

MIDWIVES' AND MATERNITY NURSES' KNOWLEDGE AND
PRACTICE IN RELATION TO BREASTFEEDING INITIATION IN SOHAR
HOSPITAL, OMAN

Submitted by

Noora Saleh Humaid Al Jabri

Master of Clinical Midwifery Student, 

A thesis submitted in partial fulfilment for the requirements of:

Master of Clinical Midwifery

School of Nursing and Midwifery (Peninsula)

Monash University

November, 2015

DECLARATION

This project/thesis/portfolio doesn't contain any material which has been accepted for the award of any other degree or diploma in any university and that, to the best of the candidate's knowledge and belief, the project/thesis contains no material previously published or written by another person except when due reference is made in the text of the project/thesis/portfolio.

Signed: N.Saleh

Date: 16 / 11 / 2015

Ethical approval for this research was granted by the Standing Committee on Ethics in Research Involving Humans (SCERH) from Monash University on (6 May 2015), Project Number (CF15/1123 - 2015000530)

Table of Contents

Abstract	6
Acknowledgements	8
Glossary of terms	9
Chapter 1: Introduction	10
1.1 Background.....	10
1.2 Research aims and design	12
1.3 Conclusion.....	13
Chapter 2: Literature Review	14
2.1 Introduction.....	14
2.2 Search Strategy.....	14
2.3 Benefits of Immediate Breastfeeding Initiation Associated with Skin-to-skin Contact	15
2.4 Influence of Midwives' Knowledge and Practice on Breastfeeding Initiation.....	21
2.5 Viewpoint of Arabic Culture on Initiation of Breastfeeding.....	26
2.6 Conclusion	28
Chapter 3: Methodology	29
3.1 Introduction.....	29
3.2 Study Aim	29
3.3 Research Questions	29
3.4 Study Design	29
3.5 Setting.....	30
3.6 Population of the Study	31
3.7 Sampling and Procedure for Recruitment.....	31
3.8 Sample Size.....	31
3.9 Instruments for Data Collection.....	31
3.9.1 Newborn Feeding Ability Questionnaire (NFA)	32
3.9.2 Breastfeeding Initiation Practice Scale.....	33
3.9.3 Demographic Data Question	33
3.10 Pilot Study.....	33
3.11 Data Collection.....	34
3.12 Statistical Analysis.....	34
3.13 Ethical Considerations.....	35
3.13.1 Ethics Approval	36
3.13.2 Informed Consent	36

3.13.3 Confidentiality and Anonymity	37
3.13.4 Acceptability of Survey	37
3.14 Conclusion	37
Chapter 4: Results	39
4.1 Introduction.....	39
4.2 Respondents' Characteristics	39
4.3 Knowledge of Midwives and Nurses Related to Breastfeeding Initiation.....	41
4.3.1 Newborn Feeding Ability and Physiological Stability	41
4.3.2 Skin-to-skin Contact	41
4.3.3 Breastfeeding Initiation.....	43
4.4 Practice of Midwives and Nurses Related to Breastfeeding Initiation	44
4.5 A Comparison of Breastfeeding Initiation Knowledge and Practice for Midwives and Maternity Nurses.....	46
4.5.1 Knowledge and Practice Comparison by Nationality	46
4.5.2 A Comparison of Knowledge and Practice by Job Title	49
4.5.3 A Comparison of Knowledge and Practice by Area of Practice	52
4.5.4 A Comparison of Knowledge and Practice by Years of Experience.....	55
4.6 Open-ended Comments Related to Breastfeeding	58
4.7 Conclusion	58
Chapter 5: Discussion	58
5.1 Introduction.....	60
5.2 Participants' Knowledge Regarding Breastfeeding.....	60
5.2.1 Knowledge of Breastfeeding Physiology	61
5.2.2 Knowledge of SSC.....	62
5.2.3 Knowledge of Breastfeeding Initiation.....	65
5.3 Participants' Clinical Practice Related to Breastfeeding	68
5.3.1 SSC Practice	68
5.3.2 Baby Care Practice	70
5.3.3 Initiation and Attachment Practice	72
5.4 Strengths and Limitations of the Study.....	75
5.4.1 Strengths of the Study.....	75
5.4.2 Limitations	76
5.5 Recommendations and Implications	77
5.5.1 Education	78
5.5.2 Resources	79

5.5.3 Implications for Practice	79
5.6 Summary	81
Chapter 6: Conclusion	82
6.1 Introduction.....	82
6.2 Summary of the Research	82
6.3 Major Findings.....	83
References	85
Appendices	97
Appendix 1 –Monash Human Ethics Certificate of Approval.....	98
Appendix 2 –Oman ethical approval.....	100
Appendix 3 – Explanatory Statement.....	101
Appendix 4–Newborn Feeding Ability and Breastfeeding Initiation scale.....	103

Abstract

Midwives and maternity nurses have a major role in supporting babies' health. An important strategy to achieve this includes promoting breastfeeding initiation by implementing early skin-to-skin contact (SSC) between mothers and their babies immediately after birth. The aim of this study is to investigate the knowledge and clinical practice regarding SSC and breastfeeding initiation, among a group of (national and non-national) midwives and maternity nurses working in Oman. The study used a modified version of the Newborn Feeding Ability (NFA) questionnaire and the Breastfeeding Initiation Practices (BIP) tool to survey 136 midwives and nurses. The response rate obtained was 65.4% (n=89). Findings from the study revealed that there is insufficient knowledge and lack of practice about SSC and initiation of breastfeeding. The participants reported that these practices are not implemented due to lack of time and shortage of staff in the maternity area. In particular the survey found, a total of 87.5% of respondents correctly reported that a normal full-term baby is born with an instinctive reflex ability to breastfeed effectively. Almost 75% understood that SSC helps the flow of colostrum. The majority of respondents (70.8%) reported that they always/mostly teach the mother to position and attach the baby for optimal breastfeeding. However, approximately half (49.4%) agreed/strongly agreed that there is no time after birth to allow for uninterrupted SSC until the first breastfeed and only 55.1% would always/mostly help the mother to hold her naked baby during SSC. Most respondents (59.0%) reported putting the baby on the breast for the mother. Approximately one third (31%) reported that they always/ mostly routinely suction babies soon after birth. Furthermore, less than half of respondents (45.7%) showed significant knowledge regarding the stabilisation of a newborn's blood sugar levels by SSC. The findings from this

study indicate that this group of midwives and maternity nurses would benefit from additional educational support and the appropriate resources (including time) to enable them to undertake evidence-based best practice regarding breast feeding initiation.

Acknowledgements

In the name of Allah, I first thank God, for his mercy and for being with me since I started my MA journey. I thank him for blessing me as the mother of two children and a new baby on the way. Thank God for everything.

I also would like to thank all members of my family for their support. First, my husband Khamis for his psychological and physical support. He has pushed me forward whenever I have struggled in my study. Although we are not from the same field of study, his support is always positive. In addition, I would like to thank my lovely daughters, Hiya and Hanoof, for their kindness and for listening to me when I need their help. Additionally, I would like to thank my mum and dad for their prayers and support.

I would also like to thank all of the participants who participated in my survey for data collection, particularly the midwives and nurses of Sohar Hospital.

I warmly acknowledge and send particular thanks for the continuous support from my supervisors, Dr. Helen Hall and Dr. Mary Biro, who have supported me throughout my research period to graduation.

Finally, I would also like to thank Monash University and the Ministry of Health of Oman for their support throughout my MA journey.

Glossary of Terms

Breastfeeding: is the normal way of providing young infants with the nutrients they need for healthy growth and development. Virtually all mothers can breastfeed, provided they have accurate information, and the support of their family, the health care system and society at large. (World Health Organization, 2014)

Colostrum: the yellowish, sticky breast milk produced at the end of pregnancy, is recommended by WHO as the perfect food for the newborn, and feeding should be initiated within the first hour after birth. (World Health Organization, 2014)

Early initiation of breastfeeding: provision of mother's breast milk to infants within one hour of birth and ensures that the infant receives the colostrum, or "first milk", which is rich in protective factors. (World Health Organization, 2014)

Exclusive breastfeeding: is recommended up to 6 months of age, with continued breastfeeding along with appropriate complementary foods up to two years of age or beyond. (World Health Organization, 2014)

Skin-to-skin contact: after birth, the baby is dried and placed naked on the mother's chest and then covered with a blanket and a head cap to keep warm. (World Health Organization, 2013)

Chapter 1: Introduction

1.1 Background

The United Nations Children's Fund [UNICEF] and World Health Organization [WHO] (2009) recommend, in step four of the Baby Friendly Health Initiative [BFHI] Ten Steps, that midwives practice early skin-to-skin contact (SSC) soon after birth. The reason for practicing SSC soon after birth is because it promotes successful initiation of breastfeeding and increases the survival of babies. In accordance, the National Institute for Clinical Excellence [NICE] (2006) recommends that nurses and midwives do not separate the neonate from the mother after birth just for routine baby care such as weighing the baby, suctioning and giving vitamin K. In view of the fact that routine baby care leads to a delay in the initiation of breastfeeding.

Midwives and nurses working in a maternity care context are expected to be theoretically and practically competent to take care of newborn babies during and after birth. They should routinely initiate breastfeeding within an hour following birth, unless there is a risk to the mother or baby's life. The BFHI (2012) highlights that the best time for the baby to track and attach naturally to the breast, and follow the mother's smell, is while introducing SSC during the first hour after birth. SSC is a concept used to define placing the newborn baby bare in prone position on the mother's or father's chest or abdomen (Moore, Anderson, Bergman & Dowswell, 2012). In normal circumstances SSC should be the initial step of baby care following birth immediately after the cord is clamped culminating in the first breastfeed (WHO & UNICEF, 2009; UNICEF, 2013).

Research in some low resource countries indicates that breastfeeding promotion is a key child survival strategy. For example, a study undertaken in Ghana estimated that approximately 22%

of neonatal mortality could be reduced if breastfeeding was initiated within one hour for all infants (Edmond, Zandoh, Quigley, Amenga-Etego, Owusu-Agyei & Kirkwood, 2005). Furthermore, UNICEF (2013) reports that problems of anaemia and malnutrition can be reduced if midwives follow the UNICEF Baby Friendly Initiative steps in their practice. Chiu, Anderson and Burkhammer (2008) and NICE (2006) also claim that early SSC is an important intervention to stimulate breastmilk production and encourage mother-child bonding, and therefore this is an important strategy to improve the initiation and duration of breastfeeding. In addition, SSC improves colostrum flow and stabilises breathing, blood glucose level, heart rate, heat loss and crying of the newborn after birth (Moore *et al.*, 2012). Therefore, practicing SSC and early initiation of breastfeeding in the first hour following birth promotes the nutrition and immunity system of the baby, and increases the duration of breastfeeding (WHO, 2009).

Despite the significance of breastmilk in the survival and health of children, the rate of initiation and exclusive breastfeeding is decreasing in Oman (Sinani, 2008). While some 87.1% of newborn babies are breastfed after birth, the time of initiation is unknown and by six months of age only 30.8% are exclusively breastfed (Oman Ministry of Health, Department of Health Information & Statistics, 2012). Furthermore, the same report by the Ministry of Health, identifies that 36.5% of babies have anaemia, while 5.3% suffer from malnutrition at the age of nine months.

It is important for midwives and maternity nurses to update their knowledge on the recent evidence in order to advance their practice and support the normal breastfeeding process (Barry & Murphy-Tighe, 2013). WHO (2014) recommends that midwives and maternity nurses should counsel and support the mothers to practice SSC immediately after birth for successful initiation of breastfeeding. Yet the knowledge and practice of nurses and midwives in relation to early breastfeeding initiation and SSC in some countries has not been reported. It is anticipated that

adherence to the WHO (2014) recommendations varies considerably across institutions and countries.

The WHO and UNICEF introduced national certification of all hospitals in Oman and most marked hospitals were thus certified as Breastfeeding Friendly Hospitals since 1999 (Sinani, 2008; UNICEF, 2009). Yet, traditionally, midwives and maternity nurses in Oman rarely practice early SSC and the initiation of breastfeeding within one hour of birth. Indeed the separation of the baby from the mother soon after birth is common. The reasons for early separation are not clear but anecdotal evidence indicates it is often due to routine baby care (suctioning, weighing and so forth), caesarean sections and hospitals policies that prioritise other requirements (such as documentation) (Amin, Hables & Al Qaderine, 2011; Sinani, 2008).

1.2 Research aims and design

This study aimed to investigate midwives' and maternity nurses' knowledge and clinical practice in relation to initiation of breastfeeding in healthy newborn babies in one hospital in Oman. Across-sectional survey was conducted from July to August 2015 at Sohar Hospital. Data was collected using Newborn Feeding Ability (NFA) questionnaire and Breastfeeding Initiation Practices (BIP) survey tool. The population of the study included a convenience sample of (n= 136) registered nurse-midwives, midwives and nurses, both Omani and non-Omani, who work at Sohar Hospital with mothers during the antenatal, intrapartum and postnatal periods and who were available during the survey period.

1.3 Conclusion

Chapter one presented the background to the study and provided an overview of the research approach taken. The following chapter explores the current research literature related to the study topic.

Chapter 2: Literature Review

2.1 Introduction

This chapter gives an in-depth review of existing literature on breastfeeding, particularly initiation and SSC. The objective of this chapter is to examine the relevant literature on breastfeeding initiation within one hour of birth and the knowledge and practice of midwives and maternity nurses related to this strategy. By providing an understanding of the contemporary literature on the topic, this chapter will provide a useful background for the research outcomes.

2.2 Search Strategy

The following electronic databases were used to collect relevant articles: CINAHL Plus (EBSCOhost), EMBASE, Cochrane Library, Google Scholar, PubMed (US National Library of Medicine) and Scopus. Papers published in English from 1999 to 2015 were included. This timeframe was considered appropriate because the BFHI was launched in the 1990s. The keywords used for searching included: midwives, maternity nursesø knowledge and practice, breastfeeding initiation, early skin-to-skin contact, breastfeeding, immediate newborn, neonatal care, kangaroo care labour, lactation and the practices of nurses and midwives. Of the 18 articles found, five were qualitative and 13 were quantitative. The literature originated in Australia, Britain, Ireland, America, Iran, Thailand, Sudan, Africa and Saudi Arabia. The literature will be reviewed under the following headings: benefit of immediate breastfeeding initiation associated with skin-to-skin contact, midwivesø knowledge and practice of breastfeeding initiation and cultural perspectives on initiation of breastfeeding.

2.3 Benefits of Immediate Breastfeeding Initiation Associated with Skin-to-skin Contact

Breastfeeding promotes the emotional attachment between the mother and baby and supports optimum maternal and infant health outcomes providing short- and long-term benefits for both. Newborns who breastfeed within one hour of birth have less healthcare needs than those newborns who do not (Khan, Vesel, Bahl & Martines, 2015). Furthermore, SSC constitutes an appropriate intervention to stabilise the newborn's condition after birth and assists in the initiation and continuation of breastfeeding for three months (Moore *et al.*, 2012).

A systematic review conducted by Moore *et al.* (2012) examined 34 randomised controlled trial studies (RCTs) to evaluate the effects of SSC on the initiation and continuation of breastfeeding and the physiological and behavioural alterations in (n=2,177) healthy babies and their mothers. Thirty-two percent of participants (702) from 13 out of 34 trials had significant start of breastfeeding within one hour after birth and 95% of the mothers were likely to breastfeed from one to four months after birth. The review also reported that 15% (324 participants) in the SSC group continued breastfeeding for a duration of 42.55 days. However, the study was restricted to English language articles and some of the included studies had missing data, which might show some biases in selecting articles. Moore *et al.* (2012) reported that there is high level of heterogeneity between selected studies and that might possibly reflect bias among selective result reporting, with records that reported on observations rather than predefined public health records.

A cross-sectional descriptive survey study was undertaken in Taiwan by Chiou, Chen, Yeh, Wu and Chien (2014) to identify the effects of using SSC within one hour of birth and rooming-in for

12 hours (not separating the baby from the mother) on breastfeeding initiation. Data was collected from 12,201 mothers and their babies in 2004, and then again seven years later, in 2011, on 12,405 mothers and their babies. SSC and rooming-in were found to encourage a significant increase in breastfeeding initiation within 30 minutes of birth. In 2011, SSC and rooming-in were practiced by significantly more mothers/babies at 85.6% compared to 57.4% in 2004, and the rate of exclusive breastfeeding increased from 24.0% in 2004 to 49.6% in 2012. While other factors may be influential, these findings provide strong evidence to support breastfeeding initiation using SSC immediately after labour. However, the survey had a weakness in terms of internal validation of the study because it was based on mothers' self-reports (Chiou *et al.*, 2014). Hassan (2005) claims that self-reports can threaten the reliability of a study because participants depend on their memory to recall information on past events. Thus, this can potentially result in imperfect and unreliable information, although other studies such as those by Svensson, Velandia, Matthiesen, Welles-Nystram and Widstram (2013) and Bigelow, Power, Gillis, Peters and Alex (2014) suggest that mothers' recall is fairly good depending on what they are being asked to recall.

Two RCTs have been undertaken in Iran to investigate the influence of immediate and continuous SSC between mothers and their newborn babies on breastfeeding initiation improvement. Talat and Aghdas (2009) recruited 92 mothers and babies (46 in the control group and 46 in the routine group) to investigate the success of initial breastfeeding within one hour of birth on the influence of continuous SSC for two hours between mother and baby post-birth. Aghdas, Talat and Sepideh (2014) repeated the study with 92 mothers and their babies (47 in the control group and 45 in the routine care group) to investigate the instances of SSC on mothers and their newborns and its influence on breastfeeding efficacy and the mean time of first breastfeeding initiation. Participants in both studies consisted of 92 primiparous full-term healthy

mothers. The results indicate that SSC had a significant impact on breastfeeding initiation. For instance, Talat and Aghdas (2009) found that at 30 minutes post birth 89.4% of infants in the SSC group initiated breastfeeding easily. In comparison, only 2.2% of babies who were separated from their mothers immediately after birth without SSC implementation initiated breastfeeding after two hours from birth. Also, two hours of SSC resulted in higher significant initiation of breastfeeding (95%). Aghdas *et al.* (2014) reported that breastfeeding initiation was successful in 56.6% of the experimental group, who used SSC within 22 minutes after birth and for a period of two hours, compared to 49.8% of the routine group, who only used SSC 66.5 minutes after birth because of the immediate baby care given. However, it is argued that, although both studies were done on the same number of mothers (92) and in the same country, the first study (2009) found a higher result in first feed initiation for the SSC intervention group (89.4%), whereas the recent study (2014) achieved a lower result (56.6%). This difference in the findings indicates that a long duration of SSC, two hours, provides greater benefits that result in a higher prevalence of breastfeeding initiation. Also, Talat and Aghdas (2009) found that 98.8% of control group mothers continued breastfeeding their babies exclusively for one month. Despite the short one-month follow-up of the mothers to measure exclusive breastfeeding, the studies suggest that health practitioners and their practices can influence breastfeeding initiation. Also, the researchers strongly recommended that there should be no separation between the mother and baby after birth for any reason, to promote breastfeeding initiation (Aghdas *et al.*, 2014; Talat & Aghdas, 2009).

Two other RCTs were carried out in Western countries (Canada and Sweden) by Bigelow *et al.* (2014) and Svensson *et al.* (2013), respectively, to examine initiation and maintenance of breastfeeding when SSC was established soon after birth. The studies both found that immediate SSC builds the mother's confidence in breastfeeding her baby and optimistic parental

interactions at one week and at two and three months. Bigelow *et al.* (2014) recruited 77 mothers and babies: 26 in the intervention (SSC) group and 51 in the routine care group (no SSC). The study reported that during the first week after birth, mothers in the SSC group maintained breastfeeding for five hours per day and continued in the first, second and third months, whereas mothers in the control group only breastfed for approximately 55 minutes per day.

Svensson *et al.* (2013) recruited 103 mother-infant pairs: 53 in the intervention group (SSC) and 50 in the routine group (no SSC). The study examined the effect of mother-newborn skin-to-skin contact on latch-on difficulties in babies aged from one to sixteen weeks. The large majority (almost 94%) of infants who had SSC immediately after birth needed a short time to resolve long latch-on problems compared to 33% of infants in the control group. Immediate SSC was found to enhance confidence for 90% of mothers, reduce the time taken to identify severe latch-on problems such as sore nipples and to stimulate a plentiful milk supply. Ninety-four percent of infants who had SSC immediately after birth had strong responses to breastfeeding within three weeks compared to 33% in the control infants. Also, 73% of SSC group mothers continued breastfeeding their babies for four months compared to 63% of mothers who did not have SSC with their babies. The researchers called for further studies on latching problems and concluded that the baby should be kept directly in contact with the mother, having SSC until the baby develops the biological rooting and suckling reflexes without help (Svensson *et al.*, 2013).

Carfoot *et al.* (2005) in England and Boo and Jamli (2007) in Australia conducted different RCT studies to investigate the influence of SSC on mothers and their babies during the first breastfeed. Both studies agreed that just a short period of SSC resulted in a significantly higher rate of breastfeeding initiation. For instance, Carfoot *et al.* (2005) reported that 90% of mothers were very satisfied with timely SSC within one hour after birth and 91% of SSC babies showed an advanced initiation of breastfeeding within one hour of birth. This was compared to babies in

the routine group who only had 83% breastfeeding initiation. There was also a higher rate of breastfeeding at discharge from hospital in the SSC group compared to the control group (84%). In the RCTs conducted by Boo and Jamli (2007), 90% of mothers were significantly contented with early SSC and 90% of babies initiated breastfeeding within one hour of birth. Consequently, implementation of SSC in the last decade was used as a strategy to increase initiation of breastfeeding and was successful in some countries, whereas other countries were still trying to implement SSC and initiate breastfeeding within an hour from birth.

A recent survey study conducted in Australia by Redshaw, Hennegan and Kruske (2014), explored the impacts of initial mother-newborn interaction on breastfeeding and postpartum maternal wellbeing on 4,574 mothers and their infants. The study showed that the mothers who had initiated SSC for 20 minutes after birth had 97.8% breastfeeding initiation, 95.5% of them breastfed their babies at discharge and 77% were still breastfeeding their babies at 13 weeks of age. This study concluded that an extended period of SSC encourages exclusive breastfeeding. The study included a large representative sample of mothers so its findings were meaningful and generalisable.

Hung and Berg (2011) investigated implementation of SSC on 22 mothers and babies who had operative births in theatre. Although one third (33%) of the babies who had SSC also had formula milk, significantly more (74%) of the babies who did not have SSC had formula. Sixty percent of healthy babies had SSC in the operating room soon after Caesarean birth and 70% of them had SSC within 90 minutes of Caesarean birth. Hence, SSC provides a positive opportunity to promote babies to be breastfed and possibly avoid being given milk artificially. Despite the small number of the participants in the study, there was positive improvement in the initiation of breastfeeding in the operating room.

Gubler *et al.* (2013) had similar findings in an observational study performed on 1,893 mothers in Switzerland. Their study showed that immediate SSC was a significant factor in effective breastfeeding initiation and reduced the need for feeding supplements. The majority of mothers in this study ($n=1,806$) had SSC within 5-60 minutes and 87.4% of them were soon able to breastfeed their babies without any assistance from midwives. However, the mothers who had not employed SSC ($n=87$) required more assistance from midwives while breastfeeding their babies.

A very recent systematic review and meta-analysis comprising 11 RCT studies, in the UK (Khan, Vesel, Bahl and Martines, 2015), examined the evidence of breastfeeding initiation timing and its effects on exclusive breastfeeding and neonatal morbidity and mortality. The findings indicated that 95 % of newborn babies who had breastfeeding delayed until after 24 hours of birth had a greater risk of infection, such as gastrointestinal and acute respiratory infections, within one month of life compared to the babies who breastfeed within one hour of birth.

The literature reviewed identified that early SSC is an important intervention to achieve successful initiation of breastfeeding. All of the studies found that early SSC resulted in improved outcomes and agreed that SSC promoted breastfeeding continuation. Some studies concluded that exclusive breastfeeding could be enhanced if SSC was established within one hour of birth. In addition, SSC promotes infant comfort and stabilises body temperature, glucose levels and respiration rates. Furthermore, some studies recommended that healthcare providers such as midwives and nurses have a positive influence on enhancing breastfeeding initiation following birth, which can promote an increase in the breastfeeding rate in the community.

2.4 Influence of Midwives' Knowledge and Practice on Breastfeeding Initiation

The literature revealed limited research specifically related to midwives' and nurses' knowledge, practices and attitudes towards initiation of breastfeeding. Some researchers found that separating the neonate from its mother immediately after birth is a communal practice by midwives in many societies (Amin, Hablas & Al Qaderin, 2011). Some researchers assert that a poor understanding of the benefits of continuous SSC to facilitate attachment and the impact of delaying breastfeeding initiation can have an adverse effect on neonatal feeding (Cantrill, Creedy & Cooke, 2004). This opinion is supported by the National Institute for Clinical Excellence [NICE] guidelines (2006), which state that healthcare providers should not separate the mother and newborn for routine care soon after birth.

Sobel, Silvestre, Mantaring, Oliveros and Nyunt-U (2011) observed the immediate neonatal care practices undertaken by trained physicians for 481 mother and baby pairs in the Philippines. They found that 90% of the babies received immediate baby care after birth and only 9.6% had SSC with their mothers within one hour of birth. Baby care included drying, weighing, eye care, vitamin K injections and unnecessary suctioning, which delayed the babies from breastfeeding initiation with their mothers for an average of 2 hours and 35 minutes. The study indicated that 5.7% did not get SSC within one hour of delivery, and 68.2% were put to the breast and separated from the mother only two minutes later. In addition, 96% of babies had delayed drying, 90% had early bathing and 94.9% had unnecessary suctioning. Also, this study reported that 2% of babies died and 5.7% developed sepsis and respiratory infections. The researchers suggest that specialists and stakeholders review newborn care protocols and guidelines and give specific timeframes for breastfeeding initiation and immediate baby care.

The authors also recommended that midwives and nurses update their knowledge and stop unnecessary procedures such as needless baby suctioning after birth and early bathing.

Cooke, Cantrill and Creedy (2009) carried out a study in Australia to indicate midwives' practices in helping mothers to initiate breastfeeding in the birth area. The study found that midwives in Australia commonly support mothers and newborns with the initial breastfeed. The researchers found that some midwives would use a 'hands-off' approach to breast feeding initiation, while others described a 'hands-on' technique to help mothers with the first breastfeed soon after birth. The study recommended that training support for midwives is necessary to change the culture of the workplace and develop the best evidence for breastfeeding practice.

Some studies strongly agreed that staff attitudes, understaffing, knowledge deficit, lack of preparation, lack of time, workload and reluctance and resistance to change practices were barriers to implementation of the Baby Friendly Hospital Initiative (BFHI) (Daniels & Jackson, 2011; Sallam, Babrs, Sadek & Mostafa, 2013; Senarath, Fernando & Rodrigo, 2007). A postal survey questionnaire study conducted in Australia aimed to investigate breastfeeding knowledge among 3,500 midwives and to assess the relationship between their knowledge and their perceived role (Cantrill, Creedy and Cooke 2003). The study found that a large proportion of midwives have a positive attitude towards breastfeeding and most of them use their individual experience in breastfeeding management. In addition, 97.6% of midwives agreed that it was their role to recommend breastfeeding to mothers and that it is important to promote breastfeeding in order to enhance mothers' confidence. However, some participants were found to have a knowledge deficit in specific areas including the management of low milk supply and breast abscess and the immunological value of breast milk. The researchers recommended that midwives should maintain their competency by attending educational programmes and improve their knowledge regarding breast physiology and newborn feeding ability.

A cross-sectional descriptive survey was carried out in South Africa by Daniels and Jackson (2011). The researchers aimed to investigate 45 maternity nurses and eight managers' knowledge, practice and attitudes towards the principles of the BFHI's ten steps and barriers to implementing them. The study results demonstrated that 98.1% of clinical staff (n= 52) strongly agreed or agreed that initiation of breastfeeding should take place with SSC within one hour of birth. Ninety-six percent of respondents reported that the benefits of breastfeeding outweighed its difficulties and they had a positive attitude towards establishing breastfeeding initiation in an hour following birth, although they were not promoting it. The barriers to promotion were shortage of staff (37.7%), workload (13.2%) and lack of knowledge regarding how to implement the BFHI procedure (62.5%). Midwives believed that the barriers to implement BFHI principles in hospitals were understaffing, lack of staff information and preparation, attitudes and resistance and unwillingness to alter behaviour. Hence, there is some conflict in the opinions of the hospital management and the caregivers. Ideally, management should provide positive support to applying the BFHI steps, addressing the hospital protocols, policies and breastfeeding guidelines, staff recruitment and training matters.

Despite the influence of management staff on the implementation of breastfeeding policy in the health service, health specialists have clear influence on the mother's decision to initiate breast feeding by using health education and empowerment strategies for women in the antenatal, labour and postnatal periods. Senarath, Fernando and Rodrigo (2007) used a before-and-after research design to examine the efficacy of maternity staff training on the improvement of immediate neonatal care in Sri Lanka. The intervention offered was a four-day training programme for doctors, midwives and nurses in maternity units. The study found that maternity healthcare professional practices improved significantly after the training programme. SSC established immediately after birth increased to 83.3% from 37.5% before the training,

breastfeeding initiation within 30 minutes after birth improved from 66.7% to 87.5%, and mothers and their babies who were separated due to immediate baby care improved from 25% to 91.7%. Consequently, staff training is key to practice improvement and can help to update knowledge and improve the practice in maternity care.

In contrast, Sallam, Babrs, Sadek and Mostafa (2013) carried out a qualitative study in one hospital in Egypt. The study recruited 120 participants (30 mothers in antenatal care, 30 mothers after normal birth, 30 mothers after Caesarean section and 15 nurses and 15 doctors from each department of Pediatrics and Gynecology and Obstetrics). The study was carried out to evaluate the knowledge, practice and attitudes of the participants regarding breastfeeding initiation within an hour of birth. The study found that approximately 90% of women were conscious of the significance of colostrum and initiation of breastfeeding and 93.3% of them had a positive attitude about early breastfeeding initiation. However, staff practice was lacking with regard to empowerment the mothers to activate the BFHI steps in the hospital. One-hundred percent of paediatrics and maternity ward staff had negative attitudes towards early initiation of breastfeeding due to shortage of time and lack of hospital encouragement to practise the BFHI principles after birth. However, 97% of those healthcare-givers showed adequate knowledge about the BFHI policy in breastfeeding initiation. The study recommended all that healthcare-givers in the labour room should support mothers in initiating breastfeeding soon after birth and continuing breastfeeding health education for the public. These results demonstrated that while the majority of staff and mothers had adequate knowledge about breastfeeding initiation, there was a lack of support for mothers from the staff, which caused a negative impact on early breastfeeding.

Similarly, a cross-sectional survey study was conducted in Pakistan by Hanif *et al.* (2010) to evaluate the knowledge of 99 nurses and midwives, 197 doctors and 218 mothers about the

national policy of Pakistan on breastfeeding in baby-friendly hospitals. The results revealed 89% of doctors, nurses and midwives recommended initiation of breastfeeding within an hour after birth. Furthermore, 75% of doctors, nurses and midwives responded that supplementary feeding should not be provided in the hospital compared to 64.7% of mothers who requested it to be given. Half (50%) of the participating doctors, nurses and midwives had not attended any workshops or training programmes on breastfeeding. Although supportive of early initiation of breastfeeding, doctors, nurses and midwives did not actively promote it because they perceived that mothers were not ready to breastfeed their babies immediately. Interestingly, 63.7% of the mothers replied that they had never received any education or counselling on breastfeeding during their antenatal visits. Hanif *et al.* (2010) concluded that Pakistan's breastfeeding policy had deficiencies in the implementation of the BFHI policy. The reason for this is that most mothers do not receive the appropriate education regarding breastfeeding initiation management and information on the potential of artificial feeding. These findings concur with the findings of Sultana (2012), who reported that most health professionals and mothers in 2012 in Pakistan were unaware of the benefits of breastfeeding initiation and that there is a need to consider strategies to promote breastfeeding in Pakistan (Liaquat, Rizvi, Qayyum & Ahmed, 2007).

A pilot survey by Umer and Edwards (2013) in the US was conducted to evaluate community health professionals' awareness and their attitudes towards breastfeeding initiation. The study used pre- and post-tutorial questionnaires to 84 participants from Northeastern University (58 current students and 26 alumni) to assess the breastfeeding knowledge and attitudes of care providers. The study found that the programme helped to increase awareness of the serious health behaviour in breastfeeding, which had not been given sufficient attention in community health programs. The results showed that 77% of healthcare professionals answered the pre-test questionnaire properly, but after being provided with the tutorial programme 97% of them

improved their knowledge and answered the questionnaire correctly. As a result, the authors suggested that online tutorials can enhance caregivers' knowledge and update their information. The study concluded that improving knowledge and attitude of health experts plays a key role in influencing breastfeeding and knowing and understanding the correct guidelines of breastfeeding and the barriers related to breastfeeding initiation (Umer & Edwards, 2013).

Maternity hospitals and centres should be directed towards the BFHI policies and implementation of the Ten Steps to Successful Breastfeeding (Forster & McLachlan, 2007). Hospitals' management should ensure that all midwives and maternity nurses receive adequate education to assist them to increase their knowledge and update practice.

2.5 Viewpoint of Arabic Culture on Initiation of Breastfeeding

Some cultural perspectives might, in fact, cause a delay in the initiation of breastfeeding. In developing countries, breastfeeding initiation is different from one country to another due to socio-demographic, community attributes, psychosocial, biomedical, public policy and healthcare-related factors. Breastfeeding woman in Arabic culture prefer to have privacy to breastfeed their babies rather than be assisted by others such as healthcare workers or in public.

A cross-sectional descriptive study was carried out by Amin, Hablas and Al Qaderin (2011) in Saudi Arabia. The researchers interviewed 641 mothers who were attending well-baby clinics for their two-year-old babies. The results showed that 77.8% of mothers did not start breastfeeding until after the baby was 24 hours old. That was due to several reasons, including pain and lack of ability to sit properly following birth because of episiotomy, sedation related to drugs taken and weakness and fatigue. While 43.7% of respondents initiated breastfeeding within one to six hours, 22.2% had late initiation of breastfeeding, 13.1% initiated breastfeeding several days after birth and 9.0% had never breastfed their babies. However, only 11.2% initiated breastfeeding

within one hour after birth. Most mothers had given their babies formula milk, water with sugar or herbal tea as replacements for breastfeeding. These feeding practices in the early life of a neonate could lead to poorer health later in life (Amin, Hablas & AlAbd Al Qaderin, 2011). Newborn babies who have breastfeeding delayed until after 24 hours of birth have an increased risk of infection, such as gastrointestinal and acute respiratory infections (Khan, Vesel, Bahl &Martines, 2015). In addition, these mothers lack the appropriate support from midwives/nurses, such as follow-up and encouragement for early initiation of breastfeeding.

The WHO and UNICEF (1989) recommend the Ten Steps to Successful Breastfeeding. Step 5 states that the mother should be shown how to breastfeed and how to maintain lactation even when separated from her baby. Step 8 states that mothers must be encouraged to breastfeed on demand and step 9 supports not giving artificial teats or dummies to breastfeeding infants. These steps should be considered in all healthcare institutions to support the mother psychologically and physically in order to promote initiation of breastfeeding. Mohamad, Ahmad, Rahim and Pawanteh (2013) argue that even though breastfeeding is provided much emphasis in the Quran and Islamic education, there is no clear role for midwives and maternity nurses in encouraging the initiation of breastfeeding in Arabic-speaking countries and this has affected the breastfeeding initiation rates in developing countries. Amin, Hablas and Al Qaderin (2011) report that hospital-related factors and Caesarean section also negatively influence breastfeeding initiation rates in Saudi Arabia and other neighbouring developing countries such as Kuwait and Lebanon.

In a culture such as that of Oman, women prefer to breastfeed their babies privately to maintain their privacy and find a room to breastfeed their baby (Sinani, 2008). Therefore, breastfeeding women in Oman can find the practice to be a socially separating experience and do not need midwives or nurses in hospitals to assist in breastfeeding. It is recommended that Ministry of

Health institutions should activate the function of health counselling departments, by organising action training courses and workshops on the correct practice and knowledge of breastfeeding to healthcare professionals, particularly non-Omani, to be aware of the culture in Oman (Sinani, 2008). Consequently, recognition of the social and cultural barriers to breastfeeding in Oman can help to increase breastfeeding initiation rates and improve the practice.

2.6 Conclusion

Midwives and maternity nurses have a vital role to play in supporting babies' health, including promotion of breastfeeding. Encouraging early SSC between newborn babies and their mothers immediately after birth has been found to have a significant impact on breastfeeding initiation and duration. Various studies support breastfeeding initiation and strongly recommend the practice of early SSC soon after birth in order to successfully initiate breastfeeding to maintain the survival of babies. Numerous researchers have studied SSC to ascertain its impact on newborn babies and their mothers. Nurses' and midwives' knowledge and practice in relation to SSC have been explored in numerous studies. However, adherence to the recommendations varies across institutions and countries. Nurses and midwives are a key group of experts who distinguish the prerequisite for change in practice by applying the best evidence in a clinical location. Research indicates that staff attitudes, understaffing, knowledge deficit, lack of training, reluctance and resistance to change practices and lack of time and workload are all barriers to the implementation of the BFHI policy. In addition, cultural perspectives on health beliefs may influence breastfeeding initiation. Midwives and maternity nurses have an important role in educating and empowering women to make appropriate decisions regarding their infant feeding practices. The following chapter will describe the methodology of the study.

Chapter 3: Methodology

3.1 Introduction

This study was conducted to examine the breastfeeding initiation, knowledge and practice of midwives and nurses working at a large maternity hospital in Oman. A cross-sectional survey was conducted from July to August 2015 at Sohar Hospital using the Newborn Feeding Ability (NFA) questionnaire and the Breastfeeding Initiation Practices (BIP) survey tool. This chapter describes the study methods used.

3.2 Study Aim

This study aims to investigate nurses' and midwives' knowledge and practice in relation to initiation of breastfeeding in healthy newborn babies in one hospital in Oman.

3.3 Research Questions

- How extensive is nurses' and midwives' knowledge in relation to skin-to-skin (SSC) contact and its effects on initiation of breastfeeding?
- What is nurses' and midwives' practice in relation to SSC?
- What is nurses' and midwives' practice in relation to initiation of breastfeeding?
- Is there a relationship between the nurses' and midwives' demographic characteristics and implementation of SSC and breastfeeding initiation?

3.4 Study Design

A cross-sectional survey method was used to investigate and describe midwives' and maternity nurses' knowledge and practice of skin-to-skin contact and breastfeeding initiation. This method

of capturing information at one point in time (Shields & Watson, 2013; Polit & Beck, 2004) was chosen as the most appropriate way to elicit descriptions of midwifery and nursing clinical practice (Grant & Giddings, 2002) and to identify gaps in their knowledge. A cross-sectional survey was selected because it helps to measure data concerning one argument, on one occasion and with the same participants (Shields & Watson, 2013). Thus, a survey is a research method used to gather scientifically current descriptions of the relationship between midwives' knowledge and practice and implementation of initiation of breastfeeding after birth to designate what was happening on a particular issue (Shields & Watson, 2013).

3.5 Setting

The study was conducted at Sohar hospital, in the North Al Batinah region of Oman. The hospital is a public tertiary hospital and consists of an obstetric and gynaecological ward comprising 36 beds, a delivery and labour ward with 14 beds and a postnatal ward with 36 beds (Department of Health Information & Statistics, 2013). Approximately 15,842 births occur in this hospital annually (Oman Ministry of Health, Department of Health Information & Statistics, 2013). The information of the number of deliveries that was giving above was the highest number of birth among all hospitals in Oman in 2013 (Department of Health Information & Statistics, 2013). Also, this hospital was chosen because it is located in the biggest region in Oman and many mothers attend this hospital for birth. The total of the population in North Al Batinah Governorate, according to the Oman 2013 census, was 638,574.

3.6 Population of the Study

The population of the study included all registered nurse-midwives, midwives and nurses, both Omani and non-Omani, who work at Sohar Hospital with mothers during the antenatal, intrapartum and postnatal periods and who were available during the survey period.

3.7 Sampling and Procedure for Recruitment

Convenience sampling was used to recruit the participants because of their clinical experience, knowledge of the subject and practice (Osborne, 2008) of breastfeeding initiation. Convenience sampling was selected because it is non-probability sampling technique and can be applied without randomization, so the participants were volunteering to participate in the study (Polit & Beck, 2014). Also, it is easy and inexpensive way to recruit people for the study because the participants were readily available and accessible to the researcher.

3.8 Sample Size

All midwives and nurses working in the maternity section of Sohar hospital (n= 136) invited to participate.

3.9 Instruments for Data Collection

A questionnaire modified from Cantrill, Creedy and Cooke (2004) and Creedy, Cantrill and Cooke (2008) was used to investigate midwives' knowledge and practice concerning the psychological and physiological benefits of early SSC and breastfeeding initiation. The questionnaire contained 40 items, including demographic questions (seven items), the Newborn Feeding Ability (NFA) questionnaire consisting of (21) items and the Breastfeeding Initiation Practices (BIP) scale consisting of (12) items.

Creedy, Cantrill and Cooke (2008) assessed the psychometric properties of the NFA questionnaire and the BIP scale. They were both found to be valid and reliable, with Cronbach's alpha coefficients demonstrating adequate internal consistency for the NFA ($\alpha = 0.87$), and the BIP ($\alpha = 0.74$). Construct, criterion and predictive validity were established using exploratory factor analysis and principle component analysis with varimax rotation (Creedy *et al.*, 2008). The NFA questionnaire and BIP scale have been translated into seven languages.

In this study, the NFA questionnaire and BIP scale were translated into Arabic and back-translated into English by an authorised translator in Australia from Oncall Interpreters and Translators Company in June 2015. There were no issues identified in the translation or back-translation of the questionnaire and scale.

3.9.1 Newborn Feeding Ability Questionnaire (NFA)

This NFA questionnaire comprises a series of statements that aim to assess respondents' knowledge of newborn feeding ability and cover the following domains:

1. Physiological and emotional benefits of SSC for both mother and baby
2. Newborn feeding aptitude
3. Effective suckling and milk transference
4. Work practices that can affect initial breastfeeding management

The statements are set on 5-point Likert scales with each value verbally described (i.e. 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree). The highest possible total score of the NFAQ is 110 with higher scores representing superior knowledge (See Appendix 4).

3.9.2 Breastfeeding Initiation Practice Scale

The BIP scale is used to evaluate the general knowledge and daily practices of midwives and commences with a scenario followed by 12 questions. In this study, a minor change was made to the scenario to reflect local practice. The scenario was changed from being set in an antenatal class to an antenatal visit because, in Oman, antenatal classes are not offered.

Survey items are organised from general to more specific questions and similar items are placed together. Responses to the questions are also set on a 5-point Likert scale with each value verbally described (i.e. 1 = never, 2 = occasionally, 3 = sometimes, 4 = mostly, 5 = always). Half of the items in the BIP scale are reverse scored. The highest possible score of the BIP is 60 with higher scores reflecting superior practice (See Appendix 4).

3.9.3 Demographic Data Question

Demographic questions were asked to assess the professional and personal characteristics of the participants and included: midwife's/nurse's age, nationality (Omani/non-Omani), primary language, job title, years of experience, highest level of education completed and area of practice. However, gender was not included as a variable because all midwives and nurses in maternity wards in Oman are female (See Appendix 4).

3.10 Pilot Study

The Arabic versions of the NFA questionnaire and the BIP scale were piloted with three Omani midwives from North Batinah Nursing Institute with similar characteristics to the population to be surveyed and the English version was piloted by a non-Omani midwife. The required time to complete the questionnaire was no more than 20 minutes. The participants found the

questionnaire structure and the wording of the questions clear and they did not recommend any adjustments or suggestions.

3.11 Data Collection

The purpose of the survey was explained to the staff at an information session held in the maternity unit and explanatory statements were distributed. After this session, the student researcher approached staff individually to see whether they were interested in participating. Recruitment was conducted at the end of one shift and the beginning of the next in order to meet the staff from both shifts at the same time. Although midwives/nurses were approached in person, there were no pre-existing relationships between potential participants and the researcher. Staff were asked to return the questionnaires to a locked box situated in the head nurses' office. A week later, a reminder notice was sent to each of the wards in the maternity unit. A reminder letter and additional copies of the questionnaire were sent after two weeks from the first distribution to all staff. The survey was completed over a four-week period from July to August 2015.

3.12 Statistical Analysis

Unique identification numbers were allocated to each questionnaire. A unique identifier is a serial code or number (1, 2, 3, 4 or 5), which is assigned exclusively to an item of the questionnaire, so that can be accessed and interacted with. The number of responses to the study (sample size) and response rate for each questionnaire item was calculated (Mitchell & Jolley, 2013). The general response rate of the survey was then stated as a percentage (Osborne & Schneider, 2013). Paper information was transferred to electronic systems for information analysis using a computer (Microsoft Excel). Responses were checked for completeness and

accuracy. All variables were coded to allow for ease of data entry. After completion of the data entry, the data was cleaned and checked for errors and inconsistencies (Osborne, 2008). The data was then analysed using the Statistical Package for the Social Sciences (SPSS) version 20. Data were summarised using numbers and percentages. To examine relationships between selected respondents' demographic characteristics and knowledge and practice of breastfeeding initiation, all questionnaire responses were dichotomised to strongly agree/agree vs the rest on the NFA and always/mostly vs the rest on the BIP. The relationship between nationalities (Omani vs non-Omani); job title (midwives vs nurses); area of maternity work (birth suite vs antenatal/postnatal) and years of experience (< 10 years vs ≥ 10 years) and the NFA and BIP dichotomised responses were examined. These comparisons were made using the chi-square test. The level of significance was set at 0.05. Thematic analyses of the responses to the open-ended questions were also conducted.

3.13 Ethical Considerations

Ethical considerations relating to the researcher's duty to minimise or remove risks of trauma, harm, distress or anxiety to contributors and to benefit people were considered (Osborne, 2008).

As the research will involve human participants (midwives and maternity nurses) as the population of the study, the first objective was to consider ethical issues and protect participants' rights. Therefore, the ethical considerations that were considered were identifying ethical approval (Monash University and Oman), obtaining informed consent, maintaining confidentiality and anonymity, translating the tool for acceptability of survey and following up the participants.

3.13.1 Ethics Approval

Before commencing the survey, approval from Monash University Human Research Ethics Committee (MUHREC) was obtained on 06/05/2015 with approval number CF15/1123 - 2015000530. Two weeks after approval, the researcher discussed the study with the National Research Department Committee in the Ministry of Health of Oman and the North Al Batinah Regional Director of Health in order to gain approval for conducting the research. After two months, local approval from the Research and Ethical Review & Approval Committee [RERAC], Ministry of Health, Sultanate of Oman was obtained on 14/07/2015 with approval number MH/DGP/R&S/PROPOSAL_APPROVAL/21/2015.

3.13.2 Informed Consent

Woods and Schneider (2013) describe the importance of informing participants about the nature of the study, its purpose, strains, threats and benefits and what is expected from them. Maintaining effective communication between the student researcher and the midwives/nurses was vital because effective communication leads to successful outcomes for the project (Endacott & Whitehead, 2013).

The participants were recruited during an information session in each maternity unit. Different information sessions were held at the maternity units in Sohar Hospital for the various shifts (morning, afternoon and night). Explanatory statements and the questionnaires were given to the participants. The project outline was explained during the information session (Jokinen, Lappalainen, Meriläinen & Pelkonen, 2002). The explanatory statement clearly stated that participation in the survey was voluntary, that no one would be forced to participate and that there would be no effect on the future career of a participant withdrawing from the project (Meininger, 2012; Osborne, 2008).

3.13.3 Confidentiality and Anonymity

Participants were asked to return the questionnaires to a locked box situated in the nurses' office. The questionnaire was anonymous, confidential and no names were required, so the participants could not be identified. Once the paper-based questionnaires were collected by the student researchers, they were stored in a locked cupboard only accessible to the research team. Data was entered into a password-protected computer file accessible only to the research team. Standard storage of data will be according to Monash University rules with the minimum period of five years (from the completion of the research or the time that the results of the research are published) for storing the data. The hard copies of the questionnaires will be shredded and computer files deleted after this time.

3.13.4 Acceptability of Survey

The project tool was translated into Arabic by a registered translator to ensure that participants could complete the questionnaire in their native language. The translated tool was piloted with five midwives from Oman to determine if the instrument was valid and well translated from English to Arabic and Arabic to English (Marsden & Wright, 2010) and to assess its acceptability to midwives and maternity nurses at Sohar Hospital.

3.14 Conclusion

The methodology is an important part of a research project because it offers information that a reader needs to know about how the study is conducted. This chapter has provided a precise and clear description of the study design, study site, sample size, participants, inclusion and exclusion criteria, recruitment, data collection and analysis. It has also outlined ethical aspects relevant to this study, including: ethical approval, confidentiality and anonymity, informed

consent, acceptability of the survey and follow-up. These ethical considerations are essential considerations in the research in order to gain the permission of the individuals who are studied and to avoid any emotional or physical harm to them.

Chapter 4: Results

4.1 Introduction

This chapter presents the results of the survey on the knowledge and practice related to breastfeeding initiation of Sohar maternity staff. Section one presents participant demographic characteristics. Section two describes their knowledge about newborn feeding ability and physiological stability, maternal/neonatal continuous skin-to-skin contact (SSC) and breastfeeding initiation. Section three presents participant work practices related to breastfeeding. Section four compares midwives' and nurses' knowledge and practice by nationality, years of experience, job title and areas of practice.

4.2 Respondents' Characteristics

The questionnaire was distributed to 136 midwives and nurses at Sohar hospital and 89 responded, representing a 65.4% response fraction. The respondents' characteristics are presented in Table 1. The mean age of respondents was 34 years (range 26-40 years). Fifty-one percent were Omani and spoke Arabic, while the rest were non-Omani and spoke a variety of languages. A little over half of the respondents were qualified as registered nurses/midwives, while 12.4 % were midwives and 36.0% were registered nurses. The majority of respondents (53.9%) had ten to twenty years of experience in maternity care with a mean of 15-years' experience. Almost 42% of respondents had attained a diploma in nursing and midwifery. Almost 50% worked in the birth unit and the remaining respondents worked in other maternity areas (Table 1).

Table 1: Demographic Characteristics (N = 89)*

Characteristics	No.	%
Age (n = 86)		
- 25 or under	9	(10.5)
- 26-40	66	(76.7)
- 41-55	11	(12.8)
Nationality		
- Omani	46	(51.7)
- Non-Omani	43	(48.3)
Primary Language		
- Arabic	46	(51.7)
- Others	43	(48.3)
Job Title		
- Registered Nurse	32	(36.0)
- Registered midwife	11	(12.4)
- Registered nurse/midwife	46	(51.7)
Years of Experience		
- 1-5 years	22	(24.7)
- 6-10 years	16	(18.0)
- 11-20 years	48	(53.9)
- 21-29 years	3	(3.4)
Level of Education		
- Diploma in Nursing	21	(23.6)
- Diploma in Midwifery	7	(7.9)
- Diploma in Nursing and Midwifery	37	(41.6)
- Bachelor's degree	23	(25.8)
- Master's degree	1	(1.1)
Area of Practice		
- Antenatal	26	(29.2)
- Birth	44	(49.4)
- Postnatal	16	(18.0)
- All areas	3	(3.4)

*Denominator varies due to missing values

4.3 Knowledge of Midwives and Nurses Related to Breastfeeding Initiation

4.3.1 Newborn Feeding Ability and Physiological Stability

Table 2 presents the results of the NFA section of the survey. The majority of respondents (87.5%) agreed or strongly agreed that a normal full-term infant is born with an innate reflex ability to breastfeed effectively. Seventy-four percent of respondents strongly agreed or agreed that the newborn infant will develop coordinated, predictable feeding behaviours within minutes of delivery. Almost 59% of respondents strongly agreed or agreed that the infant instinctively can find the nipple without help and attach correctly to the breast. Similar percentages were reflected in response to the statement that the newborn will be guided to the nipple by the sense of smell (52.3% and 47.7%, respectively).

4.3.2 Skin-to-skin Contact

While the majority of respondents had knowledge about the benefits of continuous SSC for the neonates and their mothers, a sizable minority showed a lack of knowledge in this area. For example, almost 32% of respondents disagreed or were not sure that SSC is important to help stabilise newborn breathing. Sixty-four percent of respondents agreed or strongly agreed that SSC helps a newborn's heart rate to stabilise. Only a minority of respondents (36%) agreed or strongly agreed that SSC is vital to prevent heat loss and stabilise blood sugar levels of newborn babies after birth. Almost 72% of respondents strongly agreed or agreed that SSC helps the flow of colostrum after birth and 76.1% agreed or strongly agreed that uninterrupted SSC soon after birth is important for newborn breastfeeding performance. The majority of respondents (86.6%) strongly agreed or agreed that a mother accepts and feels warm towards her baby if SSC happens immediately after birth and 70.8% agreed or strongly agreed that hours of continuous SSC help a newborn baby learn to feed.

4.3.3 Breastfeeding Initiation

Some respondents had knowledge of breastfeeding initiation principles, while others did not. For example, only 46% of participants either agreed or strongly agreed that the baby swallowing colostrum can be heard, while the majority agreed or strongly agreed that they can see the baby swallowing (82.1%). The respondents who agreed or strongly agreed that separation of mother and baby can be stressful for the baby accounted for 74.2% and those who agreed or strongly agreed that birth trauma can interfere with the appropriate coordination of an baby's natural sucking reflexes accounted for 70.4%. A minority of respondents (38.2%) agreed or strongly agreed that interrupting SSC in 15-20 minutes of labour disturbs the suckling reflexes for precise attachment.

About half of the staff (49.4%) agreed or strongly agreed that there is no time for them after birth to allow uninterrupted SSC until the first breastfeed. Fifty-five percent of the respondents agreed or strongly agreed that prevention of heat loss by wrapping the newborn is a higher priority than SSC to start feeding behaviours. The majority of respondents (64.1%) disagreed or were not sure that the time required for SSC to breastfeed interferes with completion of the needed legal documentation. Only 47% of respondents agreed or strongly agreed that most mothers want to be cleaned up soon after delivery rather than hold their babies.

Table 2: Midwives' and nurses' knowledge of breastfeeding initiation (N = 89)*

Staff knowledge	Strongly agree n (%)	Agree n (%)	Not sure n (%)	Disagree n (%)	Strongly disagree n (%)
Knowledge about newborn feeding ability and physiological stability					
- A normal full term infant is born with instinctive reflex ability to breastfeed effectively (n = 88)	48 (54.5)	29 (33.0)	4 (4.5)	6 (6.8)	1 (1.1)
- Will develop predictable, coordinated feeding behaviors within minutes of birth	43 (48.3)	32 (36.0)	7 (7.9)	7 (7.9)	0
- Can instinctively find the nipple without help and attach correctly to the breast (n = 88)	16 (18.0)	36 (40.9)	9 (10.2)	22 (25.0)	5 (5.7)

- Will be guided to the nipple by their sense of smell (n = 88)	17 (19.3)	29 (33.0)	15 (17.0)	20 (22.7)	7 (8.0)
Benefits of continuous skin-to-skin contact (SSC) for the neonates and their mothers					
- SSC is important to help stabilize newborn breathing (n = 88)	28 (31.9)	32 (36.4)	12 (13.6)	11 (12.5)	5 (5.7)
- A newborn's heart rate is stabilize by SSC	23 (25.8)	34 (38.2)	16 (18.0)	12 (13.5)	4 (4.5)
- SSC is important to prevent heat loss in newborn babies	17 (19.1)	15 (16.9)	17 (19.1)	29 (32.6)	11 (12.4)
- A newborn's blood sugar levels are stabilized by SSC	17 (19.1)	15 (16.9)	17 (19.1)	29 (32.6)	11 (12.4)
- SSC helps the flow of colostrum after birth (n = 88)	32 (36.4)	31 (35.2)	14 (15.9)	7 (8.0)	4 (4.5)
- Uninterrupted SSC immediately after birth is important for newborn breastfeeding performance (n = 88)	31 (35.2)	36 (40.9)	13 (14.8)	6 (6.8)	2 (2.3)
- A mother is more likely to accept and feel warm toward her baby if SSC happens immediately after birth	45 (50.6)	32 (36.0)	6(6.7)	4 (4.5)	2 (2.2)
- Hours of continuous SSC can help a newborn baby learn to feed	30 (33.7)	33 (37.1)	13 (14.6)	10 (11.2)	3 (3.4)
Breastfeeding initiation principles					
- Midwives and mothers can hear the baby swallowing colostrum	12 (13.5)	28 (31.5)	16 (18.0)	26 (29.2)	7 (7.9)
- Midwives and mothers can see the baby swallowing	32 (36.0)	41 (46.1)	12 (13.5)	3 (3.4)	1 (1.1)
- Separation of a newborn from the mother at birth can cause harmful stress to the baby	25 (28.1)	23 (25.8)	16 (18.0)	21 (23.6)	4 (4.5)
- Birth trauma may interfere with the proper coordination of an infant's natural sucking reflexes (n = 88)	23 (26.1)	39 (44.3)	17 (19.3)	8 (9.1)	1 (1.1)
- Interrupting SSC within 15-20 minutes of delivery seriously disturbs the suckling reflexes for correct attachment	12 (13.5)	22 (24.7)	21 (23.6)	31 (34.8)	3 (3.4)
- There is no time immediately after delivery to allow uninterrupted SSC until the first breastfeed	6 (6.7)	38 (42.7)	16 (18.0)	22 (24.7)	7 (7.9)
- Prevention of heat loss by wrapping the baby is of higher priority than SSC to initiate feeding behaviors (n = 87)	8 (9.2)	40 (46.0)	11(12.6)	22 (25.3)	6 (6.9)
- Time required for SSC to breastfeed interferes with completion of required legal documentation	6 (6.7)	26 (29.2)	16 (18.0)	29 (32.6)	12 (13.5)
- Most mothers want to be cleaned up immediately after delivery rather than hold their baby (n = 88)	15 (17.0)	27 (30.7)	10 (11.4)	26 (29.5)	10 (11.1)

* Denominator varies due to missing values

4.4 Practice of Midwives and Nurses Related to Breastfeeding

Initiation

Table 3 presents the results of the BIP section of the survey. In this section, respondents were asked questions related to a specific scenario about how midwives and maternity nurses manage breastfeeding initiation. The majority of respondents (69.8%) reported that Badriya's baby would be highly likely, quite likely or likely to attach properly to the breast without help. A minority of respondents (31%) reported always or mostly routinely suctioning babies soon after birth. Only 55.1% of respondents would always or mostly help the mother to hold her naked baby during SSC, and the majority (62.9%) reported that they always or mostly dried and wrapped the infant before giving to the parents for breastfeeding.

The majority of respondents (66.4%) reported that they always or mostly place the baby SSC on the mother's chest, dried, and covered with a warm towel. Fifty-eight percent reported that they always or mostly place the newborn baby under a radiant heater for assessment, weighing and measuring before the initial breastfeed. Almost 65.2% of respondents reported that they always or mostly encourage the mother and family to watch for signs of the baby's readiness to feed.

Approximately 59% of respondents reported always or mostly putting the baby on the breast for the mother. The majority of respondents (70.8%) reported that they always or mostly teach the mother to position and attach the baby for optimum breastfeeding. Approximately 63% of respondents reported that they always or mostly encourage the mother to take time to allow the newborn to self-attach with minimal assistance and explain a newborn's ability to breastfeed. Most of the respondents (70.1%) responded that they would always or mostly ask Badriya what she would like to do and explain the natural feeding aptitude of a newborn. Only 29.5% of

respondents reported that they would always or mostly wait until the mother is showered and able to sit up comfortably before proposing assistance for breastfeeding.

Table 3: Breastfeeding Initiation Practice (N = 89)*

Staff Practice	Highly likely n (%)	Quite likely n (%)	Likely n (%)	Unlikely n (%)	Most unlikely n (%)
How would you view the likelihood of Badriya's baby attaching correctly to the breast without assistance(n = 86)	11 (12.8)	17 (19.8)	32 (37.2)	13 (15.1)	13 (15.1)
	Always n (%)	Mostly n (%)	Sometimes n (%)	Occasionally n (%)	Never n (%)
Routinely suction the baby at birth before giving to Badriya (n = 87)	6 (6.9)	13 (14.9)	32 (36.8)	19 (21.8)	17 (19.5)
Help Badriya hold her naked baby SSC	25 (28.1)	24 (27.0)	29 (32.6)	2 (2.2)	9 (10.1)
Dry and wrap the baby before giving to the parents	38 (42.7)	18 (20.2)	16 (18.0)	8 (9.0)	(10.1)
Place baby SSC on Badriya's chest, dry, the baby and cover with a warm towel	40 (44.9)	20 (22.5)	19 (21.3)	4 (4.5)	6 (6.7)
Place the baby under a radiant heater for assessment, weighing and measuring before the first breastfeed	27 (30.3)	25 (28.1)	18 (20.2)	12 (13.5)	7 (7.9)
Encourage Badriya and the family to watch for signs of baby's readiness to feed	36 (40.5)	22 (24.7)	18 (20.2)	4 (4.5)	9 (10.1)
Put the baby on the breast for her (n = 86)	34 (39.5)	17 (19.8)	23 (26.7)	7 (8.2)	5 (5.8)
Teach Badriya to position and attach baby for optimal breastfeeding attempt	39 (43.8)	24 (27.0)	17 (19.1)	2 (2.2)	7 (7.9)
Encourage Badriya to take time to allow the baby to self-attach with minimal assistance and explain a newborn's ability to breastfeed (n = 88)	29 (33.0)	26 (29.5)	27 (30.7)	4 (4.5)	2. (2.3)
Ask Badriya what she would like to do and explain the natural feeding ability of a newborn (n = 87)	36 (41.4)	25 (28.7)	24 (27.6)	2 (2.3)	0
Wait until Badriya is showered and able to sit up comfortably before offering assistance (n = 88)	12 (13.6)	14 (15.9)	34 (38.6)	10 (11.4)	18 (20.5)

*Denominator varies due to missing values

4.5 A Comparison of Breastfeeding Initiation Knowledge and Practice for Midwives and Maternity Nurses

4.5.1 Knowledge and Practice Comparison by Nationality

There were no significant differences between Omani and non-Omani midwives and nurses knowledge and practice in all except two items (see Tables 4 and 5). More Omani (45.7%) compared to non-Omani respondents (25.6%) reported greater knowledge regarding the stabilisation of a baby's blood sugar levels by SSC ($p < 0.05$) and more Omani compared to non-Omani respondents (63% vs 37%) would dry and wrap the infant before giving to the parents ($p < 0.05$).

Table 4: A comparison of breastfeeding initiation knowledge by nationality (N =89; Omani n = 46, Non-Omani n =43)

Staff Knowledge	Omani	Non-Omani	X^2	P-value [#]
A normal full term infant is born with instinctive reflex ability to breastfeed effectively (n = 88)				
- Agree/strongly agree	37 (82.2)	40 (93.0)	2.345	.126
- Disagree/strongly disagree/ not sure	8 (17.8)	3 (7.0)		
Will develop predictable, coordinated feeding behaviors within minutes of birth				
- Agree/strongly agree	37 (80.4)	38 (88.4)	1.056	.304
- Disagree/strongly disagree/ not sure	9 (19.6)	5 (11.6)		
Can instinctively find the nipple without help and attach correctly to the breast (n = 88)				
- Agree/strongly agree	28 (60.9)	24 (57.1)	.126	.722
- Disagree/strongly disagree/ not sure	18 (39.1)	18 (42.9)		
Will be guided to the nipple by their sense of smell (n = 88)				
- Agree/strongly agree	24 (52.2)	22 (52.4)	.000	.985
- Disagree/strongly disagree/ not sure	22 (47.8)	20 (47.6)		
SSC is important to help stabilize newborn breathing (n = 88)				
- Agree/strongly agree	30 (65.2)	30 (71.4)	.390	.532
- Disagree/strongly disagree/ not sure	16 (34.8)	12 (28.6)		
A newborn's heart rate is stabilize by SSC				
- Agree/strongly agree	30 (65.2)	27 (62.8)	.057	.812
- Disagree/strongly disagree/ not sure	16 (34.8)	16 (37.2)		
SSC is important to prevent heat loss in newborn babies				
- Agree/strongly agree	35 (76.1)	36 (83.7)	.803	.370
- Disagree/strongly disagree/ not sure	11 (23.9)	7 (16.3)		
A newborn's blood sugar levels are stabilized by SSC				
- Agree/strongly agree	21 (45.7)	11 (25.6)	3.888	.049
- Disagree/strongly disagree/ not sure	25 (54.3)	32 (74.4)		
SSC helps the flow of colostrum after birth (n = 88)				
- Agree/strongly agree	33 (71.7)	30 (71.4)	.001	.974
- Disagree/strongly disagree/ not sure	13 (28.3)	12 (28.6)		
Uninterrupted SSC immediately after birth is important for newborn				

breastfeeding performance (n = 88)				
- Agree/strongly agree	33 (71.7)	34 (81.0)	1.026	.311
- Disagree/strongly disagree/ not sure	13 (28.3)	8(19.0)		
A mother is more likely to accept and feel warm toward her baby if SSC happens immediately after birth				
- Agree/strongly agree	41 (89.1)	36 (83.7)	.558	.455
- Disagree/strongly disagree/ not sure	5 (10.9)	7 (16.3)		
Hours of continuous SSC can help a newborn baby learn to feed				
- Agree	35 (76.1)	28 (65.1)	1.294	.255
- disagree or not sure	11 (23.9)	15 (34.9)		
Midwives and mothers can hear the baby swallowing colostrum				
- Agree/strongly agree	20 (43.5)	20 (46.5)	.083	.774
- Disagree/strongly disagree/ not sure	26 (56.5)	23 (53.5)		
Midwives and mothers can see the baby swallowing				
- Agree/strongly agree	35 (76.1)	38 (88.4)	2.275	.131
- Disagree/strongly disagree/ not sure	11 (23.9)	11 (23.9)		
Separation of a newborn from the mother at birth can cause harmful stress to the baby				
- Agree/strongly agree	26 (56.5)	22 (51.2)	.257	.612
- Disagree/strongly disagree/ not sure	20 (43.5)	21 (48.8)		
Birth trauma may interfere with the proper coordination of an infant's natural sucking reflexes (n = 88)				
- Agree/strongly agree	29 (63.0)	33 (78.6)	2.543	.111
- Disagree/strongly disagree/ not sure	17 (37.0)	9 (21.4)		
Interrupting SSC within 15-20 minutes of delivery seriously disturbs the suckling reflexes for correct attachment				.
- Agree/strongly agree	19 (41.3)	15 (34.9)	.388	.533
- Disagree/strongly disagree/ not sure	27 (58.7)	28 (65.1)		
There is no time immediately after delivery to allow uninterrupted SSC until the first breastfeed				
- Agree/strongly agree	22 (47.8)	18 (41.9)	.320	.572
- Disagree/strongly disagree/ not sure	24 (52.2)	25 (58.1)		
Prevention of heat loss by wrapping the baby is of higher priority than SSC to initiate feeding behaviors (n = 87)				
- Agree/strongly agree	14 (31.1)	18 (42.9)	1.289	.256
- Disagree/strongly disagree/ not sure	31 (68.9)	24 (57.1)		
Time required for SSC to breastfeed interferes with completion of required legal documentation				
- Agree/strongly agree	25 (54.3)	27 (62.8)	.652	.419
- Disagree/strongly disagree/ not sure	21 (45.7)	16(37.2)		
Most mothers want to be cleaned up immediately after delivery rather than hold their baby (n = 88)				
- Agree/strongly agree	18 (39.1)	23 (54.8)	2.156	.142
- Disagree/strongly disagree/ not sure	28 (60.9)	19 (45.2)		

*Fisher exact

Table 5: A comparison of Breastfeeding Initiation Practice by nationality (N =89; Omani n = 46, Non-Omani n =43)

Staff Practice	Omani	Non-Omani	X ²	P-value [#]
How would you view the likelihood of Badriya's baby attaching correctly to the breast without assistance?c (n = 86)				
- Likely	18 (40.9%)	13 (31.0)	.924	.336
- Unlikely	26 (59.1)	29 (69.0)		
Routinely suction the baby at birth before giving to Badriya (n = 86)				
- Always or mostly	19 (37.8)	19 (46.3)	1.210	.546
- Sometimes or occasionally	25 (55.6)	18 (43.9)		
- Never	3 (6.7)	9 (9.8)		
Help Badriya hold her naked baby SSC				
- Always or mostly	22 (47.8)	27 (62.8)	2.011	.366
- Sometimes or occasionally	18 (39.1)	12 (27.9)		
- Never	6 (13.1)	4 (9.3)		
Dry and wrap the baby before giving to the parents				
- Always or mostly	9 (19.6)	6 (14.0)	6.112	.047
- Sometimes or occasionally	20 (43.4)	10 (23.3)		
- Never	17 (37.0)	27 (62.7)		
Place baby SSC on Badriya's chest, dry, the baby and cover with a warm towel				
- Always or mostly	28 (60.9)	29 (67.4)	532	.766
- Sometimes or occasionally	15 (32.6)	11 (25.6)		
- Never	3 (6.5)	3 (7.0)		
Place the baby under a radiant heater for assessment, weighting and measuring before the first breastfeed				
- Always or mostly	7 (15.2)	7 (16.3)	1.767	.413
- Sometimes or occasionally	19 (41.3)	23 (53.5)		
- Never	20 (43.5)	13 (30.2)		
Encourage Badriya and the family to watch for signs of baby's readiness to feed				
- Always or mostly	28 (62.2)	29 (67.4)	1.560	.458
- Sometimes or occasionally	14 (31.1)	9 (20.9)		
- Never	3 (6.7)	5 (11.6)		
Put the baby on the breast for her (n = 86)				
- Always or mostly	4 (9.1)	4 (9.3)	.609	.737
- Sometimes or occasionally	24 (54.5)	20 (46.5)		
- Never	16 (36.4)	19 (44.2)		
Teach Badriya to position and attach baby for optimal breastfeeding attempt				
- Always or mostly	4 (8.7)	4 (9.3)	.306	.858
- Sometimes or occasionally	19 (41.3)	20 (46.5)		
- Never	23 (50.0)	19 (44.2)		
Encourage Badriya to take time to allow the baby to self-attach with minimal assistance and explain a newborn's ability to breastfeed (n = 88)				
- Always or mostly	22 (48.9)	31 (72.1)	3.945	.084
- Sometimes or occasionally	19 (42.2)	10 (23.3)		
- Never	4 (8.9)	2 (4.7)		
Ask Badriya what she would like to do and explain the natural feeding ability of a newborn (n = 87)				
- Always or mostly	31 (68.9)	29 (69.0)	.964	.617
- Sometimes or occasionally	13 (28.9)	13 (31.0)		
- Never	1 (2.2)	0 (0.0)		
Wait until Badriya is showered and able to sit up comfortably before offering assistance (n = 88)				
- Always or mostly	17 (37.0)	15 (34.9)	.558	.757
- Sometimes or occasionally	24 (52.2)	21 (48.8)		
- Never	5 (10.9)	7 (16.3)		

[#]Fisher exact

4.5.2 A Comparison of Knowledge and Practice by Job Title

There were no significant differences in knowledge when comparing midwives and nurse midwives and nurses' responses apart from one item, the time required for SSC to breastfeed interfering with completion of required legal documentation (66.7% vs 44.8%, $p < 0.05$). Furthermore, there were no significant differences when comparing the practical skills of respondents by their job title (see Tables 6 and 7).

Table 6: A comparison of breastfeeding initiation knowledge by job title (N = 89; Nurse n = 32; Nurse midwife/midwife n = 57)

Staff Knowledge	Nurse	Nurse midwife/ midwife	χ^2	P-value [#]
A normal full term infant is born with instinctive reflex ability to breastfeed effectively (n = 88)				
- Agree/agree strongly	28 (87.5)	49 (87.5)	.000	1.000
- Disagree/disagree strongly or not sure	4 (12.5)	7 (12.5)		
Will develop predictable, coordinated feeding behaviors within minutes of birth	24 (75.0)	51 (89.5)	3.239	.072
- Agree/strongly agree	8 (25.0)	6 (10.5)		
- Disagree/strongly disagree or not sure				
Can instinctively find the nipple without help and attach correctly to the breast (n = 88)				
- Agree/strongly agree	19 (59.4)	33 (58.9)	.002	.967
- Disagree/strongly disagree or not sure	13 (40.6)	23 (41.1)		
Will be guided to the nipple by their sense of smell (n = 88)				
- Agree/strongly agree	15 (46.9)	31 (55.4)	.587	.443
- Disagree/strongly disagree or not sure	17 (53.1)	25 (44.6)		
SSC is important to help stabilize newborn breathing (n = 88)				
- Agree/strongly agree	20 (62.5)	40 (71.4)	.748	.387
- Disagree/strongly disagree or not sure	12 (37.5)	16 (28.6)		
A newborn's heart rate is stabilize by SSC				
- Agree/strongly agree	22 (68.8)	35 (61.4)	.480	.488
- Disagree/strongly disagree or not sure	10 (31.2)	22 (38.6)		
SSC is important to prevent heat loss in newborn babies				
- Agree/strongly agree	25 (78.1)	46 (80.7)	.084	.722
- Disagree/strongly disagree or not sure	7 (21.9)	11 (19.3)		
A newborn's blood sugar levels are stabilized by SSC				
- Agree/strongly agree	13 (40.6)	19 (33.3)	.473	.492
- Disagree/strongly disagree or not sure	19 (59.4)	38 (66.7)		
SSC helps the flow of colostrum after birth (n = 88)				
- Agree/strongly agree	20 (62.5)	43 (76.8)	2.043	.153
- Disagree/strongly disagree or not sure	12 (37.5)	13 (23.2)		
Uninterrupted SSC immediately after birth is important for newborn breastfeeding performance (n = 88)				
- Agree/strongly agree	21 (65.6)	46 (82.1)	3.058	.080
- Disagree/strongly disagree or not sure	11 (34.4)	15 (17.9)		
A mother is more likely to accept and feel warm toward her baby if SSC happens immediately after birth				
- Agree/strongly agree	27 (84.4)	50 (87.7)	.196	.658

- Disagree/strongly disagree or not sure	5 (15.6)	7 (12.3)		
Hours of continuous SSC can help a newborn baby learn to feed				
- Agree/strongly agree	22 (68.8)	41 (71.9)	.100	.752
- Disagree/strongly disagree or not sure	10 (31.2)	16 (28.1)		
Midwives and mothers can hear the baby swallowing colostrum				
- Agree/strongly agree	12 (37.5)	28 (49.1)	1.119	.290
- Disagree/strongly disagree or not sure	20 (62.5)	29 (50.9)		
Midwives and mothers can see the baby swallowing				
- Agree/strongly agree	25 (78.1)	48 (84.2)	.515	.473
- Disagree/strongly disagree or not sure	7 (21.9)	9 (15.8)		
Separation of a newborn from the mother at birth can cause harmful stress to the baby				
- Agree/strongly agree	17 (53.1)	31 (54.4)	.013	.909
- Disagree/strongly disagree or not sure	15 (46.9)	26 (45.6)		
Birth trauma may interfere with the proper coordination of an infant's natural sucking reflexes (n = 88)			.	
- Agree/strongly agree	21 (65.6)	41 (73.2)	.563	.453
- Disagree/strongly disagree or not sure	11 (34.4)	15 (26.8)		
Interrupting SSC within 15-20 minutes of delivery seriously disturbs the suckling reflexes for correct attachment				
- Agree/strongly agree	11 (34.4)	23 (40.4)	.310	.578
- Disagree/strongly disagree or not sure	21 (65.6)	34 (59.6)		
There is no time immediately after delivery to allow uninterrupted SSC until the first breastfeed				
- Agree/strongly agree	13 (40.6)	27 (47.4)	.377	.539
- Disagree/strongly disagree or not sure	19 (59.4)	30 (52.6)		
Prevention of heat loss by wrapping the baby is of higher priority than SSC to initiate feeding behaviors (n = 87)				
- Agree/strongly agree	9 (29.0)	23 (41.1)	1.244	.265
- Disagree/strongly disagree or not sure	22 (71.0)	33 (58.9)		
Time required for SSC to breastfeed interferes with completion of required legal documentation				
- Agree/strongly agree	14 (43.8)	38 (66.7)	.431	.035
- Disagree/strongly disagree or not sure	18 (56.2)	19 (33.3)		
Most mothers want to be cleaned up immediately after delivery rather than hold their baby (n = 88)				
- Agree/strongly agree	14 (43.8)	27 (48.2)	.163	.666
- Disagree/strongly disagree or not sure	18 (56.2)	29 (51.8)		

#Fisher exact

Table 7: A comparison of breastfeeding initiation practice by job title (N=89; Nurse n=32; Nurse midwife/midwife n = 57)

Staff practice	Nurse	Nurse midwife/ midwife	X ²	P-value [#]
How would you view the likelihood of Badriya's baby attaching correctly to the breast without assistance(n = 86)				
Likely	9 (30.0)	22 (39.3)	.731	.393
Unlikely	21 (70.0)	34 (60.7)		
Routinely suction the baby at birth before giving to Badriya (n = 87)				
Always or mostly	11 (35.5)	25 (45.5)	1.271	.530
Sometimes or occasionally	18 (58.1)	25 (45.5)		
Never	2 (6.5)	5 (9.1)		
Help Badriya hold her naked baby SSC				
Always or mostly	17 (53.1)	32 (56.1)	.401	.818
Sometimes or occasionally	12 (37.5)	18 (31.6)		
Never	3 (9.4)	7 (12.3)		
Dry and wrap the baby before giving to the parents				
Always or mostly	7 (21.9)	8 (14.0)	2.897	.235
Sometimes or occasionally	13 (40.6)	17 (29.8)		
Never	12 (37.5)	32 (56.1)		
Place baby SSC on Badriya's chest, dry, the baby and cover with a warm towel				
Always or mostly	19 (59.4)	38 (66.7)	.644	.725
Sometimes or occasionally	11 (34.4)	15 (26.3)		
Never	2 (6.2)	4 (7.0)		
Place the baby under a radiant heater for assessment, weighting and measuring before the first breastfeed				
Always or mostly	7 (21.9)	7 (12.3)	2.363	.307
Sometimes or occasionally	12 (37.5)	30 (52.6)		
Never	13 (40.6)	20 (35.1)		
Encourage Badriya and the family to watch for signs of baby's readiness to feed				
Always or mostly	17 (54.8)	40 (70.2)	2.363	.307
Sometimes or occasionally	12 (38.7)	11 (19.3)		
Never	2 (6.5)	6 (10.5)		
Put the baby on the breast for her (n = 86)				
Always or mostly	4 (12.9)	4 (7.1)	2.755	.252
Sometimes or occasionally	18 (58.1)	26 (46.4)		
Never	9 (29.0)	26 (46.4)		
Teach Badriya to position and attach baby for optimal breastfeeding attempt				
Always or mostly	3 (9.4)	5 (8.8)	.208	.901
Sometimes or occasionally	13 (40.6)	26 (45.6)		
Never	16 (50.0)	26 (45.6)		
Encourage Badriya to take time to allow the baby to self-attach with minimal assistance and explain a newborn's ability to breastfeed (n = 88)				
Always or mostly	17 (53.1)	36 (64.3)	3.205	.201
Sometimes or occasionally	14 (43.8)	15 (26.8)		
Never	1 (3.1)	5 (8.9)		
Ask Badriya what she would like to do and explain the natural feeding ability of a newborn (n = 87)				
Always or mostly	23 (74.2)	37 (66.1)	1.013	.603
Sometimes or occasionally	8 (25.8)	18 (32.1)		
Never	0 (0.0)	1 (1.8)		
Wait until Badriya is showered and able to sit up comfortably before offering assistance (n = 88)				
Always or mostly	12 (37.5)	20 (35.1)	1.520	.468
Sometimes or occasionally	14 (43.8)	31 (54.4)		
Never	6 (18.8)	6 (10.5)		

[#]Fisher exact

4.5.3 A Comparison of Knowledge and Practice by Area of Practice

When comparing the knowledge of respondents by area of practice, there were two statistically significant differences between groups (see Table 8). Those who worked in the birth suite compared to those who worked in other areas were more likely to agree that newborns develop predictable, coordinated feeding behaviours within minutes of birth (93.2% vs 75.6 %, p value $<.05$). Most birth area respondents (88.4%) agreed that uninterrupted SSC immediately after birth is important for newborn breastfeeding performance compared to respondents who worked in other areas (64.4%, $p <.01$). However, when comparing practice of respondents by area of practice, there were no statistically significant differences between those who worked in the birth area compared to other areas (see Table 9).

Table 8: A comparison of breastfeeding initiation knowledge by area of practice (N =89; Birth unit n = 44, Other areas n =45)

Staff knowledge	Birth Unit	Other areas	X^2	p-value [#]
A normal full term infant is born with instinctive reflex ability to breastfeed effectively (n = 88)				
- Agree/strongly agree	39 (90.7)	38 (84.4)	.786	.375
- Disagree/strongly disagree or not sure	4 (9.3)	7 (15.6)		
Will develop predictable, coordinated feeding behaviors within minutes of birth				
- Agree/strongly agree	41 (93.2)	34 (75.6)	5.214	.022
- Disagree/strongly disagree or not sure	3 (6.8)	11 (24.4)		
Can instinctively find the nipple without help and attach correctly to the breast (n = 88)				
- Agree/strongly agree	25 (56.8)	27 (61.4)	.188	.665
- Disagree/strongly disagree or not sure	19 (43.2)	17 (38.6)		
Will be guided to the nipple by their sense of smell (n = 88)				
- Agree/strongly agree	22 (51.2)	24 (53.3)	.042	.839
- Disagree/strongly disagree or not sure	21 (48.8)	21 (46.7)		
SSC is important to help stabilize newborn breathing (n = 88)				
- Agree/strongly agree	33 (75.0)	27 (61.4)	1.886	.170
- Disagree/strongly disagree or not sure	11 (25.0)	17 (38.6)		
A newborn's heart rate is stabilize by SSC				
- Agree/strongly agree	28 (63.6)	29 (64.4)	.006	.937
- Disagree/strongly disagree or not sure	16 (36.4)	16 (35.6)		
SSC is important to prevent heat loss in newborn babies				
- Agree/strongly agree	36 (81.8)	35 (77.8)	.225	.635
- Disagree/strongly disagree or not sure	8 (18.2)	10 (22.2)		
A newborn's blood sugar levels are stabilized by SSC				
- Agree/strongly agree	18 (40.9)	14 (31.1)	.927	.336
- Disagree/strongly disagree or not sure	26 (59.1)	31 (68.9)		
SSC helps the flow of colostrum after birth (n = 88)				
- Agree/strongly agree	33 (76.7)	30(66.7)	1.098	.295

- Disagree/strongly disagree or not sure	10 (23.3)	15 (33.3)		
Uninterrupted SSC immediately after birth is important for newborn breastfeeding performance (n = 88)				
- Agree/strongly agree	38 (88.4)	29(64.4)	6.929	.008
- Disagree/strongly disagree or not sure	5 (11.6)	16 (35.6)		
A mother is more likely to accept and feel warm toward her baby if SSC happens immediately after birth				
- Agree/strongly agree	39 (88.6)	38 (84.4)	.335	.563
- Disagree/strongly disagree or not sure	5 (11.4)	7 (15.6)		
Hours of continuous SSC can help a newborn baby learn to feed				
- Agree/strongly agree	34 (77.3)	29 (64.4)	1.770	.183
- Disagree/strongly disagree or not sure	10 (22.7)	16 (35.6)		
Midwives and mothers can hear the baby swallowing colostrum				
- Agree/strongly agree	24 (54.5)	16 (35.6)	3.242	.072
- Disagree/strongly disagree or not sure	20 (45.5)	29 (64.4)		
Midwives and mothers can see the baby swallowing				
- Agree/strongly agree	39 (88.6)	34 (75.6)	2.582	.108
- Disagree/strongly disagree or not sure	5 (11.4)	11 (24.4)		
Separation of a newborn from the mother at birth can cause harmful stress to the baby				
- Agree/strongly agree	24 (54.5)	24 (53.3)	.013	.909
- Disagree/strongly disagree or not sure	20 (45.5)	21 (46.7)		
Birth trauma may interfere with the proper coordination of an infant's natural sucking reflexes (n = 88)				
- Agree/strongly agree	33 (76.7)	29 (64.4)	1.598	.206
- Disagree/strongly disagree or not sure	10 (23.3)	16 (35.6)		
Interrupting SSC within 15-20 minutes of delivery seriously disturbs the suckling reflexes for correct attachment				
- Agree/strongly agree	18 (40.9)	16 (35.6)	.270	.603
- Disagree/strongly disagree or not sure	26 (59.1)	29 (64.4)		
There is no time immediately after delivery to allow uninterrupted SSC until the first breastfeed			.272	.602
- Agree/strongly agree	21 (47.7)	19 (42.2)		
- Disagree/strongly disagree or not sure	23 (52.3)	26 (57.8)		
Prevention of heat loss by wrapping the baby is of higher priority than SSC to initiate feeding behaviors (n = 87)				
- Agree/strongly agree	15 (35.7)	17 (37.8)	.040	.842
- Disagree/strongly disagree or not sure	27(64.3)	28 (62.2)		
Time required for SSC to breastfeed interferes with completion of required legal documentation				
- Agree/strongly agree	28 (63.6)	24 (53.3)	.972	.324
- Disagree/strongly disagree or not sure	16 (36.4)	21 (46.7)		
Most mothers want to be cleaned up immediately after delivery rather than hold their baby (n = 88)			.000	.988
- Agree/strongly agree	20 (46.5)	21 (46.7)		
- Disagree/strongly disagree or not sure	23 (53.5)	24 (53.3)		

[#]Fisher exact

Table 9: A comparison of breastfeeding initiation practice by area of practice (N =89; Birth unit n = 44, Other areas n =45)

Staff Practice	Birth	Other areas	X ²	P-value [#]
How would you view the likelihood of Badriya's baby attaching correctly to the breast without assistance(n = 86)				
- Likely	14 (33.3)	17 (38.6)	.262	.609
- Unlikely	28 (66.7)	27 (61.4)		
Routinely suction the baby at birth before giving to Badriya (n = 87)				
- Always or mostly	19 (44.2)	17 (39.5)	4.822	.090
- Sometimes or occasionally	18 (41.9)	25 (58.1)		
- Never	6 (14.0)	1 (2.3)		
Help Badriya hold her naked baby SSC				
- Always or mostly	24 (54.5)	25 (55.6)	.009	.995
- Sometimes or occasionally	15 (34.1)	15 (33.3)		
- Never	5 (11.4)	5 (11.1)		
Dry and wrap the baby before giving to the parents				
- Always or mostly	9 (20.5)	6 (13.3)	.953	.621
- Sometimes or occasionally	15 (34.1)	15 (33.3)		
- Never	20 (45.5)	24 (53.3)		
Place baby SSC on Badriya's chest, dry, the baby and cover with a warm towel				
- Always or mostly	31 (70.5)	6 (57.8)	3.248	.197
- Sometimes or occasionally	12 (27.3)	14 (31.1)		
- Never	1 (2.3)	5 (11.1)		
Place the baby under a radiant heater for assessment, weighting and measuring before the first breastfeed				
- Always or mostly	5 (11.4)	9 (20.0)	1.543	.462
- Sometimes or occasionally	23 (52.3)	19 (42.2)		
- Never	16 (36.4)	17 (37.8)		
Encourage Badriya and the family to watch for signs of baby's readiness to feed				
- Always or mostly	27 (61.4)	30 (68.2)	2.201	.333
- Sometimes or occasionally	11 (25.0)	12 (27.3)		
- Never	6 (13.6)	2 (4.5)		
Put the baby on the breast for her (n = 86)				
- Always or mostly	3 (7.0)	5 (11.4)	1.567	.457
- Sometimes or occasionally	20 (46.5)	24 (54.5)		
- Never	20 (46.5)	15 (34.1)		
Teach Badriya to position and attach baby for optimal breastfeeding attempt				
- Always or mostly	4 (9.1)	4 (8.9)	1.487	.475
- Sometimes or occasionally	22 (50.0)	17 (37.8)		
- Never	18 (40.9)	24 (53.3)		
Encourage Badriya to take time to allow the baby to self-attach with minimal assistance and explain a newborn's ability to breastfeed (n = 88)				
Always or mostly			1.128	.569
- Sometimes or occasionally	24 (55.8)	29 (64.4)		
- Never	15 (34.9)	14 (31.1)		
	4 (9.3)	2 (4.4)		
Ask Badriya what she would like to do and explain the natural feeding ability of a newborn (n = 87)				
- Always or mostly	28 (63.6)	32 (74.4)	1.871	.392
- Sometimes or occasionally	15 (34.1)	11 (25.6)		
- Never	1 (2.3)	0 (0.0)		
Wait until Badriya is showered and able to sit up comfortably before offering assistance (n = 88)				
- Always or mostly	17 (38.6)	15 (36.0)	.469	.791
- Sometimes or occasionally	22 (50.0)	45 (50.6)		
- Never	5 (11.4)	12 (13.5)		

[#]Fisher exact

4.5.4 A Comparison of Knowledge and Practice by Years of Experience

When participants' knowledge was compared according to their years of experience (< 10 years vs > 10 years), there was one statistically significant difference. Those with > 10 years of experience were more likely to agree that time for SSC until initiation of breastfeeding interferes with completion of documentation (68.6% vs 44.7%, $p < 0.05$) (see Table 10). When participants' practice was compared according to their years of experience, those with > 10 years of experience were more likely to report always or mostly encouraging the mother or family to watch for signs of readiness of the baby for feeding (72.5% vs 54.1%, $p < 0.05$) (See Table 10 and 11).

Table 10: A comparison of breastfeeding initiation knowledge by years of experience (N = 89; < 10 yrs n = 38, > 10 yrs n = 51)

Staff knowledge	<10 years	>10 years	χ^2	P-value [#]
A normal full term infant is born with instinctive reflex ability to breastfeed effectively (n = 88)				
- Agree/strongly agree	31 (83.8)	46 (90.2)	.806	.369
- Disagree/strongly disagree or not sure	6 (16.2)	5 (9.8)		
Will develop predictable, coordinated feeding behaviors within minutes of birth				
- Agree/strongly agree	29 (76.3)	46 (90.2)	3.165	.075
- Disagree/strongly disagree or not sure	9 (23.7)	5 (9.8)		
Can instinctively find the nipple without help and attach correctly to the breast (n = 88)				
- Agree/strongly agree	19 (50.0)	33 (66.0)	2.286	.131
- Disagree/strongly disagree or not sure	19 (50.0)	17 (34.0)		
Will be guided to the nipple by their sense of smell (n = 88)				
- Agree/strongly agree	20 (52.6)	26 (52.0)	.003	.953
- Disagree/strongly disagree or not sure	18 (47.4)	24 (48.0)		
SSC is important to help stabilize newborn breathing (n = 88)				
- Agree/strongly agree	26 (68.4)	34 (68.0)	.002	.966
- Disagree/strongly disagree or not sure	12 (31.6)	16 (32.0)		
A newborn's heart rate is stabilize by SSC				
- Agree/strongly agree	25 (65.8)	32 (62.7)	.088	.767
- Disagree/strongly disagree or not sure	13 (34.2)	19 (37.3)		
SSC is important to prevent heat loss in newborn babies				
- Agree/strongly agree	30 (78.9)	41 (80.4)	.028	.867
- Disagree/strongly disagree or not sure	8 (21.1)	10 (19.6)		
A newborn's blood sugar levels are stabilized by SSC				
- Agree/strongly agree	16 (42.1)	16 (31.4)	1.089	.297
- Disagree/strongly disagree or not sure	22 (57.9)	25 (68.6)		
SSC helps the flow of colostrum after birth (n = 88)				
- Agree/strongly agree	25 (65.8)	38 (76.0)	1.107	.293
- Disagree/strongly disagree or not sure	13 (34.2)	12 (24.0)		

Uninterrupted SSC immediately after birth is important for newborn breastfeeding performance (n = 88)				
- Agree/strongly agree	27 (71.1)	40(80.0)	.951	.329
- Disagree/strongly disagree or not sure	11 (28.9)	10 (20.0)		
A mother is more likely to accept and feel warm toward her baby if SSC happens immediately after birth				
- Agree/strongly agree	32 (84.2)	45 (88.2)	.302	.582
- Disagree/strongly disagree or not sure	6 (15.8)	6 (11.8)		
Hours of continuous SSC can help a newborn baby learn to feed				
- Agree/strongly agree	30 (78.9)	33 (64.7)	2.136	.144
- Disagree/strongly disagree or not sure	8 (21.1)	18 (35.3)		
Midwives and mothers can hear the baby swallowing colostrum				
- Agree/strongly agree	16 (42.1)	24 (47.1)	.216	.642
- Disagree/strongly disagree or not sure	22 (57.9)	27 (52.9)		
Midwives and mothers can see the baby swallowing				
- Agree/strongly agree	29 (76.3)	44 (86.3)	1.465	.226
- Disagree/strongly disagree or not sure	9 (23.7)	7 (13.7)		
Separation of a newborn from the mother at birth can cause harmful stress to the baby				
- Agree/strongly agree	21 (55.3)	27 (52.9)	.047	.828
- Disagree/strongly disagree or not sure	17 (44.3)	24 (47.1)		
Birth trauma may interfere with the proper coordination of an infant's natural sucking reflexes (n = 88)				
- Agree/strongly agree	27 (71.1)	11 (28.9)	.011	.915
- Disagree/strongly disagree or not sure	11 (28.9)	35 (70.0)		
Interrupting SSC within 15-20 minutes of delivery seriously disturbs the suckling reflexes for correct attachment				
- Agree/strongly agree	17 (44.7)	17 (33.3)	1.199	.273
- Disagree/strongly disagree or not sure	21 (55.3)	34 (66.7)		
There is no time immediately after delivery to allow uninterrupted SSC until the first breastfeed				
- Agree/strongly agree	18 (47.4)	22 (43.1)	.158	.691
- Disagree/strongly disagree or not sure	20 (52.6)	29 (56.9)		
Prevention of heat loss by wrapping the baby is of higher priority than SSC to initiate feeding behaviors (n = 87)				
- Agree/strongly agree	12 (32.4)	20 (40.0)	.524	.469
- Disagree/strongly disagree or not sure	25 (67.6)	30 (60.0)		
Time required for SSC to breastfeed interferes with completion of required legal documentation				
- Agree/strongly agree	17(44.7)	35(68.6)	5.117	.024
- Disagree/strongly disagree or not sure	21 (55.3)	16 (31.4)		
Most mothers want to be cleaned up immediately after delivery rather than hold their baby (n = 88)				
- Agree/strongly agree	16 (43.2)	25 (49.0)	.288	.592
- Disagree/strongly disagree or not sure	21 (56.8)	26 (51.0)		

[#]Fisher exact

Table 11: A comparison of breastfeeding initiation practice by years of experience (N =89; < 10 yrs n = 38, > 10 yrs n = 51)

Staff practice	<10 years	>10 years	X ²	P-value [#]
How would you view the likelihood of Badriya's baby attaching correctly to the breast without assistance(n = 86)				
- Likely	10 (27.0)	21 (42.9)	2.292	.130
- Unlikely	27 (73.0)	28 (57.1)		
Routinely suction the baby at birth before giving to Badriya (n = 87)				
- Always or mostly	14 (37.8)	22 (44.9)	1.440	.487
- Sometimes or occasionally	21 (56.8)	22 (44.9)		
- Never	2 (5.4)	5 (10.2)		
Help Badriya hold her naked baby SSC				
- Always or mostly	17 (44.7)	32 (62.7)	2.888	.236
- Sometimes or occasionally	16 (42.1)	14 (27.5)		
- Never	5 (13.2)	5 (9.8)		
Dry and wrap the baby before giving to the parents				
- Always or mostly	5 (13.2)	10 (19.6)	5.541	.063
- Sometimes or occasionally	18 (47.4)	12 (23.5)		
- Never	15 (39.5)	29 (56.9)		
Place baby SSC on Badriya's chest, dry, the baby and cover with a warm towel				
- Always or mostly	23 (60.5)	34 (66.7)	.910	.634
- Sometimes or occasionally	13 (34.2)	13 (25.5)		
- Never	2 (5.3)	4 (7.8)		
Place the baby under a radiant heater for assessment, weighting and measuring before the first breastfeed				
- Always or mostly	5 (13.2)	9 (17.6)	.815	.665
- Sometimes or occasionally	17 (44.7)	25 (49.0)		
- Never	16 (42.1)	17 (33.3)		
Encourage Badriya and the family to watch for signs of baby's readiness to feed				
- Always or mostly	20 (54.1)	37 (72.5)	7.154	.028
- Sometimes or occasionally	15 (40.5)	8 (15.7)		
- Never	2 (5.4)	6 (11.8)		
Put the baby on the breast for her (n = 86)				
- Always or mostly	1 (2.8)	7 (13.7)	3.509	.173
- Sometimes or occasionally	21 (58.3)	23 (45.1)		
- Never	14 (38.9)	21 (41.2)		
Teach Badriya to position and attach baby for optimal breastfeeding attempt				
- Always or mostly	1 (2.6)	7 (13.7)	3.283	.194
- Sometimes or occasionally	18 (47.4)	21 (41.2)		
- Never	19 (50.0)	23 (45.1)		
Encourage Badriya to take time to allow the baby to self-attach with minimal assistance and explain a newborn's ability to breastfeed (n = 88)				
- Always or mostly	20 (52.6)	33 (66.0)	5.177	.075
- Sometimes or occasionally	17 (44.7)	12 (24.0)		
- Never	1 (2.6)	5 (10.0)		
Ask Badriya what she would like to do and explain the natural feeding ability of a newborn (n = 87)				
- Always or mostly	28 (75.7)	32 (64.0)	1.826	.401
- Sometimes or occasionally	9 (24.3)	17 (34.0)		
- Never	0 (0.0)	1 (2.0)		
Wait until Badriya is showered and able to sit up comfortably before offering assistance (n = 88)				
- Always or mostly	14 (36.8)	18 (35.3)	.410	.815
- Sometimes or occasionally	18 (47.4)	27 (52.9)		
- Never	6 (15.8)	6 (11.8)		

[#]Fisher exact

4.6 Open-ended Comments Related to Breastfeeding

A number of respondents provided open-ended comments when asked. A summary of these comments are provided in Table 12.

Table 12: Respondents' comments related to breastfeeding

Item name	Comments
Breastfeeding	Breastfeeding is not on demand, at least once in two hours to give bottle aside.
Breastfeeding initiation	Initiate breastfeeding within 30 minutes after delivery.
SSC and lack of time	SSC is important for breastfeeding initiation but because of lack of time and busy duty, it is not done. Skin-to-skin contact is the best method to maintain the temperature of the baby and to stimulate breastfeeding.
Suckling reflex	Pethidine affects the baby's suckling reflex and causes difficulty in breastfeeding. Then that affects the baby respiratory centre. Therefore, avoid giving pethidine when birth is close.
Staff practice	Teach the importance of breastfeeding.
Staff practice	Educate the mother about the importance of breastfeeding, position for breastfeeding and importance of burping the baby after each feed.
Staff practice	We should observe the baby for feeding, vomiting, colour, baby's urine, meconium and mother P/V bleeding.
Staff practice	We should teach the mother the importance of breastfeeding, feeding positioning, interval of feed and any complaints to inform immediately.
Staff practice & time	Mostly, if not always, mothers, don't know the proper way to hold the baby (latching) for breastfeeding. So us as health providers should assist the mother and provide health education for the importance of breastfeeding, but because of time constricted, most of us cannot do it.
Time	In our situation, we have less staff to get time to help in breastfeeding.

4.7 Conclusion

This section reported the results of the knowledge and practice of SSC and breastfeeding initiation, among a group of (national and non-national) midwives and nurses working in

maternity ward of Sohar hospital. A number of statistically significant findings that were found in this study regarding participants' knowledge and practice. Almost half (45.7%) of Omani nationality participants reported more knowledge than non-Omani participants about the stabilisation of blood sugar levels of newborn baby by SSC. The majority (63%) of Omani nationality participants reported that they would dry and wrap the infant before giving to the parents for initiation breastfeeding. Most respondents (66.7%) reported that the time required for SSC to breastfeed interfered with completion of the required legal documentation. The majority of participants who worked in the birth suite (93.2%) agreed that newborn develops predictable, coordinated feeding behaviours within minutes of birth. Eighty eight percent of those who worked in birth area agreed that uninterrupted SSC immediately after birth is important for newborn breastfeeding performance. Those respondents with > 10 years of experience (72.5%) were more likely to encourage the mother or family to watch for signs of readiness of the baby for feeding. These results will now be discussed in the following chapter.

Chapter 5: Discussion

5.1 Introduction

Healthcare providers, particularly midwives and maternity nurses, have a significant influence on new mothers and may be able to increase the breastfeeding rate within the community (Amin, Hablas & Al Qaderin, 2011). However, a lack of knowledge regarding breastfeeding initiation can have an adverse impact on the provision of appropriate information to the mother and optimal breastfeeding practices for their newborn babies.

The primary aim of this study is to assess midwives' and maternity nurses' knowledge and practice in relation to breastfeeding initiation in one hospital in Oman. This chapter discusses the findings of the study. It presents implications and recommendations for practice of breastfeeding initiation. In addition, the strengths and limitations of the study will be considered.

5.2 Participants' Knowledge Regarding Breastfeeding

Knowledge related to breastfeeding and infant feeding has widely increased in recent years (WHO, 2014; Cooke, Cantrill & Creedy, 2009). However, this understanding in human lactation has not been extensively applied by some healthcare professionals (Cantrill, Creedy & Cooke, 2004; Hanif *et al.*, 2010). In fact that lack of midwives' and maternity nurses' knowledge of breastfeeding affects their understanding of and practice related to newborn feeding. This section will discuss the knowledge of participants from three aspects of breastfeeding, including newborn feeding ability and physiological stability, SSC and initiation of breastfeeding.

5.2.1 Knowledge of Breastfeeding Physiology

The human newborn has an innate physiological ability to seek out the mother's breast and initiate feeding (Moore *et al.*, 2012). The findings of the study indicate that the majority of participants had adequate knowledge about newborn feeding ability and physiological stability. This is consistent to the findings of other studies using the questionnaire highlighting that half of maternity healthcare providers offer adequate information for mothers and educate them about their newborn's innate feeding ability and physical stability (Daniels & Jackson, 2011; Creedy, Cantrill & Cooke, 2008). The findings are also consistent with a study carried out by Hanif *et al.* (2010), that identified that healthcare professionals had adequate knowledge of the important aspect of the innate feeding ability of the newborn.

The findings of the study indicate that the majority of the participants reported that babies develop coordinated, predictable feeding behaviours within minutes of birth. It is important that midwives and nurses working in maternity care understand that babies can attach themselves to the breast without assistance. A little over half of the participants in this study reported that the newborn can attach to the breast spontaneously. UNICEF (2012) reported that babies can track and attach naturally to the breast by following their mother's smell while they are placed in skin-to-skin contact. The newborn has the ability to be guided to the nipple by their sense of smell (Moore *et al.*, 2012). In contrast, Volk (2009) argues the same and says that breastfeeding can be natural, but it is not involuntary.

In addition, the study's results indicate that most participants who worked in the birth area reported significant knowledge that newborns develop likely, coordinated feeding performances within minutes of birth. This finding is similar to a survey study conducted in Australia by

Cantrill, Creedy and Cooke (2004), who found that most midwives in labour wards agree that the neonate has suckling coordination behaviour.

5.2.2 Knowledge of SSC

The WHO and UNICEF (2009) and UNICEF (2013) assert that SSC should be the initial step of baby care; beginning when the cord is clamped and extended to the first feed or as long as the mother wishes. The findings of this study indicate that the majority of the participants lacked knowledge regarding the recommended principles of SSC and its benefits for the mother and baby. These results are similar with those of other studies that agreed that maternity healthcare providers have some knowledge deficit related to SSC constituting suitable intervention to stabilise the condition of the newborn after birth (Sobel, Silvestre, Mantaring, Oliveros & Nyunt-U, 2011; Cantrill, Creedy & Cooke, 2004). It is the responsibility of all midwives and nurses in maternity wards to update their knowledge on the first step of immediate baby care in the birth ward.

The BFHI steps are clearly communicated in each maternity ward in Oman. Step 1 of the BFHI policy recommends that a written policy of breastfeeding should be communicated to all healthcare professionals in the work place. The findings of this study indicate that step 4 of the BFHI, which encourages the initiation of breastfeeding within half an hour of birth, is not clearly understood among maternity health professionals in Oman. A similar problem is reported in Saudi Arabia, Egypt, Sri Lanka and the Philippines regarding this implementation (Amin, Hablas & Al Qaderin, 2011; Sallam, Babrs, Sadek and Mostafa, 2013; Senarath, Fernando and Rodrigo, 2007; Sobel *et al.*, 2011).

The study findings indicate significantly that birth area respondents were more likely to agree or strongly agree that uninterrupted SSC immediately after birth is essential for newborn

breastfeeding performance. SSC is an effective method for breastfeeding initiation and good maternal well-being after birth as well as for maternal hormonal responses coordination to produce milk (Aghdas *et al.*, 2014). As result, midwives and nurses need to understand the necessity of SSC-related breastfeeding. Senarath, Fernando and Rodrigo (2007) carried out a study to assess the influence of positive knowledge regarding continuous SSC and the efficacy of maternity staff training on the improvement of immediate neonatal care. The study found that after offering four days of training for the staff, the staff applied SSC immediately in practice after birth and the rate increased to 83.3% from 37.5% before the training.

SSC promotes infant comfort and stabilises body temperature, glucose levels and respiration rates (Khan, Vesel, Bahl &Martines, 2015) and helps in the initiation of breastfeeding (Moore *et al.*, 2012; Khan, Vesel, Bahl &Martines, 2015; Chiou *et al.* 2014). The majority of midwives and maternity nurses in this study agreed or strongly agreed that SSC is important to help stabilise newborn breathing and heart rate. However, the majority of participants disagreed or were not sure that SSC stabilises blood sugar levels after birth. These findings are similar to those of a previous study conducted by Cantrill, Creedy and Cooke (2004) in Australia, which found that 37.8% of midwives agreed or strongly agreed that glucose level is stabilised by SSC. The fact that the majority of midwives and nurses in this study were unaware of the impact of SSC on stabilising newborn blood sugars may explain why the number of babies being transferred to the Special Care Baby Unit (SCBU) because of lethargy and low blood glucose levels after two hours from birth is increasing. The number of top-up feeds in the first two hours of a newborn baby's life for low blood sugar is also increasing. Anecdotal reports from staff working in the hospital indicate that 31 newborn babies in 2013 had low blood sugar two hours after birth, without any pathological reason, and were transferred to SCBU for further intervention. The WHO (2007) recommends that primary intervention for lethargy and low level

of blood sugar in newborn babies is to allow the newborn baby to breastfeed or provide expressed breast milk. An observational study by Gubler *et al.* (2013) investigating 1,893 mothers in Switzerland reported that SSC was a positive factor for effective breastfeeding initiation and decreased the need for top-up feeding supplements. It is evident that the practice of SSC can reduce the incidence of this problem and the associated costs of transfer to SCBU and artificial feeding.

More than two-thirds of participants agreed that SSC helps the flow of colostrum after birth. These findings are in contrast with the findings of other studies, which found that SSC can promote oxytocin release, which promotes breastfeeding and bonding (Gubler *et al.*, 2013), the movement of milk into the breast (Moore *et al.*, 2012). The release of oxytocin hormone causes the skin temperature of the mother's breasts to rise, consequently keeping a warm environment for her baby (Carfoot *et al.*, 2005; Boo & Jamli, 2007). Multiple studies show SSC results in significant initiation of breastfeeding, and increases milk flow and mother's confidence in breastfeeding (Bigelow *et al.*, 2014; Svensson *et al.*, 2013; Chiou *et al.* 2014; Aghdas *et al.*, 2014; Redshaw, Hennegan & Kruske, 2014). The findings of this study show that some staff (not all) lack knowledge about SSC benefits, and this may mean that mothers are not adequately educated. Ultimately, the lack of knowledge of staff may lead to inadequate education for mothers, which can lead to unsuccessful breastfeeding. Studies in some developed countries such as South Africa, Egypt, Saudi Arabia and Pakistan identify this deficit of knowledge having a negative effect on breastfeeding (Daniels & Jackson, 2011; Sallam, Babrs, Sadek & Mostafa, 2013; Amin, Hablas & Al Qaderin, 2011; Hanif, *et al.*, 2010).

Findings of studies over the last two decades suggest that continuous SSC in the first hour following birth is a critical period for attachment between mother and child, when both are prepared for an organised interaction. The findings of this study indicate that the majority of the

participants reported that interrupting SSC can significantly disturb the suckling reflexes for correct attachment. Other literature showed different findings that healthcare professionals such as midwives experience many difficulties in encouraging continuous SSC care due to lack of knowledge among mothers and fathers and other professionals about the benefits of uninterrupted SSC, collaboration with other specialists and shortage of time (Gubler, Krähenmann, Roos, Zimmermann & Ochsenbein-Kölble, 2013). SSC should not be disturbed after birth until the first feed between the mother and the baby has finished (Ferrarello & Hatfield, 2014). Correspondingly, the study of Talat and Aghdas (2009), who conducted RCT, found that continuous SSC is recommended for initiation of breastfeeding and optimal newborn physiological stability.

In addition, this study's findings indicate that most of the participants reported that women are more likely to receive their baby immediately after delivery and feel warm towards the baby if SSC starts immediately after labour. This view is consistent with (Dornfeld & Rubim-Pedro, 2015), who demonstrated that healthcare teams reported a positive role in providing empathic support during SSC and in the birth environment. Immediate SSC was found to enhance the confidence of mothers towards their babies, reduce the time taken to identify severe latch-on problems such as sore nipples and to stimulate a plentiful milk supply (Svensson *et al.*, (2013). Consequently, maternity healthcare providers' knowledge, empathy and support could increase mothers' self-esteem in accepting the baby after birth.

5.2.3 Knowledge of Breastfeeding Initiation

Step 4 of the BFHI Ten Steps recommends that all midwives practice early SSC soon after birth in order to successfully initiate breastfeeding and maintain the survival of babies (UNICEF & WHO, 2009). As a result, it is essential for midwives and maternity nurses to understand this

recommendation and its benefits for the mother and baby's health. Hearing and seeing swallowing and the suckling reflex of the newborn baby while initiating breastfeeding is an important sign for midwives and nurses in the birth room to make sure that the baby is taking milk (Newman & Pitman, 2000). The results of this study present that half of the participants can hear the baby swallowing colostrum while breastfeeding. This view presented in the findings almost corresponding with Ipekci and Ertem (2012), who point out that, in the initial few days after birth, the baby may suck five to ten times before a swallow can be heard. Other studies demonstrated that recognising that the newborn baby is getting an adequate amount of milk while feeding can be assessed through hearing and watching the suckling and swallowing reflexes (Moore *et al.*, 2012). This knowledge helps midwives and mothers to be reassured that the newborn baby is getting colostrum (Moore *et al.*, 2012). Therefore, midwives and nurses must update their knowledge to help mothers and newborn babies to breastfeed successfully.

The findings of this research indicate that almost half of the participants lack information about the disadvantage of separating the newborn baby from the mother immediately after birth, such as stressing the baby, despite ample evidence to demonstrate that newborns who initially breastfeed within one hour of birth have less healthcare needs than those newborns who do not breastfeed within one hour (Moore *et al.*, 2012; Khan, Vesel, Bahl & Martines, 2015; Chiou *et al.*, 2014, Khan, Vesel, Bahl & Martines, 2015), and that babies cried when bonding with mothers (Svensson *et al.*, 2013). Other studies suggest that babies who are separated from the mother and experience a delay in breastfeeding until after 24 hours of delivery have a larger risk of infection, such as gastrointestinal and acute respiratory infections (Khan, Vesel, Bahl & Martines, 2015). The timing of breastfeeding initiation affects exclusive breastfeeding (Lothian, 2005; Khan, Vesel, Bahl & Martines, 2015). For successful breastfeeding initiation, the National Institute for Clinical Excellence [NICE] (2006) requests that all nurses and midwives do not separate the

neonate infant from the mother just for routine baby care since this leads to a delay in the initiation of breastfeeding. Therefore, midwives and maternity nurses in Oman should understand that separation of the baby from the mother after birth can have an adverse effect on breastfeeding initiation and the baby's health.

However, some newborn complications after birth can interfere with early mother and baby attachment, such as birth trauma. This study shows that the majority of staff were aware that birth trauma can interfere with newborn behaviour. These findings contrast with the findings of another study carried out in Australia to assess midwives' knowledge and practice in breastfeeding initiation. The study indicates that a high proportion of midwives are aware of the interference of birth complications with initiation of breastfeeding (Cantrill, Creedy & Cooke, 2004). The reason, according to Lothian (2005), is that trauma to the newborn baby can create pain for the baby and prevent it from exhibiting innate, natural breastfeeding positioning and can cause a difficult latch on. Healthcare professionals and nurses should encourage and support mothers to breastfeed their babies if birth trauma does not interfere with the baby's health (Lothian, 2005). Therefore, delaying of the first feed is not necessarily due to staff practice but sometimes due to birth complications.

This study indicates that there are significant pressures on the midwives and nurses working with birthing women and the lack of time and staff impacts their ability to support uninterrupted SSC until the first breastfeed. The majority of participants identified that the time required for SSC interfered with their ability to complete the required legal documentation. This finding was similar to those of Daniels and Jackson (2011) and Sallam, Babrs, Sadek and Mostafa (2013), who reported that the barriers to promote initiation of breastfeeding following birth were shortage of staff, excessive workloads and lack of time and knowledge to implement the BFHI procedure. Also, the result is congruent with other qualitative studies, which found that maternity

ward staff have negative attitudes towards early initiation of breastfeeding due to shortage of time and lack of hospital encouragement to practise BFHI principles (Sallam, Babrs, Sadek & Mostafa, 2013). As a result, lack of time and shortage of staff in maternity areas can restrict midwives and nurses from practising SSC immediately following birth and initiating natural feeding (Walsh, Pincombe & Henderson, 2011). For this reason, Sohar hospital administration should be encouraged to investigate and assist the staff to overcome this problem by increasing the number of staff.

Most hospitals in Oman have been certified by UNICEF and the WHO as Breastfeeding Friendly Hospitals since 1999 and Sohar hospital is one of these hospitals (Sinani, 2008; UNICEF, 2009). However, the maternity ward staff often struggle with early initiation of breastfeeding due to inadequate resources such as shortage of trained staff, high workloads and lack of time. Therefore, unfortunately, the BFHI policy in Oman is not followed strictly as Sohar hospital is a busy tertiary public hospital. The birth unit consists of 14 beds and approximately 60 midwives and nurses who manage approximately 1,000 births per month, with 15,842 births in 2013 (Oman Ministry of Health, Department of Health Information & Statistics, 2013).

5.3 Participants' Clinical Practice Related to Breastfeeding

5.3.1 SSC Practice

Introducing SSC care was a challenge for the healthcare expert because of lack of knowledge and lack of time for staff (Dornfeld & Rubim-Pedro, 2015). The study findings indicate that only half of participants were likely to assist the mother to practise SSC with the baby. This finding suggests that many midwives and maternity nurses are not inclined to practise SSC after birth. The possible solution for this problem could be that all maternity staff require adequate

education on breastfeeding strategies to promote best practice (Liaqat, Rizvi, Qayyum & Ahmed, 2007).

In fact, the importance of SSC is highlighted in midwifery education regarding caring for birthing women and immediate care of newborns. Omani midwives utilise a standard midwifery text by Fraser and Cooper (2014), which emphasises that a healthy baby should be dried and located in a SSC position with the mother if the woman wishes (p.756). Unfortunately, the participants reported a knowledge and skills deficiency about SSC after birth. Therefore, the findings of this study indicate that there is a need to improve breastfeeding education and training for all maternity care staff.

Moore, Anderson, Bergman and Dowswell (2012) describe SSC as putting the baby uncovered in a prone position on the chest or abdomen of mother or father. The majority of participants reported adverse practice, including drying and wrapping the baby before giving to the parents for breastfeeding. In addition, the majority of participants prioritised wrapping the baby to prevent heat loss above SSC and initiation of breastfeeding. These findings, like those of Hanif *et al.* (2010) in Pakistan, report that doctors, nurses and midwives do not actively promote early initiation of breastfeeding because they perceive that mothers are not ready to breastfeed their babies immediately. Wrapping a newborn infant immediately before SSC can restrict the stimulation of the oxytocin hormone to increase the colostrum flow (Redshaw, Hennegan and Kruske, 2014). Appropriately training staff in birth areas to assist mothers in caring for their newborns (Bramson *et al.*, 2010) and improving the knowledge and attitudes of health experts will play a key role in influencing breastfeeding success. Knowing and practising evidence-based breastfeeding guidelines and understanding the barriers related to the practice of SSC will be important (Umer & Edwards, 2013).

5.3.2 Baby Care Practice

The National Institute for Clinical Excellence [NICE] (2006) recommends that nurses and midwives do not separate the neonate from the mother for routine baby care as this leads to a delay in the initiation of breastfeeding. However, despite these recommendations, this study found that mothers and babies are often separated for routine baby care and this appears to be embedded in the hospital's maternity care culture. Sobel, Silvestre, Mantaring, Oliveros and Nyunt-U (2011) conducted an observational study in the Philippines, and observed the immediate post-birth care practices given to 481 mother-baby pairs. They found that drying, suctioning, weighing, vitamin K injections and eye care delayed the infant from breastfeeding initiation for an average of 155 minutes. These findings indicate that initial routine baby care may delay SSC and breastfeeding initiation by not only minutes but up to several hours. The results of this study indicate that current best evidence-based practice is not recognised or practised by many midwives and maternity nurses in Sohar hospital. This may negatively impact breastfeeding practices, hence, the health of the mother and baby in both the short and the long term benefits.

The participants in this study routinely suctioned babies at birth and most of them put the baby under a radiant heater for weighing, measuring and assessment before the first breastfeed. Some of the baby care practices undertaken by the participants in this study such as suctioning are unnecessary and should not continue as part of routine care. Most registered midwives and nurse midwives are more likely to routinely suction babies soon after birth than those who are registered nurses. For example, suctioning healthy newborn babies after birth is in contradiction to the guidelines from the Neonatal Resuscitation Program [NRP] (2010), which recommends against the practice, because instead of benefiting babies the practice is harming them. Neumann,

Mounsey and Das (2014) suggest that wiping the baby's mouth and nose with a small gauze to clear excessive secretions from the baby's mouth and stimulate breathing is better than suctioning. That is because suctioning can cause mucosal injury and make the baby's mouth averse to opening his mouth as he defends himself by keeping his mouth closed, which can interfere with breastfeeding (Lothian, 2005; Kelleher *et al.*, 2013). According to the evidence, suctioning is an unnecessary practice as it separates the baby from his mother, delays breastfeeding initiation and harms the baby (Sobel, Silvestre, Mantaring, Oliveros & Nyunt-U (2011). The possible reason for this practice could be the culture of Sohar hospital or the lack of updated knowledge, but it is practised in most Oman hospitals, if not all. Similarly, a study conducted in Oman found that breastfeeding policies were established with the consideration and recognition of medical, social and cultural barriers, so these practices are the norm (Sinani, 2008).

Additionally, while some practices undertaken by the participants after birth are important, they are not urgent. Activities such as routinely weighing the baby soon after birth should not be prioritised before SSC and breastfeeding initiation. There is rarely an urgent need to assess the baby's weight, which will remain stable in the first hour. However, initiating breastfeeding within an hour after birth will provide the newborn with a warm environment and stabilise temperature, heart rate and breathing (Moore *et al.*, 2012; Khan, Vesel, Bahl &Martines, 2015; Chiou *et al.* 2014). However,the results from our study revealed that almost half of the participants placed the baby under a radiant heater for assessment, weighing and measuring before the first breastfeed. This behaviour was even more common among midwives and maternity nurses, which suggests that more training is required to update them with the current evidence. Our findings correspond with the results of Sultana (2012) in Pakistan and Umer and Edwards (2013) in the US, who report that most health professionals and mothers are unaware of

the benefits of breastfeeding initiation and this deficit in understanding should be addressed by educating maternity staff on breastfeeding initiation principles. This study also indicates that there is a need to investigate the deficits and strengths of the maternity staff's knowledge and practice in Oman and to consider further strategies to promote breastfeeding nationally.

5.3.3 Initiation and Attachment Practice

The United Nations Children's Fund [UNICEF] and the World Health Organization [WHO] (2009) recommend that the attachment of the mother and her baby must be the first step of immediate baby care and should be started soon after the second stage of labour or within one hour of birth in order to help in the early initiation of breastfeeding. Approximately half of the participants suggested that mothers want to be washed up immediately after birth rather than holding their babies. This contrasts with studies conducted in Iran, which reported that most mothers who see and hold their babies after delivery feel more confident, content and happy (Talat & Aghdas, 2009; Aghdas *et al.*, 2014). Although there are no specific cultural beliefs in Oman, anecdotal evidence indicates that some Omani mothers are apprehensive about holding their newborn immediately following birth. However, some mothers might refuse due to their own exhaustion and concerns regarding the baby being covered with blood and other bodily fluids. This is similar to the findings of a study carried out in Saudi Arabia, which reported that one of the reasons that could affect the baby being held after delivery is the mother's exhaustion (Amin, Hablas & Al Qaderin, 2011). Omani mothers should be informed, prepared and reassured during the antenatal period about the practice and benefits of immediate SSC after birth.

The results of the study reported significant findings that those with > 10 years of experience would be likely to encourage the mother and family to observe for signs of the baby's readiness to feed. Similarly, other studies report that midwives with more than fifteen years' experience

scored significantly higher in terms of knowledge than those with less than 6 to 10 years experience in encouraging and supporting women in the initial feed (Cantrill, Creedy & Cooke, 2004; Creedy, Cantrill & Cooke, 2008). Some studies mention experienced midwives and maternity nurses practice gained from their personal experience or job practice (Cantrill, Creedy & Cooke, 2004; Cooke, Cantrill & Creedy, 2009). Aghdas *et al.* (2014) found that health practitioners and their practices of supporting mothers in the first hour influence breastfeeding initiation. UNICEF (1998), in step 8 of the Ten Steps for successful breastfeeding, recommends that each health professional providing care for mothers and newborn babies should encourage breastfeeding on demand.

In addition, about two-thirds of participants encourage the mother to take time to allow the newborn to self-attach with minimal help and explain the ability of the newborn to breastfeed. This study's findings correspond with those of Cooke, Cantrill and Creedy (2009), who report that more midwives will use a 'hands-off' approach to breastfeeding initiation, while others describe a 'hands-on' technique to help mothers with the first breastfeed soon after birth, because some mothers might be anxious to start breastfeeding such as *prima gravida* mothers. Also, these mothers need to be encouraged and shown the proper way of breastfeeding using hand-ons methods to prevent breast complications such as sore nipples (Talat & Aghdas, 2009). Teaching maternity staff using a hands-off approach needs a training programme in order to help them to understanding the correct procedure to use. For example, in England, a study conducted by Law, Dunn, Wallace and Inch used a pre- and post-intervention design on 108 midwives to find whether a four-hour training programme on 'hands off' positioning and attachment of the baby to the mother increases the knowledge of midwives and problem-solving abilities. The findings of the programme reported that the total scores of qualified midwives' training on the hands-off

approach increased significantly to 95%. It is an operational way of improving the aptitude of the women to initiate and continue to breastfeed their babies effectively.

The findings of the study indicate that approximately half of the participants would help mothers to breastfeed. These findings differ from those of Cantrill, Creedy and Cooke (2003), who report that most midwives agree that it is their role to recommend breastfeeding to mothers and that is an important skill to promote breastfeeding in order to enhance mothers' confidence. This is because midwives and maternity nurses are recommended to educate and teach mothers about the advantages and disadvantages of breastfeeding, in order to make them aware and understand effective and optimal breastfeeding (UNICEF, 1998). Thus, the practice part of the scale indicates that information related to breastfeeding initiation principles is an important in educating and encouraging mothers to initiate breastfeeding within an hour following birth.

A minority of participants in the study reported that they are more likely to wait for the mothers to be comfortable and showered before offering breastfeeding. This finding, though supported by a small number of examples, differs from the results of Cantrill, Creedy and Cooke (2004), who found that only approximately 1% of participants always shower the mother first before breastfeeding. Delaying, interrupting or controlling the time that the mother and baby spend time together can cause a harmful effect on their bond and on breastfeeding achievement (Blair, Cadwell, Turner-Maffei & Brimdyr, 2003). Consequently, these findings, along with the findings of this study, provide a direction to future studies in Oman that would improve midwifery and nursing skill practice and knowledge in relation to breastfeeding.

5.4 Strengths and Limitations of the Study

5.4.1 Strengths of the Study

The methodology for collecting data was a survey, as the design of this study was quantitative and most of the literature was qualitative. The researcher chose the survey methodology as the method for this study because it is valuable in describing the characteristics of a large sample. No other method can offer this broad aspect, which ensures that a more accurate sample is gathered for targeted outcomes and to make significant conclusions. Also, the survey is an anonymous method that allows participants to answer the questionnaires with candid and valid answers. Hanif *et al.* (2010) and Daniels and Jackson (2011) used similar methodologies and designs but with different aims, which were to investigate maternity nurses' and managers' knowledge, practice and attitudes towards the principles of the BFHI's ten steps and the barriers to implementing them, so both aims have different themes. In contrast, the aim of this study was to investigate the knowledge and practice of midwives and nurses regarding breastfeeding initiation. Other studies are mostly aimed at determining the causes and effects of not implementing BFHI principles on mothers and babies and the practice and knowledge deficits of all maternity healthcare workers. Therefore, most of these studies led to different findings such as the cause and effect aspects.

The NFA and BIP scale were used for the second time in this study after the original study in 2008. This tool was a valid and reliable tool that had been used in the past to indicate the strength and deficit of midwives' knowledge and practice in relation to breastfeeding initiation, newborn feeding ability and SSC. However, this study used national and non-national maternity healthcare providers, whereas the original study used national midwives as participants.

This study was the first to assess and compare the knowledge and practice levels of national and non-national midwives and nurses who work in maternity areas. The study findings reported that there is no difference between Omani and non-Omani participants, which suggests that all staff in maternity areas (Omani and non-Omani) are required to undertake more education and training in breastfeeding.

Finally, the study found knowledge and practice deficits in newborn feeding, timing of breastfeeding initiation and SSC. These findings will help to improve breastfeeding policies and guidelines in Oman.

5.4.2 Limitations

Midwives and nurses who were interested in breastfeeding may possibly have answered the questionnaire and their opinions could vary from those of the non-respondents, which can cause a risk of response bias. Hassan (2005) states that self-reports can threaten the reliability of a study because participants depend on their memory to recall information on past events. Thus, this can potentially result in imperfect and unreliable information. However, the achieved sample of this study was the midwifery and nursing population, so this improves the confidence that participants used the background of their education to report.

The response rate was 65.4% and it is possible that those who did not respond were influenced by overwork and staff shortage. The response rate is not bad for a staff survey.

The measurement of midwives' and nurses' knowledge and practice by questionnaire depends on self-report with no chance to see or follow-up on the practice, which may be subject to some error. However, the summary of results through items appears to indicate that midwives and maternity nurses were reporting consistently on their clinical practice.

Finally, since the study was conducted in the region in which the researcher lives and works, some participants are familiar to me and so may have been influenced to answer the questionnaire as I would. However, this was addressed before starting data collection by discussing the issue with all unit managers and staff participating. Also, all participants were informed that the survey was confidential and participants' names would not be recorded and questionnaires were to be kept in a locked box, assuring privacy and confidentiality. Appraisal of generalisability of the study findings describes the extent to which research findings can be applied to this setting (Schneider & Fisher, 2013). This study is valid, important and applicable to the population of the study because the research questions were well defined. Also, this study is generalisable because this research is applicable to a wide variety of national and international health care settings as research question is defined. Inclusion criteria in this study was used effectively by selecting only midwives, nurse midwives and maternity nurses who are working only in maternity unit of Sohar hospital because of their knowledge and experience in breastfeeding initiation. Also, the maximum sample size that was put for this study was 136 midwives and nurses and that number is a good number in representing response fraction of good studies (Schneider & Fisher, 2013). This research was taken in typical health care setting and used normal maternity unit and staff. The generalizability of the study sample represents the findings that would be applied on a large group of midwives and nurses on which the study was done and how that might influence the findings.

5.5 Recommendations and Implications

The recommendations of this study include education and increased resources for midwives and nurses who are working in the Sohar hospital maternity unit (antenatal, labour and postnatal wards), regarding advanced knowledge and practice in breastfeeding initiation. Education

recommendations to up-date the knowledge and practice include training, workshops, access to research evidence and mothers' education. Resources recommendations include breastfeeding consultation, workloads and time management, policies and guidelines.

5.5.1 Education

The findings of this study suggest that midwives and maternity nurses need to be encouraged to integrate research evidence-based practice in their work area and be supported within their place of work. This requires reinforcement by management staff in work areas to access evidence on lactation and infant feeding.

Comprehensive information should be offered to maternity nurses and midwives through workshops or conferences. Thus, midwives and health specialists who value the importance of their role in the promotion of breastfeeding are expected to keep up-to-date with advancing knowledge and use evidence to support mothers at the first breastfeed using evidence-based practice (Daniels & Jackson, 2011).

Staff training is key to practice improvement by updating knowledge and advancing evidence-based practice in maternity care. It is recommended that maternity healthcare professionals be offered training programmes on breastfeeding in order to improve practices significantly (Senarath, Fernando & Rodrigo, 2007; Umer & Edwards, 2013).

The midwives and nurses should educate and prepare the mothers for breastfeeding initiation in the antenatal period, support them in labour and follow them in the postnatal period for successful breastfeeding initiation (Sallam, Babrs, Sadek & Mostafa, 2013). The researcher recommends that all healthcare givers in the labour room should support mothers in initiating breastfeeding soon after birth and continuing breastfeeding health education for the public.

5.5.2 Resources

As there is no lactation consultant at Sohar hospital, it is recommended that a midwife should be trained as a breastfeeding counsellor or educator. This position can support and promote implementation of BFHI policies and protocols in the maternity units of Sohar hospital and enable follow-up of breastfeeding outcomes (Umer & Edwards, 2013; Sultana, 2012; Liaqat, Rizvi, Qayyum & Ahmed, 2007).

The findings of the study indicate that most of participants of Sohar hospital are struggling because of shortage of time. The researcher recommends that the management team at Sohar hospital should increase the number of midwives, which could assist in providing the best care for mothers and babies at birth.

The researcher suggests that the management team at Sohar hospital should provide positive support for implementing BFHI steps, addressing the hospital protocols, policies and breastfeeding guidelines, staff recruitment and training matters to reduce the workload of the staff.

5.5.3 Implications for Practice

This study's implications are far reaching. Although the majority of midwives and maternity nurses understood and described satisfactory knowledge in accordance with breastfeeding initiation guidelines. However, some such as those who are in antenatal and postnatal did not demonstrate appropriate understanding. For example, a large percentage of midwives and nurses in antenatal and postnatal areas did not show sound awareness and knowledge of newborn feeding ability and physiological stability to breastfeed and this influences breastfeeding practice. Application of complete knowledge in clinical practice of midwifery in relation to the initial breastfeed has the potential to decrease the costs of hospital admission and complementary

feeds, preventing some problems and complications in the initial breastfeeding, and enable optimal breastfeeding experiences for the mothers and babies (Hanif *et al.*, 2010).

Even though Omani government health authorities set targets for breastfeeding initiation and provide finance to monitor and apply the BFHI principles to improve breastfeeding rates there has been inadequate consideration of and attention to how the initiation of breastfeeding is managed at healthcare settings. Additionally, there is insufficient education for maternity nurses and midwives who are responsible for helping breastfeeding mothers. In fact, midwives and maternity nurses are accountable for keeping their knowledge and skills up-to-date. The current study suggests that midwives who show a comprehensive understanding of neonatal feeding ability are able to identify care decisions and offer evidence-based care (Debra, Creedy, Cantrill & Cooke, 2008). Consequently, there is a need for continuing professional learning for maternity health professionals and midwives attending women in the postnatal period (Debra, Creedy, Cantrill & Cooke, 2008). This problem could be solved by using operative interpersonal skills with the women for effective shared educational breastfeeding initiative (Daniels & Jackson, 2011). Further research is required to distinguish the effectiveness of educational and training interferences towards changes in practice.

There is a need to consider strategies to promote breastfeeding in Oman and conduct further research to examine the deficits and strengths of the maternity nurses and midwives knowledge and practice related to breastfeeding initiation in Oman, specifically in Sohar hospital. Also, to find out the main areas of midwifery practice that require modification and change, the midwifery training programme should strengthen the content of educational programs and midwifery textbooks. The Oman Nursing and Midwifery Council (2011) clearly states that nurses and midwives have a responsibility to deliver care based on current evidence and best

practice. Therefore, nurses and midwives should utilise the applicable and validated research base when it is available, rather than basing care totally on experience, opinion and tradition.

5.6 Summary

This chapter has reported a discussion of the results of the study regarding midwives' and maternity nurses' knowledge and practice in relation to initiation of breastfeeding. Knowledge and practice of midwives and nurses about newborn feeding ability and physiological stability, skin-to-skin contact (SSC) and breastfeeding initiation principles were discussed and compared with other literature. The main findings included the knowledge deficit of the staff, lack of time and shortage of resources, insufficient clinical experience, preparation and education. These factors were found to be the reasons for not implementing SSC and early initiation of breastfeeding.. Also, routine neonatal care after birth such as routine suctioning, weighing the baby and giving Vitamin K were believed to delay the initiation of breastfeeding. The limitations of the study have been identified and recommendations have been presented. The study findings add to the present knowledge and practice of midwives and nurses about the importance of early breastfeeding initiation and establishment of breastfeeding policy. The following chapter will consider the concluding report of this study.

Chapter 6: Conclusion

6.1 Introduction

This study focused on the knowledge and practice of a group of midwives and maternity nurses in relation to breastfeeding initiation in Oman. This study sought to answer the following questions:

- How extensive is nurses' and midwives' knowledge in relation to skin-to-skin (SSC) and its effects on initiation and continuation of breastfeeding?
- What is nurses' and midwives' practice in relation to SSC?
- What is nurses' and midwives' practice in relation to initiation of breastfeeding?
- Is there a relationship between the nurses' and midwives' demographic characteristics and implementation of SSC and breastfeeding initiation?

These questions were answered by an extensive literature review that demonstrated that the lack of knowledge and practice of midwives and nurses in maternity wards affects their practice in the establishment of SSC within one hour after birth and initiation of breastfeeding. The final section in this thesis will summarise the general research procedures and present the major findings of this research.

6.2 Summary of the Research

The study indicates that this group of midwives and nurses in the maternity unit had knowledge and practice deficiencies in relation to early breastfeeding initiation and establishment of SSC soon after labour due to several reasons. Midwives and maternity nurses in Oman infrequently practice early SSC and the initiation of breastfeeding within one hour of birth. The common

practice instead involves separating the newborn baby from the mother immediately after birth because of routine baby care (weighing, suctioning and so forth), hospital policies and other requirements such as documentation. Lack of time and resources shortage of staff particularly midwives, increase number of deliveries in Sohar hospital, and lack of policies, guidelines and hospital management support that can enhance breastfeeding initiation policy and improve hospital culture. The study finding showed that the majority of the participants reported that the main reason of not applying SSC and early initiation of breastfeeding was lack of time and culture of the hospital. The research approach selected to address the aims of the study was a survey method. Therefore, educational requirement are needed to improve the participants knowledge and practice related to initiation of breastfeeding. The participants of this study were recruited by using convenience sampling method because of their availability and easy to access due to their background in breastfeeding knowledge and experience as midwives and nurses working in maternity unit. The population was only nurses and midwives in the maternity ward of Sohar hospital, Oman. This method of recruiting participants provides advantages for gathering data because the participants were volunteering to participate in this study, not randomly selected.

6.3 Major Findings

The results of this study indicated that job title (midwives and nurses), years of experience, nationality and area of practice (antenatal, labour and postnatal) affected the quality of knowledge and practice of midwives and nurses in the maternity unit regarding the feeding ability of newborns, SSC practice and breastfeeding initiation following birth. The study found that the participants have inadequate knowledge and lack of practice about SSC and initiation of breastfeeding. The participants reported that these practices are not put into practice because of

routine care given to the mother and baby after birth due to increase the number of deliveries, lack of time and shortage of healthcare providers in the maternity ward of Sohar hospital. Also, completion of required legal documentation interferes negatively with SSC and initiation of breastfeeding which leads to delay initiation of breastfeeding.

References

- Aghdas, K., Talat, K. & Sepideh, B. (2014). Effect of immediate and continuous mother-infant 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
- Alex, M. R. & MacLellan-Peters, J. (2013). The Relationship among Skin-to-Skin Contact, Breastfeeding, and Mother-Infant Interaction: Implications for Nursing. *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, 42S88-9. doi:10.1111/1552-6909.12181
- American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. (2010). *Neonatal Resuscitation Program*. Retrieved from www.ncbi.nlm.nih.gov | NCBI | Literature | PubMed Central (PMC)
- Amin, T., Hablas, H., & Al Qader, A. A. (2011). Determinants of initiation and exclusivity of breastfeeding in Al Hassa, Saudi Arabia. *Breastfeeding Medicine*, 659-68. doi:10.1089/bfm.2010.0018
- Analytical Services NHS England. (2014). *Breastfeeding Initiation and Prevalence at 6 to 8 weeks Quarter 4, 2013/14*. Retrieved from www.england.nhs.uk/statistics/wp
- Australian Government Department of Health. (2014). *Breastfeeding: The Australian Government is committed to protecting, promoting, supporting and monitoring breastfeeding throughout Australia*. Retrieved from www.health.gov.au/breastfeeding.
- Bai, D. L., Wu, K. M., & Tarrant, M. (2013). Association between Intrapartum Interventions and Breastfeeding Duration. *Journal of Midwifery & Women's Health*, 58(1), 25-32. doi:10.1111/j.1542-2011.2012.00254.x

- Barry, M., & Murphy Tighe, S. (2013). Facilitating effective initiation of breastfeeding--a review of the recent evidence base. *British Journal of Midwifery*, 21(5), 312-315.
- Bigelow, A. E., Power, M., Gillis, D.E., Peters, J.M., & Alex, M. (2014). Breastfeeding, skin-to-skin contact, and mother-infant interactions over infants' first three months. *Infant Mental Health Journal* 35(1), 51-62. doi: 10.1002/imhj.21424
- Blair, A., Cadwell, K., Turner-Maffei, C., & Brimdyr, K. (2003). The relationship between positioning, the breastfeeding dynamic, the latching process and pain in breastfeeding mothers with sore nipples. *Breastfeeding Review*, 11(2), 5-10 6p.
- Boo, N., & Jamli, F. (2007). Short duration of skin-to-skin contact: effects on growth and breastfeeding. *Journal Of Paediatrics & Child Health*, 43(12), 831-836.
- Bramson, L., Lee, J., Moore, E., Montgomery, S., Neish, C., Bahjri, K., & Melcher, C. (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:10.1177/0890334409355779
- 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 & Childbirth*, 14(1), 20. doi:10.1186/1471-2393-14-20
- Cantrill, R., Creedy, D., & Cooke, M. (2003). An Australian study of midwives' breast-feeding knowledge. *Midwifery*, 19(4), 310-317 8p.
- Cantrill, R., Creedy, D., & Cooke, M. (2004). Midwives' knowledge of newborn feeding ability and reported practice managing the first breastfeed. *Breastfeeding Review*, 12(1), 25-33 9p.

- Carfoot, S., Williamson, P., & Dickson, R. (2005). A randomised controlled trial in the north of England examining the effects of skin-to-skin care on breast feeding. *Midwifery*, 21(1), 71-79.
- Centers for Disease Control and Prevention. (2012). *Breastfeeding Report Card United States*. Retrieved from www.cdc.gov/breastfeeding/data/reportcard/reportcard2012.htm.
- Chezem, J., Friesen, C., & Boettcher, J. (2003). Breastfeeding knowledge, breastfeeding confidence, and infant feeding plans: effects on actual feeding practices. *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, 32(1), 40-47. doi:10.1177/0884217502239799
- Chiou, S., Chen, L., Yeh, H., Wu, S., & Chien, L. (2014). 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*, 41(1), 33-38. doi:10.1111/birt.12090
- Chiu, S., Anderson, G., & Burkhammer, M. (2008). Skin-to-skin contact for culturally diverse women having breastfeeding difficulties during early postpartum. *Breastfeeding Medicine*, 3(4), 231-237.
- Cooke, M., Cantrill, R., & Creedy, D. (2009). Midwives' reported practice supporting the first breastfeed. *Maternal & Child Nutrition*, 5(4), 334-346 13p.
- Creedy, D. K., Cantrill, R. M., & Cooke, M. (2008). Assessing midwives' breastfeeding knowledge: properties of the newborn feeding ability questionnaire and breastfeeding initiation practices scale. *International Breastfeeding Journal*, 3(7), 1-12. doi:10.1186/1746-4358-3-7

- Daniels L, & Jackson D. (2011). Knowledge, attitudes and practices of nursing staff regarding the Baby-Friendly Hospital Initiative in non-accredited obstetric units in Cape Town. *South African Journal of Clinical Nutrition*, 28(1), 32-38.
- Debra K Creedy, D. K., Ruth M Cantrill, R. M., & Cooke, M. (2008). Assessing midwives' breastfeeding knowledge: Properties of the Newborn Feeding Ability questionnaire and Breastfeeding Initiation Practices scale. *International Breastfeeding Journal*, 3(7), 1-12. doi:10.1186/1746-4358-3-7
- Department of Health Information & Statistics. (2013). *Oman annual health reports*. Retrieved from www.moh.gov.om/en/nv
- Dornfeld, D., & Rubim Pedro, E. N. (2015). The health team and the safety of the mother-baby binomial during labor and birth. *Investigacion & Educacion En Enfermeria*, 33(1), 44-52 9p. doi:10.1590/S0120-53072015000100006
- Edmond, K. M., Zandoh, C., Quigley, M. A., Amenga-Etego, S., Owusu-Agyei, S., & Kirkwood, B. R. (2005). Delayed Breastfeeding Initiation Increases Risk of Neonatal Mortality. *Pediatrics*, 117(3), 380-386. doi:10.1542/peds.2005-1496
- 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 6p. doi:10.1097/01.NMC.0000437464.31628.3d
- Forster, D., & McLachlan, H. (2007). Breastfeeding initiation and birth setting practices: a review of the literature. *Journal of Midwifery & Women's Health*, 52(3), 273.
- Gillespie, B., & Chaboyer, W. (2013). Assessing measuring instruments. In Z. Schneider, D. Whitehead, G. LoBiondo-Wood & J. Haber (Eds.), *Nursing and midwifery research:*

methods and appraisal for evidence-based practice (pp.218-236). Sydney: Mosby Elsevier.

Grant, B., & Giddings, L. (2002). Making sense of methodologies: a paradigm framework for the novice researcher. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 13(1), 10-28. doi:10.5172/conu.13.1.10

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

Hanif, R., Khalil, E., Sheikh, A., Harji, A., Haris, S., Rasheed, M. W., & Ahmed, S. (2010). Knowledge about breastfeeding in accordance with the national policy among doctors, paramedics and mothers in baby-friendly hospitals. *J Pak Med Assoc*, 60(10), 881- 886.

Hassan, E. (2005). Recall Bias can be a Threat to Retrospective and Prospective Research Designs. *The Internet Journal of Epidemiology*, 3(2), 13-17.

Homer, C., Sheehan, A., & Cooke, M. (2002). Initial infant feeding decisions and duration of breastfeeding in women from English, Arabic and Chinese-speaking backgrounds in Australia. *Breastfeeding Review*, 10(2), 27-32.

Hung, K. J., & Berg, O. (2011). Early Skin-to-Skin after Cesarean to Improve Breastfeeding. *MCN: The American Journal of Maternal Child Nursing*, 36(5), 318-326. doi:10.1097/NMC.0b013e3182266314

Inch, S., Law, S., Wallace, L., & Hills, R. (2003). Confusion surrounding breastfeeding terms 'positioning' and 'attachment'. *British Journal of Midwifery*, 11(3), 148-148 1p.

- Ipekci, M. M., & Ertem, M. (2012). Infant feeding knowledge and practices of mothers with 6-24-month-old babies in the 'baby-friendly city' of diyarbakir. *Breastfeeding Medicine*, 7535-542 8p. doi:10.1089/bfm.2011.0115
- Jokinen, P., Lappalainen, M., Meriläinen, P., & Pelkonen, M. (2002). Ethical issues in ethnographic nursing research with children and elderly people. *Scandinavian Journal of Caring Sciences*, 16(2), 165-170.
- Kelleher, J., Bhat, R., Salas, A. A., Addis, D., Mills, E. C., Mallick, H., & ... Carlo, W. A. (2013). Oronasopharyngeal suction versus wiping of the mouth and nose at birth: a randomised equivalency trial. *Lancet*, 382(9889), 326-330. doi:10.1016/S0140-6736(13)60775-8
- Keshavarz, M., & Haghighi, N. (2010). Effects of Kangaroo mother care on duration of exclusive breastfeeding and feeding pattern in neonates of mothers who delivered by cesarean section [Farsi]. *Medical Sciences Journal of Islamic Azad University Tehran Medical Branch*, 20(3), 182-188.
- Khan, J., Vesel, L., Bahl, R., & Martines, J. (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 & Child Health Journal*, 19(3), 468-479. doi:10.1007/s10995-014-1526-8
- Law, S. M., Dunn, O. M., Wallace, L. M., Inch, S. A., (2007). Breastfeeding Best Start study: training midwives in a -hands off positioning and attachment intervention. *Maternal and Child Nutrition*, 3, 1946205.

- Liaquat, P., Rizvi, M., Qayyum, A., & Ahmed, H. (2007). Association between complementary feeding practice and mothers education status in Islamabad. *Journal of Human Nutrition & Dietetics*, 20(4), 340-344.
- Lothian, J. (2005). Navigating the maze -- perinatal exchange. The birth of a breastfeeding baby and mother. *Journal Of Perinatal Education*, 14(1), 42-45.
- Marsden, P. V., & Wright, T. D. (2010). *Handbook of survey research* (2nd edition), Retrieved from books.google.com.au/books?isbn=1451176791
- McMulkin, S., & Malone, R. (1994). Breastfeeding -- midwives' personal experiences. *Modern Midwife*, 4(5), 10-12.
- Meininger, J. C. (2012). Observational research design. In Fitzpatrick, J & Kazer, M. W. (Eds.). *Encyclopedia of nursing research* (pp. 52-60). Retrieved from books.google.com.au/books?isbn=0826107516
- Mohamad, E., Ahmad, A. L., Rahim, S. A., & Pawanteh, L. (2013). Understanding religion and social expectations in contemporary Muslim society when promoting breastfeeding. *Asian Social Science*, 9(10), 264-273.
- Mitchell, M. L., & Jolley, J. M. (2013). *Research design explained* (8th edition), Retrieved from books.google.com.au/books?isbn=1133713009
- Moore, E., & Anderson, G. (2007). Randomized controlled trial of very early mother-infant skin-to-skin contact and breastfeeding status. *Journal of Midwifery & Women's Health*, 52(2), 116-125.
- 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*, (5).

- National Institute for Clinical Excellence (NICE). (2006). *Postnatal Care: Routine Postnatal Care of Woman and Their Babies: Clinical Guideline 37*.
www.nice.org.uk/guidance/cg37/chapter/guidance
- Neumann, I., Mounsey, A., & Das, N. (2014). PURLs: Suctioning neonates at birth: Time to change our approach. *Journal of Family Practice*, 63(8), 461-462.
- Oman Ministry of health, Department of Health Information & Statistics. (2012). *Oman annual health reports*. Retrieved from www.moh.gov.om/en/nv
- Oman Ministry of Health, Department of Health Information & Statistics. (2013). *Oman annual health reports*. Retrieved from www.moh.gov.om/en/nv
- Organisation for Economic Co-operation and Development and United Nations Children's Fund. (2012). *Health at a Glance: Asia/Pacific 2012*. Retrieved from www.oecd-ilibrary.org/sites/...en/02/.../index.html
- Osborne, J. W. (2008). *Best Practices in Quantitative Methods*. Retrieved from <https://books.google.com/books?isbn=1412940656>.
- Osborne, S., & Schneider, Z. (2013). Quantitative data collection and study validity. In Z. Schneider, D. Whitehead, G. LoBiondo-Wood & J. Haber (Eds.), *Nursing and midwifery research: methods and appraisal for evidence-based practice* (pp.184-199). Sydney: Mosby Elsevier.
- Pilot, D.F., & Beck, C. T. (2013). *Essentials of nursing research: Appraising evidence for nursing practice* (8th edition), Retrieved from books.google.com.au/books?isbn=1451176791

- Punch, K.F. (2003). *Survey research the basics* (1st edition), Retrieved from books.google.com/books?isbn=0761947051
- Redshaw, M., Hennegan, J., & Kruske, S. (2014). Holding the baby: Early mother--infant contact after childbirth and outcomes. *Midwifery*, 30(5), e177-87. doi:10.1016/j.midw.2014.02.003
- Rivera, A., Dávila Torres, R., Parrilla Rodríguez, A., de Longo, I., & Gorrín Peralta, J. (2008). Exploratory study: knowledge about the benefits of breastfeeding and barriers for initiation in mothers of children with spina bifida. *Maternal & Child Health Journal*, 12(6), 734-738 5p.
- Sake, M. & Allsop, J. (Eds.). (2012). *Researching health: qualitative, quantitative and mixed methods* (2nd edition), Retrieved from books.google.com.au/books?isbn=1446271838
- Sallam, S. A., Babrs, G. M., Sadek, R. R., & Mostafa, A. M. (2013). Knowledge, attitude, and practices regarding early start of breastfeeding among pregnant, lactating women and healthcare workers in el-minia university hospital. *Breastfeeding Medicine*, 8, 312-316. doi:10.1089/bfm.2012.0040
- Schneider, Z., & Fisher, M. (2013). Sampling data in quantitative research. In Z. Schneider, D. Whitehead, G. LoBiondo-Wood & J. Haber (Eds.), *Nursing and midwifery research: methods and appraisal for evidence-based practice* (pp.184-199). Sydney: Mosby Elsevier.
- Schneider, Z., & Whitehead, D. (2013). Identifying research ideas, questions, statements and hypothesis. In Z. Schneider, D. Whitehead, G. LoBiondo-Wood & J. Haber (Eds.), *Nursing and midwifery research: methods and appraisal for evidence-based practice* (pp.57-76). Sydney: Mosby Elsevier.

- Senarath, U., Fernando, D., & 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
- Sheskin, D. (2004). *Handbook of parametric and nonparametric statistical procedure* (3rd edition), Retrieved from books.google.com.au/books?isbn=1420036262
- Sinani, M. (2008). Breastfeeding in Oman-The way forward. *Oman Medical Journal*, 23(4), 2366240.
- Sobel, H., Silvestre, M., Mantaring Iii, J., Oliveros, Y., & Nyunt-U, S. (2011). Immediate newborn care practices delay thermoregulation and breastfeeding initiation. *Acta Paediatrica*, 100(8), 1127-1133. doi:10.1111/j.1651-2227.2011.02215.x
- Sultana, S. (2012). Knowledge regarding breast feeding practices among nurses in maternity units of health care facilities in Islamabad. *Pakistan Institute of Medical Sciences*, 8(4), 249-251.
- Sultana, S. (2012). Knowledge regarding breast feeding practices among nurses in maternity units of health care facilities in Islamabad. *Pakistan Institute of Medical Sciences*, 8(4), 249-251.
- Svensson, K. E., Velandia, M. I., Matthiesen, A. T., Welles-Nyström, B. L., & Widström, A. E. (2012). Effects of mother-infant skin-to-skin contact on severe latch-on problems in older infants: a randomized trial. *International Breastfeeding Journal*, 7(1), 1-13. doi:10.1186/1746-4358-8-1
- Talat, K., & Aghdas, K. (2009). The effects of post-birth mother-infant skin to skin contact on first breastfeeding. *Women Birth*. 38(2):230-43. doi: 10.1111/j.1552-6909.2009.01011.x

- Taylor, J., Geller, L., Risica, P., Kirtania, U., & Cabral, H. (2008). Birth order and breastfeeding initiation: results of a national survey. *Breastfeeding Medicine*, 3(1), 20-27.
- Umer, A. & Edwards, R., A. (2013). Expanding public health professionals' roles in promoting and supporting breastfeeding as optimal infant feeding: A pilot study with online tutorial implications. *Open Journal of Preventive Medicine*, 3(2), 184-190.
- UNICEF. (2013). *Levels & Trends in Child Mortality report: Estimates developed by the UN inter-agency group for child mortality estimation*. Retrieved from www.childinfo.org/files/Child_Mortality_Report_2013.pdf
- United Nations Children's Fund & Baby Friendly Initiative. (1998). *Implementing the ten steps to successful breastfeeding: A guide for maternity service providers working towards baby friendly accreditation*. Retrieved from www.unicef.org.uk/BabyFriendly/Resources/Guidance-for-Health-Professionals/Writing-policies-and-guidelines/guide-to-the-baby-friendly-initiative-standards
- United Nations Children's Fund. (2006). *Progress for Children: A Report Card on Nutrition*. Retrieved from www.unicef.org/progressforchildren/2006n4/index_breastfeeding.htm
- United Nations Children's Fund. (2009). *Situation Analysis of Children and Women in Oman Update 2009*. Retrieved from [http://www.unicef.org/oman/Update_Situation_Analysis_of_Children_and_Women_in_Oman_final_ver\(1\).pdf](http://www.unicef.org/oman/Update_Situation_Analysis_of_Children_and_Women_in_Oman_final_ver(1).pdf)
- United Nations Children's Fund. (2011). *How to Implement Baby Friendly Standards – A Guide for Maternity Settings*. Retrieved from live.unicef.org.uk/Documents/Baby_Friendly/Guidance/Implementation

- Walsh, A., Pincombe, J., & Henderson, A. (2011). An Examination of Maternity Staff Attitudes towards Implementing Baby Friendly Health Initiative (BFHI) Accreditation in Australia. *Maternal & Child Health Journal*, 15(5), 597-609. doi:10.1007/s10995-010-0628-1
- White, A. L., Carrara, V. I., Moo Kho, P., Malika, ColleyPaw, D., Gross, M. M., & McGready, R. (2012). High initiation and long duration of breastfeeding despite absence of early skin-to-skin contact in Karen refugees on the Thai-Myanmar border: a mixed methods study. *International Breastfeeding Journal*, 7(1), 19-31. doi:10.1186/1746-4358-7-19
- Wojcicki, J. M., Holbrook, K., Lustig, R. H., Caughey, A. B., Muñoz, R. F., & Heyman, M. B. (2011). Infant Formula, Tea, and Water Supplementation of Latino Infants at 4-6 Weeks Postpartum. *Journal Of Human Lactation*, 27(2), 122-130. doi:10.1177/0890334410396510
- Woods, M., & Schneider, Z. (2013). Ethical and legal issues in research. In Z. Schneider, D. Whitehead, G. LoBiondo-Wood & J. Haber (Eds.), *Nursing and midwifery research: methods and appraisal for evidence-based practice* (pp.77-99). Sydney: Mosby Elsevier
- World Health Organization & United Nations children's Fund. (1989). *Protecting, promoting and supporting breastfeeding: The special role of maternity services: A Joint WHO/UNICEF Statement*. Retrieved from www.who.int/nutrition/publications/infantfeeding/9241561300/en
- World Health Organization. (2013). *Early skin-to-skin contact for mothers and their healthy newborn infants*. Retrieved from apps.who.int/rhl/newborn/cd003519/en/
- World Health Organization. (2014). *10 facts on breastfeeding*. Retrieved from www.who.int/features/factfiles/breastfeeding/en/

Zwedberg, S., Blomquist, J., & Sigerstad, E. (2015). Midwives' experiences with mother-infant skin-to-skin contact after a caesarean section: 'Fighting an uphill battle'. *Midwifery*, 31(1), 215-220 6p. doi:10.1016/j.midw.2014.08.014

Appendices:



Human Ethics Certificate of Approval

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee.

The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

Project Number: CF15/1123–2015000530

Project Title: Midwives' and maternity nurses' knowledge and practice in relation to breastfeeding initiation in Sohar Hospital

Chief Investigator: Dr Helen Hall

Approved: From: 6 May 2015

To: 6 May 2020

Terms of approval- Failure to comply with the terms below is in breach of your approval and the Australian Code for the Responsible Conduct of Research.

1. The Chief investigator is responsible for ensuring that permission letters are obtained, if relevant, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effect on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must include your project number.
6. **Amendments to the approved project (including changes in personnel):** Require the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.



Professor Nip Thomson
Chair, MUHREC

cc: Dr Mary Anne Biro, Mrs Noora Aljabri

Monash University, Room 111, Chancellery Building E
24 Sports Walk, Clayton Campus, Wellington Rd
Clayton VIC 3800, Australia



ABN 12377614012 CRICOS Provider #00008C

Sultanate of Oman
Ministry of Health
Directorate General of Planning and Studies



سلطنة عُمان
وزارة الصحة
المديرية العامة للتخطيط والدراسات

Ref. : MH/DGP/R&S/PROPOSAL_ APPROVED/21/2015

Date : 14.07.2015

الرقم :

التاريخ :

الموقع :

Noora Saleh Al Jabri
Principal Investigator

Study Title: "Midwives' and maternity nurses' knowledge and practice in relation to breastfeeding initiation in Sohar Hospital"

After compliments

We are pleased to inform you that your research proposal "Midwives' and maternity nurses' knowledge and practice in relation to breastfeeding initiation in Sohar Hospital" has been approved by Research and Ethical Review and Approve Committee, Ministry of Health.

Regards,



Dr. Ahmed Mohamed Al Qasbi
Director General of Planning and Studies
Chairman, Research and Ethical Review and Approve Committee
Ministry of Health, Sultanate of Oman.

Cc
Day file



EXPLANATORY STATEMENT

(Midwives and Maternity Nurses)

Project:

Midwives' and maternity nurses' knowledge and practice in relation to breastfeeding initiation in Sohar Hospital

Chief Investigator: Dr Helen Hall

School of Nursing and Midwifery

[REDACTED]

[REDACTED]

Student's name: Noora Saleh Humaid Al

Jabri

[REDACTED]

[REDACTED]

You are invited to take part in this study. Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?

The aim of this study is to gain a greater understanding of Sohar hospital midwives' and maternity nurses' knowledge and practice related to breastfeeding initiation. Your participation involves the completion of an anonymous questionnaire asking about your knowledge and practice related to breastfeeding initiation. The questionnaire will be distributed during information sessions to be held in your workplace. You will be able to take the questionnaire and complete it in your own time. It will take no longer than 20 minutes to complete. Once you have completed the questionnaire we ask you to deposit it to the locked box in the nurses' office at your workplace.

Why were you chosen for this research?

The questionnaire is being sent to all midwives and maternity nurses who work in maternity unit at Sohar Hospital.

Consenting to participate in the project and withdrawing from the research

If you choose to complete the questionnaire and return it, we accept that you have consented to participate in the study. Because the survey is anonymous and we don't know who has returned the questionnaire, we will send out a reminder and another copy two weeks after the first distribution to all staff. Participating in the survey is completely voluntary and you may withdraw from the study at any time before returning the questionnaire.

Possible benefits and risks to participants

Completing the questionnaire is not expected to cause you any discomfort beyond the inconvenience of the time taken to complete it. You may feel uncomfortable being asked questions about your clinical practice, but be reassured that the survey is anonymous and confidential. The findings from the survey will help us to identify staff educational needs and policy development in relation to breastfeeding initiation.

Confidentiality

To ensure your privacy and confidentiality the questionnaire will be anonymous. You are requested not to include your name or any other information that may identify you. Locked boxes will be located at the nursing desks at your workplace for the return of completed questionnaires. The data from the survey will be analysed so that no individual information will be able to be identified.

Storage of data

Data collected will be stored in a password protected computer file and all questionnaires will be stored in a locked filing cabinet at Monash University for a period of five years. Data will only be accessible to the researchers. After five years computer files will be deleted and hard copies of the questionnaires will be shredded.

Results

The results of the survey will be shared at conferences and through journal publications. A summary of the findings presented to staff at the hospital.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact:

Executive Officer

Research and Ethical Review & Approval Committee (RERAC), Ministry of Health;
Sultanate of Oman.

Waleed Nasser Rashid AlShekaili; Acting Head of System Research, Directorate of
Research and Studies.

[REDACTED]

[REDACTED]

Thank you,

[REDACTED]

(insert Chief Investigator's signature)

Chief Investigator's name: Hellen

Hall

This survey presents a nu
breastfeeding initiation p
questionnaire. With each

Section 1: Demographic

1 What is your age

- a. 25 or under
- b. 26-40
- c. 41-55
- d. 56 or older

2 What is your na

- a. Omani
- b. Non-Omani

3 What is your pr

- a. Arabic
- b. Other

4 What is your job

- a. Registered nu
- b. Registered m
- c. Registered nu
- d. Others

5 Years of experie

- a. 1-5 years
- b. 6 -10 years
- c. 11-20 years
- d. 21-29 years
- 1. More than 30

6. What is the highest l

- 1. Diploma in N
- 2. Diploma in M
- 3. Diploma in N
- 4. Bachelor's de
- 5. Master's degr
- 6. Doctoral degr
- 7. Others

7. Area of practice

- 1. Antenatal

1.

2.		Birth
3.		Postnatal
4.		All

Section 2: Newborn Feeding Ability (NFA) Questionnaire

This questionnaire asks about newborn feeding ability.

Please circle the number © beside your answer.

What is your opinion regarding the following statement about newborn suckling ability

1 A normal full term infant is born with instinctive reflex ability to breastfeed effectively?

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

A healthy newborn baby (who is not sedated by any drugs) kept in continuous skin-to-skin contact with the mother immediately after birth,

2 Will develop predictable, coordinated feeding behaviors within minutes of birth

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

3 Can instinctively find the nipple without help and attach correctly to the breast

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

4 Will be guided to the nipple by their sense of smell

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

What is your opinion regarding the benefits of continuous skin-to-skin contact for newborn babies and their mother?

5 Skin-to-skin contact is important to help stabilize newborn breathing

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

6 A newborn's heart rate is stabilized by skin-to-skin contact

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

7 Skin-to-skin contact is important to prevent heat loss in newborn babies

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

8 A newborn's blood sugar levels are stabilized by skin-to-skin contact

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

9 Skin-to skin contact helps the flow of colostrum after birth

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 10 Uninterrupted skin-to-skin contact immediately after birth is important for newborn breastfeeding performance

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 11 A mother is more likely to accept and feel warm toward her baby if skin-to skin contact happens immediately after birth

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 12 Hours of continuous skin-to-skin contact can help a newborn baby learn to feed

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

To know the baby is getting colostrum at the first breastfeed, it is important that:

- 13 Midwives and mothers can hear the baby swallowing colostrum

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 14 Midwives and mothers can see the baby swallowing

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

What is your opinion regarding the statement that:

- 15 Separation of a newborn from the mother at birth can cause harmful stress to the baby

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 16 Birth trauma may interfere with the proper coordination of an infant's natural sucking reflexes

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 17 Interrupting skin-to-skin contact within 15-20 minutes of delivery seriously disturbs the suckling reflexes for correct attachment

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 18 *There is no time immediately after delivery to allow uninterrupted skin-to-skin contact until the first breastfeed

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 19 *Prevention of heat loss by wrapping the baby is of higher priority than skin-to-skin contact to initiate feeding behaviors.

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

- 20 *Time required for skin-to-skin contact to breastfeed interferes with completion of required legal documentation

1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

21 *Most mothers want to be cleaned up immediately after delivery rather than hold their baby
1 strongly disagree 2 disagree 3 not sure 4 agree 5 strongly agree

Section 3: Breastfeeding Initiation Practice (BIP) Scale

This questionnaire presents a scenario and asks about your practice assisting women with the first breastfeed. You are the midwife attending the woman, at the time of initiation of the first breastfeed.

Please answer the following questions (circle the number Ⓢ beside YOUR answer

OR write your answer in the space _____ provided)

SCENARIO

Badria is a 20 year old 38 week gestation primipara.

Antenatally well, attended antenatal visits, plans to breastfeed.

Uneventful 10 hour labor, given pethidine 100 mg IM 3 hours prior to birth.

Spontaneous Vertex Delivery (SVD) of a live healthy female infant Apgars 8:9, weight 3320 grams requiring no medical intervention. Intact perineum.

Badria's mother is keen to find out how much the baby weighs.

Parents consented to routine newborn vitamin K and hepatitis B injections for baby.

- 22** How would you view the likelihood of Badria's baby attaching correctly to the breast without assistance within the first hour of birth?

1 most unlikely 2 unlikely 3 likely 4 quite likely 5 highly likely

Provided no medical intervention was needed for Badria or her baby, in this situation, I would:

- 23** *Routinely suction the baby at birth before giving to Chloe

1 never 2 occasionally 3 sometimes 4 mostly 5 always

- 24** Help Chloe hold her naked baby skin-to-skin

1 never 2 occasionally 3 sometimes 4 mostly 5 always

- 25** *Dry and wrap the baby before giving to the parents

1 never 2 occasionally 3 sometimes 4 mostly 5 always

- 26** Place baby skin-to-skin on Badria's chest, dry the baby and cover with a warm towel

1 never 2 occasionally 3 sometimes 4 mostly 5 always

- 27** *Place the baby under a radiant heater for assessment, weighting and measuring before the first breastfeed attempt

1 never 2 occasionally 3 sometimes 4 mostly 5 always

- 28** Encourage Badria and the family to watch for signs of baby's readiness to feed

1 never 2 occasionally 3 sometimes 4 mostly 5 always

- 29** Other (*what would you do?*)

To assist Badria with the first breastfeed I would:

- 30** *Put the baby on the breast for her

1 never 2 occasionally 3 sometimes 4 mostly 5 always

- 31 *Teach Badriya how to position and attach baby for optimal breastfeeding
1 never 2 occasionally 3 sometimes 4 mostly 5 always
- 32 Encourage Badriya to take time to allow the baby to self-attach with minimal assistance and explain a newborn's natural ability to breastfeed
1 never 2 occasionally 3 sometimes 4 mostly 5 always
- 33 Ask Badriya what she would like to do and explain the natural feeding ability of a newborn
1 never 2 occasionally 3 sometimes 4 mostly 5 always
- 34 *Wait until Badriya is showered and able to sit up comfortably before offering assistance
1 never 2 occasionally 3 sometimes 4 mostly 5 always
- 35 Other (*what would you do?*)
-
-

* Reverse scored items

Thank you very much for providing the time to participate in this questionnaire.