. I agree to participate in the project, realising that I may withdraw at any time. I agree that research data provided by me or with my permission during the project may be included in a thesis, presented at conferences and published in journals on the condition that neither my name nor any other identifying information is used.

I agree to participate in focus group	Yes	🗌 No
And		
I agree to allow the discussion to be audio-taped	Yes	🗌 No

Name of Participant:	
Signature:	Date
Name of researchers:	

Signature:

Date

Appendix 6.e: Withdraw form, English



College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

Withdrawal of Consent for Use of Data Form

### Project Title: Exploring hospitals practices immediately after vaginal birth with healthy full-term newborn infants in Saudi Arabia.

I,..... wish to WITHDRAW my consent to use of data arising from my participation. Data arising from participation must NOT be used in this research project as described in the information and Consent Form. I understand that this notification will be destroyed provided this request is received within four weeks of the completion of my participation in this project. I understand that this notification will be retained together with my consent form as evidence of the withdrawal of my consent to use the data I have provided specifically for this research project.

Participant's name (printed):

.....

Signature:

.....

Date:



كلية من العلوم والصحة والهندسة مدرسة التمريض والقبالة مركز جوديث لوملي

سحب الموافقة على استخدام نموذج البيانات

عنوان المشروع: استكشاف ممارسات المستشفيات مباشرة بعد الولادة المهبلية مع أطفال حديثي الولادة كاملي الولادة في المملكة العربية السعودية.

اسم المشاركة (مطبوع):

.....

التوقيع:

.....

تاريخ:



### **Birthing Room Audit Tool**

Acknowledgment: This tool is originally developed by (Cantrill, Creedy, Cooke, & Dykes, 2014), however, it has been re-designed and modified to fit the study of exploring the practice of skin-to-skin contact in Saudi Arabia.

	Mother ID
<b>Pleas</b> Date	e complete the following questions / /
1	What time was baby born?
2	Was the mother able to respond to her baby at the time of birth?
2a	If No, what time was mother able to respond to her baby?
3	Did the mother hold her baby during the first hour after birth? 1 YES 0 NO
3a	If <b>YES</b> , what time started?
3b	If No, what time did mother first hold her baby? time started?
4	Did any procedures or events occur <b>before</b> the mother held her baby for the first time?
4a	If YES, tick ✓ procedures or events that occurred before       mother held her baby and write the time         1       Baby placed on resuscitation trolley       8       Routine injections (i.e. Hepatitis B/ BCG)         2       Active resuscitation       9       Baby held by significant other         3       Oral suction       10       Baby bathed         4       Baby Physical or suck assessment       11       Mother showered         5       Baby placed under radiant heater/ cot       12       Mother requested not to hold baby         6       Baby weight and measured       13       A staff member prevented         7       Baby wrapped       14       Other (Specify)
5	Did the mother hold her naked baby against her bare chest/abdomen during the first hour?
5a	If YES, 0 NO
5b	If <b>NO</b> , did mother hold her baby in skin-to-skin contact some time later? 1 YES 0 NO,
5c	If YES, what time started?
6	Did any procedures or events <u>interrupt</u> skin-to-skin contact holding between mother and baby within the first hour of birth? 1 YES 0 NO Go to Q 8
	If <b>YES</b> , tick ✓ procedures or events that <i>interrupted</i> skin-to-skin contact holding between mother

6a and baby.



	<ul><li>1 Baby placed on resuscitation trolley</li><li>2 Active resuscitation</li></ul>	<ul> <li>8 Routine injections (i.e. Hepatitis B/ BCG)</li> <li>9 Baby held by significant other</li> </ul>
	3 Oral suction	10 Baby bathed
	4 Baby Physical or suck assessment	11 Mother showered
	5 Baby placed under radiant heater/ cot	12 Mother requested not to hold baby
	6 Baby weight and measured	13 A staff member prevented
	7 Baby wrapped	14 Other (Specify)
7	If any procedures or events <b>interrupted</b> skin-to- to-skin contact recommenced later?	-skin contact holding during the first hour, was skin-
7a	If YES, what time started?	time ended
First	Breastfeeding Attempt	
8	Were the nine stages of instinctive newborn behavi	or observed? 1 YES 0 NO
	If YES Tick ✓ Stages of instinctive newborn beha	vior observed.
	1 Birth cry 1 YES 0 NO	6 Crawling 1 YES 0 NO
	2 Relaxation 1 YES 0 NO	7 Familiarization 1 YES 0 NO
	3 Awakening 1 YES 0 NO	8 suckling 1 YES 0 NO
	4 Activity 1 YES 0 NO	9 Sleep 1 YES 0 NO
	5 Rest 1 YES 0 NO	
9	Were newborn feeding behaviors discussed wi encouraged to recognize and respond to baby	ith mother/parents/significant other/s or mother 's feeding cues?
		<u> </u>
10	Did baby attempt to breastfeed while in birth su	uit/recovery room?
10a		
10b	If <b>YES</b> , what time started? hr If <b>YES</b> Describe the baby's first breastfeed atte	s time ended hrs
	1 'fed well' sustained deep rhythmical suck, swa	llow, breathe patterns
	2 A few suckles after repeated attempts to latch	
	3 Licked/nuzzled only	rash the ninnle
	5 Not interested in feeding	rasp the hippie
	6 Other (please specify)	
10c	If NO, indicate the reason breastfeed not attem	npted. END of Audit Go to Q12
	1 Formula fed baby 2 Baby not ready to	
	3 Mother not ready 4 Other (please spe	cify)
_		
Assis	stance offered by midwives and received by r Was the mother offered assistance to breastfee	
11		
11a	If <b>Yes</b> , what level of assistance did mother acc	ept and/or receive?
	1 Declined assistance	



	2 No assistance required - mother independent
	3 Hands off assistance: supportive verbal or nonverbal encouragement, instruction, information
	4 Minimal assistance – positioning only i.e. baby near the breast
	5 Moderate assistance – attachment only i.e. shaping mother's breast
	6 Full assistance - help to both position and attach baby to breast
	7 Other (Describe)
12	Time mother transferred to Postnatal Ward
	Was baby transferred to Special Care Nursery?
13	1 YES, what time hrs 0 NO END of Audit
14	What time baby transferred to Postnatal Ward?

#### This is the end of the audit. Thank you.

**Field note** 

..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... .....



Tick  $\checkmark$  the box  $\square$  beside the relevant response.

Mother ID Nu	umber	Date / /	Time : hrs
Birthing Room	m Audit: Record information from	m Delivery Suite Birth Book o	or Medical file
1	Age		
2	Parity	1 Primip	
		2 Multi	
3	Gestation		
4	Labour onset	1⊡Spontaneous 2⊡Spontaneous /Augr 3⊡IOL	nented
		4□IOL//Augmented	
5	Birth Type	1□ SVD 2□ LSCS Emergency 3□ Vaccume 4□ Forcepts	
6	Analgesia	1□ Nil 2□ Water injection 3□ Inhalation 4□ Narcotic	5⊡ Epidural 6⊡ Spinal 7⊡ GA 8⊡ LA
	Baby		
7	Baby Sex	1 Male	2 Female
8	Weight		
9	Baby Apgar	1Min	5 Min
10	Feeding	1□Breast	2□Formula

Thank you

,

#### Re: Request for Birthing room observational tool

#### Ruth Cantrill <cantrill4@gmail.com>

Tue 9/20/2016 8:04 AM

**To:** NAWAL GAMEL H ABDULGHANI <18729960@students.latrobe.edu.au> **Cc:** Ruth Cantrill <ruth.cantrill@health.qld.gov.au>

J 5 attachments (1 MB)

1 Birthing Room Observation Timeline Grid\_2012OCT.xls; 2 Birth Room observation Checklist\_Step4.doc; 3\_20151210\_BIRTHStep4\_BFHI audit tool.docx; 3\_20151210\_BIRTHStep4\_BFHI audit tool.pdf; 4 BFHI\_Birth Suite Final 2016.pdf;

#### Good morning Nawal,

Thank you for your patience as I have search through files to find the best versions of the Birthing Room Observation tool to pass on to you.

I am honored and pleased that someone may use this tool for further research.

#### Attached is

1. The original tool for raw data collection from direct observation "1 Birthing Room Observation timeline"

2. The first converted version tested with midwives in 2004 for Quality Improvement (QI) in direct relation to the study "2 Birth Room Observation Checklist \_Step4"

3. Version 2 refined and revised for Birthing Room Audits in preparation for BFHI accreditation Word and PDF format "3\_20151210\_BIRTHStep4\_BFHI audit tool"

4. Recent version turned into a 'monkey survey' for midwives to continue auditing of birthing room practices "4 BFHI Birth Suite Final 2016"

I am currently almost completed revising this version to cut it back to make data analysis from 'Monkey survey easier and more meaningful for QI.

Rather than hold this up any longer I share with you these so far and will forward the current 'Monkey Survey' version once I complete the testing of

it this week.

I will actually be in Melbourne between 4th to 9th October and will be attending the LCANZ conference on the 7th and 8th. If you have questions you'd like to discus am happy to find a little time maybe on the Wednesday or Thursday before the conference.

We request of course that reference and acknowledgment of my work be made in any presentation or publication of your the study using the tools of modified version of them. And we'd like to be updated on your results and progress.

Please contact me if I can be of any further assistance Kind regards

Ruth

On 25 August 2016 at 12:26, NAWAL GAMEL H ABDULGHNAI <<u>18729960@students.latrobe.edu.au</u>> wrote:

Dear Dr. Ruth Cantrill,

I am a PhD student at La Trobe University and my project tentatively titled " Developing Strategies to Increase Skin-to-Skin Care in Saudi Arabia". This project is under the supervision of Associate Prof. Lisa Amir and Dr. Kristina Edvardsson at the Judith Lumley Centre at La Trobe University.

I would like to use your " Birthing room observational tool" from your article Cantrill, R.
M., et al. (2014). "Effective suckling in relation to naked maternal-infant body contact in the first hour of life: an observation study." <u>BMC Pregnancy and Childbirth</u>
14: 20-20. I kindly request sending me the tool and if you have any suggestions about the tool please let me know. Your assistance is much appreciated.

Kind regards,

Nawal Abdulghani

--

Ruth Cantrill PO BOX 7254 REDLAND BAY 4165

Mob: 0438987261

Appendix 9: HCPs interviews guided questions



College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

#### Health Care Providers' Interviews Guided Questions

#### Introduction:

- > Welcome to the group participants and introductions. Give participants consent forms
- Purpose and context of the focus group:
  - As you have an important role at the first hour of the newborn life, your practice may or may not involve placing the newborn at the mother chest for certain time. The purpose of this focus group is to explore your perception and attitudes toward skin-to-skin contact after normal birth. This will enhance our understanding of factors that will enhance or hinder the practice of SSC.
  - As detailed in the Participants Information Statement, everything that is said in this group will be confidential. Thank you for your permission to audio tape the discussion. In any written information that arises from this group, you will not be identified and we will use pseudonyms for any direct quotes used.
- > Take a few minutes to sign consent forms
  - I have a series of questions to ask you. There are no right or wrong answers and each participant may have a unique response or experience to share.

START RECORDING phones and digital recorder

Field notes: Assign IDs to the participants



Domains	Questions ( One main question ONLY, need to	Prompts
	be revised)	
To start:	<ul> <li>Can you tell me about your qualification and</li> </ul>	d years of experience?
Knowledge	What do you know about SSC?	•
	<ul> <li>What do you think the guideline says about</li> </ul>	
	SSC?	
Skills	How do you usually perform SSC care?	•
	<ul> <li>How easy or difficult to perform SSC with</li> </ul>	
	the first hour after birth?	
Social/professional role and	<ul> <li>Is doing SSC compatible or in conflict with</li> </ul>	•
identity	your job standard?	
	<ul> <li>Would SSC suits all mothers from different</li> </ul>	
	cultural background? this be true for all	
	professional groups involved? (Group	
	norm)	
	<ul> <li>Do you think mothers aware of SSC</li> </ul>	
	practices?	
Beliefs about capabilities (Self-	<ul> <li>What problem have you countered when</li> </ul>	•
efficacy)	implementing SSC?	
	<ul> <li>What would help you overcome these</li> </ul>	
	problems?	
	<ul> <li>How confident are you on demonstrating</li> </ul>	
	SSC care for mother-infants despite the	
	difficulties?	
Beliefs about consequences	• What are the benefits of SSC for mothers	•
(Anticipated outcomes/attitude)	and infants?	
	<ul> <li>What do you think will happen if mother</li> </ul>	
	don't do SSC?	



### College of Science, Health and Engineering School of Nursing and Midwifery

Juditi Lu	mey centre
Motivation and goals	<ul> <li>How motivated are you about practicing</li> <li>SSC after birth?</li> <li>Are there other things you may want to do</li> </ul>
	that may interfere with SSC?
Memory, attention and decision processes	<ul> <li>Is SSC care something you usually do?</li> <li>Will you remember to perform SSC with all women with health full-term infants?</li> <li>What are some of the reasons for deciding not to do SSC care?</li> </ul>
Environmental context and resources (Environmental constraints)	<ul> <li>To what extent do physical or resource factors facilitate or hinders SSC?</li> <li>Are there competing tasks and time constraints that impact on SSC?</li> <li>Do you have the necessary resources available to you to implement SSC?</li> </ul>
Social influences (Norms)	<ul> <li>To what extent do social influence of peers, staff, relatives, friended and partners facilitate or hinder SSC?</li> <li>To what extent do you think cultural background would facilitate or hinder SSC?</li> </ul>
Concluding questions	Do any of you have anything at all that you would like to add?
To close:	<ul> <li>Thank participants</li> </ul>



## Mothers' Perceptions about

Skin-to-Skin Contact after Normal Birth

#### **Researchers:**

Mrs. Nawal Abdulghani

Associate Professor Lisa Amir

Dr. Kristina Edvardsson

Professor Della Forster

Thank you for agreeing to take part in this study. Please ask the researcher if you are unsure about any questions.

Please	put a tick $ar{varsingledown}$ in the appropriate box
The fol	lowing questions are about yourself and your newborn baby.
1.	How old are you?
	Years
2.	What is the highest level of education you have completed?
	1 PhD
	2 Master/ High Diploma
	3 University
	4 Pre-University Diploma
	5 Secondary School
	6 Intermediate School
	7 Primary school
	8 No schooling but able to read and write
3.	What is your employment status?
	1 Employed
	2 Unemployed
4.	What is your nationality?
	1 Saudi
	2 Non-Saudi (Please specify)
5.	Are you?
	1 Married
	2 Widowed
	3 Separated or divorced
6.	How many children do you have including the new baby?
	Children
7.	How many completed weeks were you when you had your new baby?
	Weeks
	44 Don't know
8.	What was the birth weight of your baby?
	grams
	44 Don't know
9.	How old is your baby?
	hours12 Less than 1
	2 Between 12 - 24 hours
	Between 25 - 48 hours (up to 2 days)
	Between 49 - 72 hours (up to 3 days)
	More than 73 hours (3 days) (Please specify the reason for long stay at the
h	ospital)
10.	What is the baby's gender?
	1 Boy
	2 Girl

In this survey,	the term <i>skin-to-skin contact</i> means the practice of placing a newborn baby on the
mother's bare	chest, immediately after birth or within the first hour after birth. The infant is
typically naked	d or dressed only in a nappy, and both the mother and infant covered with warmed
blankets.	
11. Have	you heard about <u>skin-to-skin contact</u> ?
1	Yes
2	Not sure
3	No (go to Question 13)
12. Where	e did you hear about skin-to-skin contact? (tick all that apply)
	At the hospital from doctors
	At the hospital from midwives or nurses
	At the hospital from antenatal classes
	From family member
	From friends
	Fiolit menus
6	Self-search
7	Others, (Please describe)
13. Which	o of these statements do you feel applies to your feelings about skin-to-skin contact
imme	diately after birth? (tick one only)
1	I would feel comfortable doing that
2	I would feel comfortable but only after my baby gets cleaned
3	I prefer not to do that
4	Not sure/don't know
14 Which	of these statements do you feel annlies to your partner's feelings about placing your
baby c	on your chest ( <u>skin-to-skin contact</u> )? (tick one only)
1	My partner would prefer me to have skin-to-skin contact with my baby
2	My partner has no preference about skin-to-skin contact
	My partner is supportive of my choice of skin-to-skin contact
	My partner would prefer me not do skin-to-skin contact with my baby
	l'm not sure
	Not applicable (no partner at the birth time)
15. Which	o of these statements do you feel applies to your family's feelings about placing your
baby d	on your chest ( <u>s<i>kin-to-skin contact</i></u> )? (tick one only)
1	My family would prefer me to have skin-to-skin contact with my baby
2	My family has no preference about skin-to-skin contact
3	My family is supportive of my choice of skin-to-skin contact
4	My family would prefer me not to do skin-to-skin contact with my baby
5	I'm not sure
44	Not applicable (no family at the birth time)
16 Did va	w have your haby in skin to skin contact soon after your high (whether as not a
to. Dia ya	bu have your baby in <u>skin-to-skin contact</u> soon after your birth (whether of hot a treed occurred)?
	Voc
	Tes Ves (with herrier cheet or dethan)
	Ne (se to Question 10)
	NO (go to Question 18)
4	Not sure/can't remember (go to Question 18)

17. How lo	ong was your ba	by on the brea	ast or <u>skin-to-skin</u>	contact?	
1	30 minutes or	r less			
2	Between 31 n	ninutes and or	ne hour (31 - 60 m	iinutes)	
3	More than an	hour (>60 mi	nutes)		
4	Not sure/can'	t remember			
10 1/4 a.a					
18. When	was the first tin	ie you neid yo	our baby?		
	minutes after	birth			
	hours after bi	rth			
44	Not sure/can'	t remember			
66	Have not hold	d my baby yet			
19. How lo <u>skin co</u>	ong after your b o <u>ntact w</u> here no	irth did your b feed occurred	aby have his/her <sup>.</sup> 1)??	first breastfeed	l (not counting <u>skin-to-</u>
	minutes after	birth			
	hours after b	irth			
44	Not sure/can	't remember			
66	Have not bre	astfed my bab	oy yet		
20 . Масли	our boby's first f	and			
	Directly from	vour breast?			
	Expressed br	east milk from	n cun/snoon/svrin	ge?	
	Expressed br	east milk in ho	nttle	Bc.	
	Formula?				
	ronnaia.				
21. Since l	pirth, how have	you been feed	ling your baby?		
1	Fully breastfe	eeding at the b	preast		
2	Breastfeedin	g + expressed	breast milk		
3	Expressed br	east milk only			
4	Breastfeedin	g + formula			
5	Breastfeedin	g + expressed	breast milk + forn	านไล	
6	Expressed br	east milk + for	mula		
7	Fully formula	feeding			
8	Baby not fee	ding yet (e.g. i	n SCN/not feeding	g for minor reas	son)
Please indicate	e vour level of a	greement for	each statements	by circle the a	ppropriate number 1-5
in which 1=	Strongly agree	2= Agree	3= Uncertain	4= Disagree	5=Strongly Disagree
The following THE EXPERIEN	statements are CE OR NOT	about your fe	eelings toward <u>ski</u>	n-to-skin conto	a <u>ct</u> whether you HAD
22. I woul	d like to know m	nore about <u>ski</u>	<u>n-to-skin contact</u> o	during my ante	natal visits
	1 2	3	4	5	
23. I belie	ve that <u>skin-to-s</u>	<i>kin contact</i> ha	s many benefits f	or my baby	
	1 2	3	4	5	
			· · · · · · · · · · · · · · · · · · ·		
24. I belie	ve that <u>skin-to-s</u>	<u>kin contact</u> ha	s many benefits f	or myself	
	1 2	3	4	5	

25. I would pre for routine	fer to keep my care	baby on my	chest imm	ediately after bi	th than take him/her away
1	2	3	4	5	
26. I prefer that my baby stays in my room all the time					
1	2	3	4	5	
27. I am afraid	to hurt my bab	y when he/s	she is on my	/ chest	
1	2	3	4	5	
28. I am afraid t	that my baby v	vill get cold o	on my chest	İ	
1	2	3	4	5	
29. I feel that <u>si</u>	kin-to-skin con	<u>tact </u> would e	xpose parts	s of my body tha	t I don't want to be seen
1	2	3	4	5	
30. I think that	skin-to-skin co	<u>ntact </u> is inap	propriate ir	n my culture	
1	2	3	4	5	
The following state	ments are abo	out your feel	ings toward	d <u>skin-to-skin co</u>	<u>ntact i</u> f you HAD THE
EXPERIENCE ONLY					·
EXPERIENCE ONLY 31. I found that	practicing <u>skir</u>	n-to-skin con	<u>tact </u> was ea	sy for me	Not applicable
31. I found that	: practicing <u>skir</u> 2	n-to-skin con 3	<u>tact </u> was ea 4	sy for me 5	Not applicable
EXPERIENCE ONLY 31. I found that 1 32. I felt closer	: practicing <u>skir</u> 2 to my baby wh	n- <u>to-skin con</u> 3 nen I had <u>skii</u>	<u>tact</u> was ea 4 n-to-skin co	sy for me 5 <u>ntact with my b</u> a	Not applicable
EXPERIENCE ONLY 31. I found that 1 32. I felt closer 1	: practicing <u>skir</u> 2 to my baby wh 2	n- <u>to-skin con</u> 3 nen I had <u>skii</u> 3	<u>tact</u> was ea 4 n-to-skin co 4	sy for me 5 <u>ntact with my b</u> 5	Not applicable
EXPERIENCE ONLY 31. I found that 1 32. I felt closer 1 33. I felt that <u>sk</u>	: practicing <u>skir</u> 2 to my baby wh 2 <u>kin-to-skin cont</u>	n- <i>to-skin con</i> 3 nen I had <u>skin</u> 3 r <u>act</u> helped r	<u>tact</u> was ea 4 <u>n-to-skin co</u> 4 ne breastfe	sy for me 5 <u>ntact</u> with my b 5 ed my baby	Aby
EXPERIENCE ONLY 31. I found that 1 32. I felt closer 1 33. I felt that <u>sk</u> 1	: practicing <u>skir</u> 2 to my baby wh 2 <u>kin-to-skin cont</u> 2	n- <u>to-skin con</u> 3 nen I had <u>skin</u> 3 <u>ract</u> helped r 3	<u>tact</u> was ea 4 <u>n-to-skin co</u> 4 ne breastfe 4	sy for me 5 <u>ntact</u> with my b 5 ed my baby 5	Aby
EXPERIENCE ONLY 31. I found that 1 32. I felt closer 1 33. I felt that <u>sk</u> 1 34. I believe my	: practicing <u>skir</u> 2 to my baby wh 2 <u>kin-to-skin cont</u> 2 v baby was rela	n-to-skin con 3 nen I had <u>skin</u> 3 r <u>act</u> helped r 3 nxed and cali	<u>tact</u> was ea 4 <u>n-to-skin co</u> 4 ne breastfe 4 m during <u>sk</u>	sy for me 5 <u>ntact</u> with my b 5 ed my baby 5 <u>in-to-skin contac</u>	Not applicable
EXPERIENCE ONLY 31. I found that 1 32. I felt closer 1 33. I felt that <u>sk</u> 1 34. I believe my 1	: practicing <u>skir</u> 2 to my baby wh 2 <u>kin-to-skin cont</u> 2 r baby was rela 2	<u>n-to-skin con</u> 3 nen I had <u>skin</u> 3 <u>act</u> helped r 3 axed and calr 3	<u>tact</u> was ea 4 <u>n-to-skin co</u> 4 ne breastfe 4 m during <u>sk</u> 4	sy for me 5 <u>ntact</u> with my ba 5 ed my baby 5 <u>in-to-skin contac</u> 5	Not applicable
EXPERIENCE ONLY 31. I found that 1 32. I felt closer 1 33. I felt that <u>sk</u> 1 34. I believe my 1 35. The staff in	to my baby wh 2 to my baby wh 2 <u>cin-to-skin cont</u> 2 y baby was rela 2 the birth unit o	<u>n-to-skin con</u> 3 nen I had <u>skin</u> 3 <u>act</u> helped r 3 axed and calr 3 encouraged	<u>tact</u> was ea 4 <u>n-to-skin co</u> 4 ne breastfe 4 m during <u>sk</u> 4 me to do <u>sk</u>	sy for me 5 <u>ntact</u> with my ba 5 ed my baby 5 <u>in-to-skin contac</u> 5	Not applicable
EXPERIENCE ONLY 31. I found that 1 32. I felt closer 1 33. I felt that <u>sk</u> 1 34. I believe my 1 35. The staff in 1	to my baby wh 2 to my baby wh 2 <u>cin-to-skin cont</u> 2 y baby was rela 2 the birth unit of 2	n-to-skin con 3 nen I had <u>skin</u> 3 <u>act</u> helped r 3 axed and calr 3 encouraged 3	<u>tact</u> was ea 4 <u>n-to-skin co</u> 4 ne breastfe 4 m during <u>sk</u> 4 me to do <u>sk</u> 4	sy for me 5 <u>ntact</u> with my ba 5 ed my baby 5 <u>in-to-skin contac</u> 5 <u>cin-to-skin contac</u> 5	Not applicable
EXPERIENCE ONLY 31. I found that 1 32. I felt closer 1 33. I felt that <u>sk</u> 1 34. I believe my 1 35. The staff in 1 36. I was not ak	to my baby wh 2 to my baby wh 2 <u>cin-to-skin cont</u> 2 y baby was rela 2 the birth unit of 2 ole to do <u>skin-t</u>	n-to-skin con 3 nen I had <u>skin</u> 3 r <u>act</u> helped r 3 nxed and calr 3 encouraged 3 <u>o-skin contar</u>	<u>tact</u> was ea 4 <u>n-to-skin co</u> 4 ne breastfe 4 m during <u>sk</u> 4 me to do <u>sk</u> 4 <u>ct</u> with my b	sy for me 5 <u>ntact</u> with my ba 5 ed my baby 5 <u>in-to-skin contac</u> 5 <u>cin-to-skin contac</u> 5 cin-to-skin contac	Not applicable

**Optional questions:** 

. .

If you had <u>skin-to-skin contact</u> with your baby, would you like to tell us about your experience?

Would you consider doing <u>skin-to-skin contact</u> with your next baby?

Thank you very much for completing this questionnaire. We are very grateful for the time you have taken.

If you would like to discuss any issues raised by the questionnaire further, please feel free to contact us (Nawal on +966554727670, e-mail 18729960@students.latrobe.edu.au or ngabd14@gmail.com)


College of Science, Health and Engineering School of Nursing and Midwifery Judith Lumley Centre

## رأي الأمهات في القيام بوضع أطفالهم بعد الولادة الطبيعية مباشرتا على صدور هم (ملامسمة جلد المولود لجلد الأم)

الباحثون: الأستاذه/ نوال عبد الغني أستاذ مشارك/ ليزا أمير الدكتوره/ كرستينا أدفاردسون البرفسوره/ ديلا فروستر

شكرا لموافقتك على المشاركة في هذه الدراسة يرجى عدم التردد في سؤال الباحثة عند وجود أي استفسار.

سنلة التالية عنكِ وعن طفلك.
ا الرجاء وضع علامة صح في المربع المناسب
1 ـ كم عمد كي ـ 1
2 - ماهو أعلى مؤهل در اسى حصلتي عليه؟
در اسات عليا (ماجستير / دكتور اه)
بكالوريوس أو دبلوم
ݨ <i>انوي</i> ة
متوسطة
ابتدائي
لم أتلقي أي تعليم
<ul> <li>3 - ما هي الحالة الوظيفية الخاص بك؟</li> </ul>
موظفة
غير موظفة
ماھى جنسيتك؟
سعودية
غير سعودية، الرجاء التحديد
5 - الحالة الاجتماعية؟
متزوجة
أرملة
مطلقة أو منفصلة
6 - كم عدد أطفالك مع الطفل الأخير ؟
أطفال
7 - في أي أسبوع تمت ولادة طفلك الأخير ؟
أسبوع
لا أعلم
8 - كم كان وزن طفلك عند الولادة؟
لا أعلم
Sivi silie vec of - 9
ساعة الــ ٢٤ ساعة
٢٠ ٢٠ ساعة الـ ٤٨ ساعة (به مين)
يبن ٤٩ ساعة إلى ٧٢ ساعة (ثلاثة أيام)
المسيمين المسيمين على مربع الأسباب التي أدت الى البقاء في المستشفى لفترة طويلة)
0 1 - ما هو جنس المولود؟
ذكر

أنثى في هذا الاستبيان، المقصود بمصطلح skin-to-skin care (ملامسة جلد المولود لجلد الأم) هو القيام بوضع الطفل المكتمل النمو على صدر أمه مباشرتاً بعد الولادة الطبيعية أو خلال الساعة الأولى بعد الولادة. الطفل يكون بدون ملابس بحفاضة أو بدونها وتغطى الأم وطفلها ببطانية دافئة. 1 1 - هل سمعتى عن ملامسة جلد المولود لجلد الأم من قبل؟ \* هل سمعتى عن هذه الممارسة من قبل؟ نعم غير متأكدة لا (الرجاء الانتقال إلى السؤال ١٣) 2 - 1 أين سمعتى عن ملامسة جلد المولود لجلد الأم؟ من الطبيب في المستشفى من القابلة أو الممرضة في المستشفى من دروس ما قبل الولادة في المستشفى من أحد أفراد العائلة من الأصدقاء إطلاع شخصى من مصادر أخرى (الرجاء التوضيح)..... 3 1 - أى من هذه العبارات ينطبق على مشاعرك حول ملامسة جلد مولودك لجلدك مباشرتاً بعد الولادة؟؟ سأكون مرتاحة عند القيام بذلك أفضل القيام بذلك بعد أن يتم تنظيف طفلي لا أرغب في القيام بذلك مطلقاً لا أعلم / غير متأكدة 4 - أي من هذه العبارات ينطبق على مشاعر زوجك حول وضع مولودك على صدرك (ملامسة جلد المولود لجلد) زوجي يفضل أن أضع مولودي على صدري حتى يلامس جلد مولودي جلدي زوجي لا يتدخل بقرار يخصني أنا ومولودي زوجي يدعم قراري بوضع مولودي على صدري حتى يلامس جلد مولودي جلدي زوجي لا يفضل أن أضع مولودي على صدري حتى يلامس جلد مولودي جلدي غبر متأكدة لا ينطبق (زوجي لم يكن موجود أثناء الولادة) 5 1 - أى من هذه العبارات ينطبق على مشاعر عائلتك حول وضعك مولودك على صدرك (ملامسة جلد المولود لجلد عائلتي يفضلوا أن أضع مولودي على صدري حتى يلامس جلد مولودي جلدي عائلتي لا يتدخلوا بقرار يخصني أنا ومولودي عائلتي يدعموا قراري بوضع مولودي على صدري حتى يلامس جلد مولودي جلدي عائلتي لا يفضلوا أن أضع مولودي على صدري حتى يلامس جلد مولودي جلدي غير متأكدة لا ينطبق (عائلتي لم يكونوا متواجدين أثناء الولادة) هل وضع مولودك مباشرتا على صدرك بعد الولادة حتى بلامس جسده جسدك (سوآءا أرضعت طفلك أم لا)؟ -16 نعم

لا (الرحاء الذهاب للسبة ال ١٨)
لا أعلم/ غير متأكدة (الرجاء الذهاب للسؤال ١٨)
7 1 - كم المدة التي ظل فيها طفلك على صدرك حين ملامسة جلد المولود لجلد الأم؟
٣٠ دقيقة أو أقل
بين ٣٠ دقيقة إلى ساعة (٣١-٢٠ دقيقة)
الکثر من ساعة
غير متأكدة/لا أتذكر
<b>18</b> - متى كانت المرة الأولى التي حملتي طفلك؟
دقيقة بعد الولادة
ساعة بعد الولادة
غير متأكدة/لا أتذكر
لم أحمل طفلي/طفلتي حتى الأن
9 1 - متى بدأتي بإرضاع طغلك من صدرك؟
دقيقة بعد الولادة
ساعة بعد الولادة
غير متأكدة/لا أتذكر
لم أرضع طفلتي/طفلي حتى الأن
2 0 - هل كانت الرضاعة الأولى لطفاك من
مباشرة من صدرك؟
عن طريق حليب الأم المشفوط وتم وضعه في كوب/ ملعقه/ او إبره؟
عن طريق حليب الأم المشفوط وتم وضعه في رضاعة؟
الحليب الصناعي؟
<u>2</u> - منذ الولادة الى الان كيف ترضعين طفلك؟
رضاعة طبيعية فقط من صدري
رضاعة طبيعية + حليب الأم المشفوط
حليب الأم المشفوط فقط
رضاعة طبيعية + حليب صناعي
رضاعة طبيعية + حليب الأم المشفوط + حليب صناعي
حليب الأم المشفوط + حليب صناعي
حليب صناعي فقط
الطفل لم يبدأ الرضاعة بعد بسبب وجوده في الحضانه
للعبارات التالية، يرجى تحديد مدى موافقتك بوضع دائره حول الإختيار المناسب 1-5 كالتالي
1 =  e  =
2 2 - اود أن أعرف المزيد عن موضوع مارمسة جلد المولود لجلد الام حارل مراجعات الحمل
2 3 - اعتقد ان ملامسة جلد مولودي لجلدي فيها العديد من الفوائد لمولودي
0 É T Y I
4 - أعتقد أن ملامسة جلد مولودي لجلدي فيها العديد من الفوائد لي
0 ź ۳ ۲ I

فذه للقيام بالرعاية الروتينية مثل وزن الطفل	أن يتم أخ	ىرتا بعد الولادة من	لمى صدري مباش	، يبقى طفلي ع ابتر	أفضل أن التراري	-25	
	٥	٤	٣	۲	و التصعيم ۱		
		ل الوقت	في غرفتي طوا	، يبقى مولودي	أفضل أن	-26	
	٥	٤	٣	۲	١		
ي	لى صدر ;	ا يكون موضوع ع	ردي للأذى عندم	، يتعرض مولو	أخشى أن	-27	
	٥	٤	٣	۲	١		
	ىدر ي	عندما یکون علی ص	مرارة مولودي .	، تنزل درجة	أخشى أن	-28	
	٥	٤	٣	۲	١		
سمي لا أرغب في إظهار ها	راء من جا	جلد الأم ستظهر أجز	ة جلد المولود ل	، القيام بملامس	أشعر بأز	-29	
	٥	٤	٣	۲	١		
دات و التقاليد	لاسبة للعاد	لد الأم تعبر غير من	: جلد المولود لج	القيام بملامسة	أتوقع أن	-30	
	0	٤	٣	۲	١		
يك تجربه فقط)	ي حالة لد	لمولود لجلد الأم ( <u>ف</u>	، بملامسة جلد ال	ك نحو تجربتك	عن شعورا	عبارات التاليه	11
يك تجربه فقط)	<del>ي حالة لد</del> لي	مولود لجلد الأم ( <u>ف</u> - الأم سهل بالنسبة ا	، بملامسة جلد ال جلد المولود لجلا	<sup>ى</sup> نحو تجربتك طبيق ملامسة	عن شعورا أجد أن ت	عبارات التاليه 1 3 -	11
يك تجربه فقط)	<del>ي حالة لد</del> لي ه	مولود لجلد الأم ( <u>ف</u> - الأم سهل بالنسبة ا ٤	، بملامسة جلد ال جلد المولود لجلد ۳	<sup>ى</sup> نحو تجربتك طبيق ملامسة ۲	عن شعورا اجد ان ته ۱	عبارات التاليه 1 3 -	11
يك تجربه فقط)	<del>ي حالة لد</del> لي ه	مولود لجلد الأم ( <u>ف</u> - الأم سهل بالنسبة - دمسة جلده لجلدي	، بملامسة جلد ال جلد المولود لجلد ٣ دي أكثر عند ملا	ك نحو تجربتك طبيق ملامسة ۲ فرب من مولود	عن شعورا اجد ان تد ا أشعر بالذ	عبارات التاليه - 3 1 - 3 2 -	11
يك تجربه فقط)	<del>ي حالة لا</del> لي ہ	مولود لجلد الأم ( <u>ف</u> - الأم سهل بالنسبة - 	، بملامسة جلد ال جلد المولود لجلد ٣ دي أكثر عند ملا ٣	ک نحو تجربناک طبیق ملامسة ۲ فرب من مولوم ۲	عن شعور ل أجد أن تم أشعر بالذ ا	عبارات التاليه - 3 1 - 3 2	11
<u>يك تجربه فقط)</u> ي	<del>ي حالة لا</del> لي ه عة الطبيع	مولود لجلد الأم ( <u>ف</u> - الأم سهل بالنسبة - 	، بملامسة جلد ال جلد المولود لجلد ٣ ٣ بولودي لجلدي س	ک نحو تجربناک طبیق ملامسة ۲ فرب من مولوه ۲ ملامسة جلد م	عن شعور ل أجد أن تم أشعر بالذ أشعر أن	عبار ات التاليه - 3 1 - 3 2 - 3 3	11
<u>يك تجربه فقط)</u> 	ي حالة لا لي ه عة الطبيع م	مولود لجلد الأم ( ف د الأم سهل بالنسبة ٤ ٢ ١مسة جلده لجلدي ٤ ١ماعدتني في الرضا ٤	، بملامسة جلد ال جلد المولود لجلا ٣ - يو أكثر عند ملا ٣ - يولودي لجلدي س	ک نحو تجربناک طبیق ملامسة ترب من مولوم ۲ ملامسة جلد م ۲	عن شعور ل أجد أن ت أشعر بالذ أشعر أن إحتتران	عبار ات التاليه - 3 1 - 3 2 - 3 3	11
<u>يك تجربه فقط)</u> 	ي حالة لا لي ه عة الطبيع ه لجلدي	مولود لجلد الأم ( ف د الأم سهل بالنسبة ٤ ٢ ١- مسة جلده لجلدي ٤ ٤ خلال ملامسة جلد ٤	، بملامسة جلد ال جلد المولود لجلا ٣ دي أكثر عند ملا ٣ مسترخياً و هادئا ٣	ك نحو تجربنك طبيق ملامسة ترب من مولوم ملامسة جلد م طفلي سيكون	عن شعور ل أجد أن ت أشعر بالذ أشعر أن أعتقد أن	- 3 1 - 3 2 - 3 3 - 3 4	11
<u>يك تجربه فقط)</u> 	ي حالة لا لي ه عة الطبيع ه باجادي	مولود لجلد الأم ( ف د الأم سهل بالنسبة ٤ ٢ ماعدتني في الرضا ٤ خلال ملامسة جلد ٤	، بملامسة جلد ال جلد المولود لجلا ٣ دي أكثر عند ملا ٣ مسترخياً و هادئا ٣	ك نحو تجربتك طبيق ملامسة ترب من مولوم ۲ ملامسة جلد م طفلي سيكون ۲	عن شعور ل أجد أن ت أشعر بالن أشعر أن أعتقد أن ا	- 3 1 - 3 2 - 3 3 - 3 4	11
<u>يك تجربه فقط)</u> 	ي حالة لا لي ه عة الطبيع ه جلدي ه	مولود لجلد الأم ( ف د الأم سهل بالنسبة ٤ ٢ ماعدتني في الرضا ٤ خلال ملامسة جلد ٤ ٠	، بملامسة جلد ال جلد المولود لجلا ٣ دي أكثر عند ملا ٣ مسترخياً و هادئا ٣ وني بالقيام بملاه	ك نحو تجربنك طبيق ملامسة ترب من مولوم ملامسة جلد م طفلي سيكون ۲ إلقابلات شجع	عن شعور ل أجد أن ت أشعر بالذ أشعر أن أعتقد أن الأطباء و	- 3 1 - 3 2 - 3 3 - 3 4 - 3 5	11
<u>يك تجربه فقط)</u> ة يت ت ت ت	<u>ي حالة لا</u> م عة الطبيع ه لجادي جادي ه	مولود لجلد الأم ( ف د الأم سهل بالنسبة ا تمسة جلده لجلدي ع ساعدتني في الرضا. ع خلال ملامسة جلد ع مسة جلد مولودي ل غ	، بملامسة جلد ال جلد المولود لجلا ٣ -دي أكثر عند ملا ٣ مسترخياً و هادئا ٣ وني بالقيام بملاه ٣	ك نحو تجربنك طبيق ملامسة برب من مولوم ملامسة جلد م طفلي سيكون ۲ القابلات شجع ۲	عن شعور ل أجد أن ته أشعر بالذ ا أشعر أن ا الأطباء و ا	- 3 1 - 3 2 - 3 3 - 3 4 - 3 5	11
<u>يك تجربه فقط)</u> ة نت متعبة	<u>ي حالة لا</u> م م عة الطبيع م جلدي م ب أني كذ	مولود لجلد الأم ( ف د الأم سهل بالنسبة ا يمسة جلده لجلدي ي مسة جلده لجلدي غ مسة جلد مولودي ل غ مولود لجلد الأم بسب ئ	، بملامسة جلد ال جلد المولود لجلا ٣ -دي أكثر عند ملا ٣ مسترخياً و هادئا ٣ وني بالقيام بملاه ٣ ٣	ك نحو تجربتك طبيق ملامسة برب من مولوم ملامسة جلد م طفلي سيكون رالقابلات شجع درة على القيام ب	عن شعور ل أجد أن ت أشعر بالذ ا أشعر أن ا أعتقد أن ا ل ل م أكن قا	- 3 1 - 3 2 - 3 3 - 3 4 - 3 5 - 3 6	11

أسئلة اختيارية:

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ن الممكن أن تحديثنا عنها؟	المولود لجلد الأم هل مر	، القيام ب ملامسة جلد ،	إذا كانت لديك تجربة سابقة في
	0 1-11 /	1.1	
	ك الفادم :	مولود لجاد الام مع ططا	هل تر غبين الفيام بملامسه جلد ا
 	ك العادم؟	مولود لجلد الام مع طفا	هل تر غبين القيام بملامسه جلد ا
	ك العادم (	مولود لجلد الام مع طفا.	هل تر غبين القيام بملامسه جلد ا
 	ك العادم (	مولود لجلد الام مع طعا	هل تر غبین القیام بملامسه جلد ا
 	ك العادم :	مولود لجلد الام مع طفا	هل تر غبین القیام بملامسه جلد ا
	ك العادم (	مولود لجلد الام مع طعا	هل تر غبین القیام بملامسه جلد ا
	ك العادم ؟	مولود لجلد الام مع طعا	هل تر غبین القیام بملامسه جلد ا
	ك العادم ٢	مولود لجلد الام مع طعا	هل تر غبین الفیام بملامسه جلد ا

إذا كنت ترغبي في مناقشة أي موضوع بخصوص هذا الاستبيان، فلا تترددي في الاتصال بنا (نوال عبد الغني +students.latrobe.edu.au@18729960 ، 966554727670 البريد الإلكتروني أو (ngabd14@gmail.com

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