

Breastfeeding educational needs of first time mothers during puerperium

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DECLARATION

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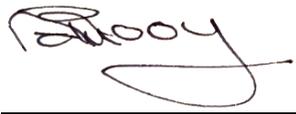
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I acknowledged all the authors that I have cited and I tried to paraphrase their words to the best of my ability, without changing the meaning or understanding of what was written.

I do acknowledge that some information might have been internalised by my thinking, but I tried my best to give recognition to all original authors.

I declare that this dissertation is my own work.



SIGNATURE

13 NOVEMBER 2017

DATE

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PREFACE

Introduction

This dissertation was submitted in article format, as required by the North-West University (NWU). Two articles have been included in the dissertation as they will be submitted for publication, comprising the literature review (chapter 2) and an article on the study's methodology and results (chapter 3). All relevant information is summarised in the articles. A separate overview and background presentation comprises chapter 1. The conclusions, recommendations and limitations are presented in chapter 4, although some information has also been summarised in the article. This results in some repetitions of text in some chapters and the articles. The referencing style in the different chapters differ according to each selected journal's author guidelines. Furthermore, the references for each chapter will be provided following the chapter, instead of supplying a comprehensive reference list at the end of the dissertation.

A detailed account of the ethics and rigour, as applicable to this study have been provided in chapter 1, and also summarised in the articles. Chapter 1 also contains a more detailed description of the methodology. Chapter 4 presents discussions about the results which might fall beyond the scope of the article presented as chapter 3 of this dissertation.

Rationale of submitting the dissertation in article format

It is a prerequisite, when submitting a Master's dissertation for examination at the NWU, that a draft article should also be submitted. In practice, many of these draft articles never get submitted to the peer-reviewed journals. The candidate decided, jointly with her supervisors, to submit this dissertation in article format to disseminate valuable information, acquired during the current research, to interested persons. This will meet the NWU's requirement that the candidate should submit a paper to an ISI-accredited journal.

Letters to the editors have been submitted to the relevant journals and feedback regarding suitability for publication in their respective journals is awaited. The co-author of the articles, presented as chapters 2 and 3 of this dissertation is Prof Welma Lubbe, the supervisor of the current study.

ABSTRACT

Introduction

In South Africa it is common practice for a mother to be discharged from hospital within the first few hours after normal delivery. It is usually only after five to seven days when breastfeeding challenges emerge, when mothers might realise that they need help with their infant. It is therefore necessary to determine what challenges mothers experience during the puerperium, and exactly when these problems occur, to be able to help them to breastfeed their infants exclusively to the age of at least six months as suggested by the World Health Organization.

Research aim and objective

The aim of this study was to identify the breastfeeding educational needs of first time mothers during the puerperium. To achieve this aim, the following objectives were set and reached.

To identify what specific breastfeeding information should be provided to first time mothers during each week of the puerperium to support breastfeeding success.

To develop concise, focussed breastfeeding information which can be shared with mothers on a weekly schedule during the puerperium by making use of a text message system.

Research design

This study employed a qualitative, longitudinal descriptive design.

Research method

In this study, data were collected using structured questions delivered to the participants by means of a text messaging system.

No transcribing was necessary as all messages received from the participants were original and already in electronic format. After data collection all received messages were imported into a computer on a MS Excel spread sheet. To ensure anonymity, numeric codes were allocated to each participant's telephone number. The researcher used Tesch's eight step approach to analyse the data and also used an independent co-coder to verify the data analysis.

Results

The analysis of the current study's qualitative findings, regarding mothers' experiences with breastfeeding challenges during the puerperium, produced different themes showing when during the puerperium the mothers encountered those specific challenges.

Thirty three first time mothers participated and eight reported challenges from week one after the baby's birth. Twenty two messages regarding challenges were received from these eight

participants. Challenges included nipple problems, fear of insufficient milk supply, breast problems, challenges regarding returning to work as well as maternal or infant illness.

Participants who had experienced breastfeeding-related challenges during the first week of the puerperium, tended to experience challenges again later during the puerperium. Mothers who did not struggle with breastfeeding-related challenges during the first week of the puerperium did not encounter such problems later on. Support provided through text messages apparently helped to address challenges, although it did not prevent the recurrence of other problems.

KEYWORDS: breastfeeding, first time mothers, health education needs, first time mothers postnatal support, puerperium

OPSOMMING

Inleiding

In Suid-Afrika is dit algemeen dat 'n moeder binne die eerste paar uur na 'n normale bevalling uit die hospitaal ontslaan word. Dit is gewoonlik eers na die eerste vyf tot sewe dae wat borsvoedingsverwante probleme opduik, en moeders kan besef dat hulle hulp benodig met hul baba. Dit is dus nodig om vas te stel watter uitdagings moeders ervaar tydens die puerperium, en presies wanneer hierdie probleme voorkom, om hulle te help om hul babas eksklusief tot die ouderdom van ten minste ses maande te borsvoed, soos deur die Wêreldgesondheidsorganisasie voorgestel.

Navorsingsdoel en doelwit

Die doel van hierdie studie was om die borsvoedende opvoedkundige behoeftes van eerste keer moeders tydens puerperium te identifiseer. Om hierdie doel te bereik, is die volgende doelwitte gestel en bereik.

Om te bepaal watter spesifieke borsvoedingsinligting aan die eerste keer moeders gegee moet word gedurende elke week van die puerperium om borsvoedingsukses te ondersteun.

Om bondige, gefokusde borsvoedingsinligting te ontwikkel wat op 'n weeklikse skedule tydens die puerperium met moeders gedeel kan word deur gebruik te maak van 'n teksboodskapstelsel.

Navorsingsontwerp

Hierdie studie het 'n kwalitatiewe, longitudinale, beskrywende, kwalitatiewe ontwerp gebruik.

Navorsingsmetode

In hierdie studie is data ingesamel deur gestruktureerde vrae wat aan die deelnemers afgelewer is deur middel van teksboodskappe.

Geen transkripsie was nodig nie aangesien alle boodskappe wat van die deelnemers ontvang is, oorspronklik en ook reeds in elektroniese formaat was. Na die insameling van data is alle boodskappe in die rekenaar ingevoer op 'n MSExcel blad. Om anonimiteit te verseker, is numeriese kodes aan elke deelnemer se telefoonnommer toegeken. Die navorser het die agt-stap benadering van Tesch gebruik om data-ontleding te doen en het ook 'n onafhanklike mede-kodeerder gebruik om die data-ontleding te verifieer.

Resultate

Die analise van die huidige studie se kwalitatiewe bevindings, rakende die moeders se ervaring met borsvoeding uitdagings tydens die puerperium, het verskillende temas na vore gebring wat duidelik toon dat gedurende puerperium die moeders daardie spesifieke uitdagings tegeekom het.

Drie en dertig eerste keer moeders het deelgeneem en agt het uitdagings aangemeld vanaf een week na die babas se geboortes. Twee en twintig boodskappe betreffende uitdagings is vanaf die agt deelnemers ontvang. Uitdagings het tepelprobleme, vrees vir onvoldoende melkproduksie, borsprobleme, uitdagings rakende die terugkeer na werk, sowel as moeder- of kindersiektes ingesluit.

Deelnemers wat tydens die eerste week van die puerperium borsvoedingsverwante uitdagings ervaar het, was geneig om weer uitdagings later tydens die puerperium te ervaar. Moeders wat nie gesukkel het met borsvoedingsverwante uitdagings gedurende die eerste week van die puerperium nie, het ook nie later sulke probleme ervaar nie. Ondersteuning deur middel van teksboodskappe het blykbaar gehelp om uitdagings aan te spreek, al het dit nie die terugkeer van ander probleme voorkom nie.

Sleutelwoorde: borsvoeding, eerste keer moeders, gesondheidsopvoedkundige behoeftes, postnatale ondersteuning, puerperium

LIST OF ABBREVIATIONS

ANC	Antenatal care
BCEA	Basic Conditions of Employment Act
BFHI	Baby-friendly Hospital Initiative
CARRMA	Campaign for Accelerated Reduction of Maternal Mortality in Africa
DoH	Department of Health
HCPs	Health Care Providers
HREC	Health Research Ethics Committee
KMC	Kangaroo Mother Care
MDG	Millennium Development Goal
MS	Microsoft
NWP	North West Province
NWU	North-West University
SDG	Sustainable Development Goals
SA	South Africa
SMS	Short Message System
SNAC	Supportive Needs of Adolescents during Childbirth
UK	United Kingdom
UNICEF	United Nations Children's Fund
USA	United States of America
WHO	World Health Organization

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CHAPTER 1: RATIONALE AND OVERVIEW

1.1 INTRODUCTION

1.1.1 Chapter aim and outline

Chapter 1 presents a discussion on the background of the identified problem, namely the low rate of breastfeeding in South Africa (SA) attributable to a lack of knowledge. The aim and objectives of this study, the methodology selected for this study, the ethical considerations and rigour-related issues will be addressed in Chapter 1.

1.1.2 Background

In South Africa, it is common practice to discharge mothers from hospitals/clinics within a few hours after normal childbirth, once successful breastfeeding has been established. This practice was confirmed by the researcher's observations of nurses and by mothers' self-reports. After discharge, new mothers experience challenges with regards to supporting needs and health monitoring of mother and baby (Kurth *et al.*, 2016:12). A first time mother, is regarded as an individual with increased needs specific to the care of her new born infant, and with an increased tendency to struggle with breastfeeding (Cronin, 2003:261).

Between 2000 and 2015 the fourth Millennium Development Goal (MDG) was concerned with the reduction of deaths in children under the age of five years (You *et al.*, 2010:101). Exclusive breastfeeding was identified as an essential intervention to reach this goal. In South Africa, the Tshwane Declaration and the Campaign for Accelerated Reduction of Maternal Mortality in Africa (CARMMA) were implemented to support exclusive breastfeeding (Lubbe, 2013:301). The MDGs were, however, not reached and were replaced with the Sustainable Development Goals (SDG) after 2015. In South Africa the early breastfeeding initiation rate is reportedly 61%. However, the exclusive breastfeeding rate at six months of age is reportedly only 8%. Since 2003, this figure has remained unchanged, according to the World Health Organization (WHO, 2003; WHO, 2016). Reasons presented for this poor breastfeeding compliance rate include pain and discomfort during breastfeeding, feelings of insecurity, as well as the lack of information provided by healthcare providers (Kelleher, 2006:2727).

Globally mothers acknowledged that prior knowledge and understanding, of what to expect when leaving the hospital with a new infant, prepared them to cope with the new baby. With respect to breastfeeding, Kurth *et al.* (2016:2) reported that mothers' support during the puerperium contributed significantly to successful breastfeeding initiation, mothers' relaxation

and enhanced abilities to cope with breastfeeding as well as an increased duration of breastfeeding.

The use of mobile technology during and after pregnancy could also help to provide support and enhance maternal education. Demirci *et al.* (2016:30) found that sufficient and effective support and education had a positive impact on breastfeeding outcomes.

The National Department of Health (DoH) in South Africa also uses mobile technology to support maternal education and rolled out a programme, called MomConnect, during 2014. This is a programme whereby a pregnant woman connects to a SMS system at her first antenatal visit, and thereafter receives information via SMS regarding her pregnancy every fortnight. Currently about 1,2 million South African women are pregnant annually (Bateman, 2015:839). One million of these pregnant women use public sector and 200 000 use private sector antenatal care (ANC) services (Bateman, 2015:839). Since the launch of MomConnect during 2014, 103 000 mothers enrolled within the first month of the programme, and about 10 000 mothers enrolled weekly thereafter. During 2014, 69% of ANC clinics already participated in the programme (Bateman, 2015:839).

Dr Aaron Motsoaledi, South Africa's Minister of Health stated in 2014: "Many women end up with a complicated pregnancy simply because they didn't know what to do. You are helpless to change the outcome if their first point of contact is the labour ward. This way we can give advice and share what could be lifesaving knowledge during pregnancy – and after birth. Topics can include exclusive breastfeeding, nutrition, immunization, oral rehydration during diarrhoea and not to mention information on family planning" (Motsoaledi, 2014).

The MomConnect platform only provides information regarding pregnancy and birth. However, the SMS mode of delivery could also provide useful breastfeeding information to mothers after childbirth. However, it is unclear what specific information mothers need during each week, or every second week, during the puerperium (Mogre *et al.*, 2016:2-8).

1.1.3 Problem statement

Exclusive breastfeeding, or even partial breastfeeding, is beneficial to the infant as well as the mother (de Jager *et al.*, 2014:657). However, according to statistics from the WHO (2003), only 8% of South African mothers breastfed exclusively up to six months. Recent figures indicate that this figure has not changed since 2003, as it remained at 8% during 2016 (WHO, 2016:25).

Kelleher (2006:2727) emphasised that some first time mothers were reportedly unprepared for the physical challenges of breastfeeding and stated that 'no-one really tells you what your body

will feel like'. The time consuming effect of breastfeeding also caught some mothers off-guard. The literature indicates that providing health education to mothers who are breastfeeding or who intend to breastfeed, contributes significantly to providing the support these mothers require to breastfeed successfully (Kelleher, 2006:2727; Agostino, 2012:142; Ickes *et al.*, 2015:2576).

Breastfeeding success increases with better health education as a support mechanism. However, it is not yet clear what specific information should be provided at what intervals during the puerperium to support breastfeeding mothers to enhance their chances of successful breastfeeding.

By supporting first time mothers, who experience breastfeeding challenges, through providing health education, the breastfeeding rate in South Africa might increase, but it is necessary to determine the specific information first time mothers require at specific stages during the puerperium (Mogre *et al.*, 2016:2-8).

1.1.4 Research question

What are the breastfeeding educational needs of first time mothers during the puerperium?

1.1.5 Aim

The study aimed to determine the breastfeeding educational needs of first time mothers during specific stages of the puerperium.

1.1.6 Objectives

- To explore what specific breastfeeding information should be provided to first time mothers during each week of the puerperium to enhance breastfeeding success.
- To develop concise, focussed breastfeeding information which can be shared with first time mothers at weekly intervals during the puerperium by making use of a text message system.

1.1.7 Central argument

Breastfeeding educational needs for first time mothers during specific stages of puerperium will be determined by exploring specific breastfeeding information and therefore developing concise, focussed breastfeeding information to be shared to first time mothers on a weekly interval during puerperium using a text message system.

1.1.8 Research methodology

1.1.8.1 Research design

A research design focuses on the logic of the research process to determine what kind of evidence is required to address the research question adequately. This study employed a descriptive qualitative design. The researcher collected sufficient descriptive data, based on a comprehensive summary of everyday events, referring to the needs of mothers during the puerperium, as described by Sandelowski (2000:445).

Brink *et al.* (2012:193) described a qualitative approach as being one where research is being done in real life situations and events. This approach was appropriate for this study, as first time mothers (during the puerperium) were asked to share their experiences regarding their breastfeeding educational needs.

A longitudinal descriptive design was used as information was gathered weekly from the same participants over a period of six weeks. According to Botma *et al.* (2010:112), a longitudinal design looks at the change in variables at hand (breastfeeding educational needs in the current study), over a prolonged time period. A descriptive study was relevant as little was known about the topic, namely mothers' breastfeeding health education needs at specific times during the puerperium. Although literature sources specify mothers' breastfeeding educational needs, it remains unclear what exactly these needs are or when specific needs should be addressed.

1.1.8.2 Definitions of key concepts

1.1.8.2.1 Exclusive breastfeeding

Exclusive breastfeeding occurs when an infant receives only breast milk. No other liquids or solids are given, with the exception of oral rehydration solution, vitamins, minerals or medicines (WHO, 2013:107).

1.1.8.2.2 Breastfeeding educational needs

All mothers who intend to breastfeed need to acquire information as to what breastfeeding entails. By determining first time mothers' breastfeeding educational needs during the postpartum period, health care professionals could communicate this information to the mothers, and increase the success rate of breastfeeding till the babies are at least six months old in South Africa.

1.1.8.2.3 Puerperium:

The puerperium (postpartum period), starts immediately after the expulsion of the placenta and membranes and continues for six weeks (Marshall & Raynor, 2016:2147).

1.1.9 Research method

In this study, data were collected by means of structured, open ended questions delivered to the participants by using a text messaging system.

1.1.9.1 Empirical research

The researcher must plan the research appropriately in relation to the setting, the population and sampling, the procedure to collect the data, data analysis, measures to ensure rigour and ethical principles applicable to the study.

1.1.9.2 Study population

The study population comprised first time mothers who gave birth to live infants and who intended to breastfeed their infants. These mothers were in the North West Province (NWP), since this province represents the rural contexts of other provinces in South Africa.

In the NWP there is a huge drive towards providing breastfeeding support, as is evident from the initiation of the breast milk bank in Potchefstroom, which is in process of being expanded to other towns in this province. The Baby-Friendly Hospital Initiative (BFHI), aiming to promote exclusive breastfeeding as one of its initiatives, is being implemented at the Potchefstroom Hospital and at the Klerksdorp Hospital.

The Potchefstroom and Klerksdorp hospitals were utilised to recruit participants for the current study. Klerksdorp Hospital is situated in the Matlosana Municipality of the Kenneth Kaunda District. This hospital records an estimated 540 births per month, providing valuable and rich data to explore the phenomenon of breastfeeding mothers' health education needs, comprising the central focus of the current study. Klerksdorp Hospital is also the largest referral hospital in the NWP, representing the population of the NWP (Masiu, 2016). The Potchefstroom Hospital falls within the Tlokwe Municipality and records an estimated 300 births per month. The BFHI has already been implemented at this hospital. Both these hospitals were accessible to the researcher.

1.1.10 Sampling

A non-probability, purposive sampling method was used, whereby participants were recruited from the two participating hospitals. Burns and Grove (2010:343) defined a non-probability purposive sample as a sample where participants are selected and included in the sample due to specific information that needs to be gathered. Those participants would be able to contribute rich data about breastfeeding mothers' health education needs as they experienced breastfeeding of their babies. All participants that fit the inclusion criteria were invited to participate. Data were gathered until data saturation had been reached. Data saturation occurs when additional participants reveal no new information, but merely repeat data that had been previously collected (Botma *et al.*, 2010:202; Francis *et al.*, 2010:1229). Using a purposive sampling technique requires the use of data saturation (Guest *et al.* (2006:60). It is, however, problematic to determine the specific number of participants that would be required to reach data saturation. The four principles of Francis *et al.* (2010:1234) were used to determine whether data saturation had occurred in the current study. The four principles were: determining the minimum sample size, identifying the number of interviews (in this case questions) be conducted before no new ideas emerged, using an independent coder to analyse the data, and reporting the findings so that readers could evaluate the evidence.

Participants were recruited weekly, and data were also analysed weekly to determine when data saturation had occurred. As soon as data saturation had been reached, no new participants were recruited.

1.1.10.1 Inclusion criteria

- First time mothers who gave birth to a live infants and who were breastfeeding or intended to breastfeed.
- First time mothers who gave birth at Klerksdorp Hospital or at Potchefstroom Hospital.
- First time mothers whose infants were younger than one week of age.
- Mothers who could read, write and speak English.
- Mothers who owned mobile telephones so that they could access text message systems.

1.1.10.2 Exclusion criteria

- Mothers who had been pregnant previously, as they might have gained prior knowledge about breastfeeding and infant feeding.

- Mothers younger than 18 years of age, as these mothers were categorised as teenagers implying that they might encounter unique challenges which could influence the information obtained (Panday *et al.*, 2009:32).
- Mothers of infants born prematurely or having any illness or disability, as these experiences could be additional financial and physical burdens for these mothers.

1.1.10.3 Recruitment of participants

After relevant ethical clearance and permissions had been obtained from the HREC (see Annexure A), the Department of Health of the NWP (see Annexure B), the Department of Health of Tlokwe District (see Annexure C), the managers of the Klerksdorp/Tsepong Hospital complex (see Annexure D), and of the Potchefstroom Hospital (see Annexure E) (refer to section on ethics), the following process was followed:

The researcher contacted the hospital manager telephonically as well as via e-mail to make an appointment. The researcher explained the purpose of the study and addressed any questions. A mediator, a midwife working at the Klerksdorp Hospital but employed by a private nursing agency, was appointed to assist the researcher. The mediator was well known for her contributions to the BFHI. The researcher and the study's supervisor trained the mediator about the recruitment of participants and she signed a confidentiality agreement.

After consent had been granted by the hospitals, the researcher identified the most suitable days for the mediator to recruit participants. This was communicated to the staff members at the participating hospitals. The mediator distributed information pamphlets as well as informed consent forms to potential participants who met the inclusion criteria (see Annexures F and G) and who were still in hospital after their infants births. The mediator was available for an hour after the information had been given to the participants to answer any questions that the potential participants might have wished to ask. Potential participants were requested to complete informed consent forms if they were willing to participate in the study. An hour after the forms had been handed out, the mediator collected the forms. All participants completed the informed consent forms within an hour. No participant requested to take the consent form home to review or discuss it with other persons. A date was given to the participants to inform them when the proposed data collection would commence.

1.1.11 Data collection

Burns and Grove (2010:524) defined data collection as gathering information relevant to the purpose of a specific study. Data collection of this study aimed to:

- Determine the breastfeeding educational needs experienced by first time mothers during the puerperium to improve breastfeeding success rates in the NWP.

Data collection took place by means of a text message system, as it was convenient for the mothers to send text messages from the comfort of their own homes. This was deemed to be important since breastfeeding experiences and challenges could change rapidly. When the infant was one week old, the participants started receiving text messages in the form of questions to be answered. The messages were sent to the participants weekly for six successive weeks, expecting participants to reply to the messages. A R10 SMS bundle was given to each participant to be able her to reply to SMS messages, so that participation in the current study would not require the mothers to incur financial costs.

The reason for using the text message system as feedback was to ensure that every mother's breastfeeding health education needs for each week could be captured. Weekly reports could help to ensure that all relevant information would be captured and that no information would be forgotten due to long periods of time between specific events and the mother's recall thereof. As the mothers might be able to cope better after breastfeeding for a while, weekly contact was necessary to make sure the mothers will not forget what challenges they experienced more than a week ago.

All messages were only handled by the researcher and no responses could be linked to any participant's name or phone number. Anonymity was further assured by allocating a numerical code to each participant and the list of participants' names with codes were kept separately from the responses in a different locked-up cupboard to ensure no participant could be linked to any specific response.

A scoping review was done, where after questions were formulated. These questions were refined following an in-depth literature review which was the first stage of the study and were trialled on two participants who also fitted the inclusion criteria of the study, but no changes were required (refer to section 1.1.11 Trial run).

The weekly questions included:

1. Are you still breastfeeding?
2. Do you intend to continue breastfeeding?
3. What worked well during this week regarding breastfeeding?

4. What needs, challenges or questions did you have during the past week regarding breastfeeding your infant?

All four questions were sent to the mothers on a weekly basis. As soon as the mother decided to stop breastfeeding completely, she received no further messages during the remainder of the data collection period of six weeks.

When the researcher realised that a participant encountered any breastfeeding-related difficulty, the researcher assisted the participant electronically with breastfeeding information. If the researcher was unable to help, she referred the participant to the nearest clinic for breastfeeding support.

1.1.11.1 Trial run

In this study, a trial run was done recruiting two participants to whom the initial text messages were sent. Burns and Grove (2010:333) specified that a trial run should be conducted with participants that are similar to those being included. Consequently, a first time mother in the puerperium who was breastfeeding her baby could participate in the trial run. In this study, the trial run was used to refine the methodology by means of clarification of the questions that were asked (Burns & Grove, 2010:44). The trial run was done for one week only, and since the questions were not altered, the results were included in the study and the necessary information was obtained.

1.1.12 Data analysis

No transcribing was done as all messages received from the participants were original and already in electronic format. After data collection, all messages received were imported into the computer and extracted into an MSExcel spread sheet. To ensure anonymity, a number was allocated to each participant's telephone number (Creswell, 2009:186). The researcher used Tesch (1990) eight step approach to analyse the data and also used an independent co-coder to verify the data analysis.

Pre-step: All data were grouped per week resulting in six sets of data (week 1, 2, 3, 4, 5, 6), and data analysis started as soon as the first data had been received.

Step 1: All messages were read to obtain a general sense of all information received per data set, and any emerging ideas were written down. By reading all messages, and re-reading them, insight into the content was developed (Creswell, 2009:186).

Step 2: Categories were determined and compared to decide whether the categories matched the phenomenon under investigation, namely mothers' breastfeeding educational needs during the puerperium.

Step 3: Similar topics were combined and clustered together to organise them according to similarities, by focussing on specific words.

Step 4: Descriptive words were identified and assigned to appropriate sections.

Step 5: Topics were grouped, and relationships drawn to reduce the number of categories

Step 6: Final decisions were made regarding the categories, and then they were alphabetised and coded.

Step 7: After the data had been coded a preliminary analysis was concluded.

Step 8: All remaining data were coded as necessary.

Anonymous copies of the data sets were sent to the co-coder who followed the same process to ensure that no data got lost. As specified by Tesch, the data analyses were then compared and it was ensured that no discrepancies occurred (Creswell, 2009:183).

1.1.13 Measures to ensure rigour

In research, rigor refers to establishing the truth. In this study, trustworthiness of qualitative research was established by making use of four strategies. Credibility, transferability, dependability and conformability (Brink *et al.*, 2012:126-128).

1.1.13.1 Trustworthiness

Trustworthiness is defined as obtaining comparable results, or the same results if the same method was used, every time on the comparable participants (Burns & Grove, 2010:54). Trustworthiness was ensured by applying the following strategies: truth value determining the lived experiences of the participants; applicability, where findings need to be applied to a larger population and still be relevant; consistency whereby the findings will be replicated in other populations in the same context; neutrality whereby the researcher will not be biased towards any outcomes; and authenticity providing a true reflection of what the participants experienced during data collection (Botma *et al.*, 2010:235).

1.1.13.2 Transferability

This refers to the applicability of the data and to which degree data could be applied to different contexts (Creswell, 2009:184). The participants were first time mothers who were breastfeeding, or who intended to breastfeed, their infant. Thus the data could be applied to different contexts and settings, as long as the inclusion and exclusion criteria had been adhered to while selecting participants. The responsibility of transferability ultimately remains with the user of the data.

1.1.13.3 Credibility

This is referred to as confidence that the information gathered is the truth. Credibility establishes how confident the researcher is regarding the truth of the findings (Brink *et al.*, 2012:127). For the current study's findings to be credible, it was important to include mothers who were in their puerperium phase, who had knowledge about breastfeeding health education needs, and who could provide truthful information about their experiences. Credibility was ensured by persistent and continuous data collection as data were collected over six weeks.

1.1.13.4 Dependability

Dependability refers to stability of data over a time period. It is also important that the data gathered would be the same if data collection were repeated with other participants, under basically the same conditions (Polit-O'Hara & Beck, 2006). Dependability was ensured by making sure that only participants who met the inclusion criteria formed part of the study. Obtained information was dependable as it was collected over a period of six weeks. Therefore, if another study should be performed under the same circumstances and conditions, the results should be the similar.

1.1.13.5 Confirmability

According to Polit-O'Hara and Beck (2006:175), confirmability is to make sure that the information gathered is neutral. To ensure that the researcher is not biased when analysing data, an independent co-coder was used to make sure that the data gathered is a true reflection of the information received via text messages, and that no information was included that was not provided by the participants.

1.1.14 Ethical considerations

All aspects of the current study adhered to ethical codes for the protection of human participants, including obtaining ethical as well as scientific clearance prior to data collection commencement.

1.1.14.1 Permission and informed consent

Ethical clearance was obtained from the Health Research and Ethical Committee (HREC) of the faculty of Health Science, North-West University (NWU) Potchefstroom Campus (see Annexure A). Then permission for the research was obtained from the Department of Health (DoH) of the NWP (see Annexure B). Thereafter consent was obtained from the Tlokwe District (see Annexure C) and hospital managers of the Klerksdorp/Tshepong Hospital (see Annexure D) as well as from the Potchefstroom Hospital (see Annexure E). Access to the hospitals and patients was requested, and granted. Voluntary, written consent was obtained from all participants. The written informed consent letter (see Annexure F) as well as the demographic information form (see Annexure G) was given to the participants by a mediator who was fluent in both English and Tswana, so that the participants could understand the study's purpose.

Participants were recruited in the two participating hospitals shortly after the birth of their infant. Since mothers in South Africa's public health sector are discharged within a few hours after normal births (Bragg *et al.*, 1997), they were allowed to take their informed consent forms home, to provide them with the opportunity to read through the material, consider their interest and discuss their participation with their families. They could then leave their contact details with the mediator to allow them to be available for follow-up contact sessions for inclusion in the study. However, no participant wanted to take the informed consent form home. They all signed voluntary consent while still in hospital, and handed the completed and signed consent forms to the mediator.

1.1.14.2 Anonymity

Anonymity is when the data cannot be linked to any specific participant (Burns & Grove, 2010:196). This was assured by collecting data via text messages and using no names during data analysis. Each participant was allocated a code. The researcher compiled a list linking the participants' names with their cell phone numbers for control, this list was only accessible to the researcher and the study's supervisors. The list is also stored on the researcher's private computer and remains password protected. All informed consent forms are stored in a locked cupboard in the researcher's office.

No names were mentioned during data analysis to ensure anonymity. All the participants were aware assured that the information, which they shared via text messages, would be handled confidentially.

1.1.14.3 Beneficence

The principle of beneficence is defined by Brink *et al.* (2012:35) as ‘not doing any harm’, therefore the participants have the right to protection from any discomfort or harm. In this study, no harm was done to the participants, as they only shared their breastfeeding experience with the researcher, and they could also withdraw at any time from the study should they want to without incurring any negative consequences whatsoever. Further benefits are discussed in section 1.1.14.7 of this dissertation.

1.1.14.4 Confidentiality

Every participant could be assured about confidentiality as the mediator and co-coder signed confidentiality agreements with the researcher, ensuring that no information would be discussed with any person except the researcher and the study’s supervisors (see Annexure H). After the study’s completion, the results could be used for publishing articles and reports (such as the dissertation), but no identifying information would be disclosed (Brink *et al.*, 2012:35).

1.1.14.5 Justification for conducting the current study

All participants who met the inclusive criteria had a fair chance of participating in the study. They were selected because they were first time mothers who breastfed or intended to breastfeed their babies (Brink *et al.*, 2012:37). The breastfeeding rate in South Africa is as low as 8% (WHO, 2016) by the time the babies are six months old, providing more effective information to mothers that breastfeed, the researcher believed that the breastfeeding rate would increase and mothers would be able to breastfeed their babies with much more confidence. Furthermore, the current study’s findings could contribute to identifying the health education needs of first time mothers regarding breastfeeding. This information could be used to design appropriate text messages for breastfeeding mothers in future.

1.1.14.6 Respect for research participants

All participant views were respected during the current study as every person has the right to freedom. Participants were given the opportunity to withdraw from the study at any time, and they were not penalised for doing so. They also had the right to freedom of speech, therefore they could voice their own opinions and were able to provide the information that they wanted to share without being judged (Brink *et al.*, 2012:35). If they chose to use a different mode of feeding, for example bottle feeding, their decision was respected.

1.1.14.7 Benefit-risk ratio analysis

The study was low risk as no sensitive or exposing information was shared (Brink *et al.*, 2012:43). The benefits of participating in this study, included that valuable information would be gathered regarding the health educational needs of first time mothers regarding breastfeeding. Direct benefits for participating mothers were that should they struggle to breastfeed, they could contact the researcher on the number provided who was available and willing to give electronic breastfeeding advice to the participants as far as possible. This also helped breastfeeding mothers to cope when they encountered any breastfeeding problems. Indirect benefits included providing more appropriate information to mothers who wanted to breastfeed but who did not have the necessary support. This could contribute to better feeding outcomes of infants, trying to achieve SDG 3. If any mother continued to struggle, she was referred to a breastfeeding consultant at the nearest clinic. Furthermore, the benefits of the study included that the body of knowledge regarding maternal breastfeeding educational needs and the time of providing specific information during the puerperium were identified, which could inform future interventions and potential best practices.

1.1.14.8 Reimbursement of the study's participants

A SMS bundle, for their cell phones to the value of R10, was provided to each participant, depending on the text message system used by the participant. The participants had to send messages every week for six weeks in reply to the weekly messages received from the researcher. The reimbursement of money was loaded on their cell phones as soon as the first questions were sent to ensure that they would be able to send replies. No other reimbursements were offered to the participants. Although participants were provided with a SMS bundle, the response rate was low. During telephone follow-up conversations, the mothers indicated that they did not experience any breastfeeding challenges and therefore did not respond to the SMS questions.

1.1.15 Researchers' qualifications

The researcher completed a research methodology module which included data analysis by thematic coding from January 2016 till June 2016, as well as research ethics training during January 2016. She therefore understood the research process. The expert help and guidance from the study's two supervisors, proved valuable to compile the research proposal and also throughout the study. Both supervisors have extensive research experience as they have both obtained their doctoral degrees and have supervised many students doing qualitative research.

Both supervisors are also clinical subject experts in the field of breastfeeding. The services of an experienced qualitative data coder were utilised for co-coding the data.

1.1.16 Data management

All the raw data, resources and reports will be kept for five years within the current data management framework as recommended by the NWU. All electronic data documents are password protected and the computer that was used to store the information is also password protected. The cell phone used to send and receive text messages was acquired and used exclusively for the current study. The computer and well as the phone used to send and receive messages are securely locked up in the researcher's office. As soon as data from the phone had been transferred to the computer, the data were deleted from the phone's memory. Electronic information was stored on an external memory device in a locked cupboard in the researcher's office. After completion of the current study, the data will be stored in the research director's office of INSINQ, which is at the Nursing Department at the NWU, Potchefstroom Campus. After five years, all data from the computer as well as the back-up system, external memory device(s) and recycle bin of the computer will be deleted. No hard copies of data were used and will therefore not have to be protected or destroyed.

1.1.17 Data management plan

Data monitoring was done annually as prescribed by the Ethical Committee (HREC) of the NWU. The progress of the research was monitored against the proposed timeline and activity plan. Data quality was monitored under the supervision of the supervisor and co-supervisor who had the required technical skills and expertise. The ethical aspects were monitored by the supervisor and co-supervisor. Participants were also at liberty to report incidents to the Health Faculty Research Ethics office of the NWU. No amendments were made to the proposed study.

1.1.18 Dissemination of research results

The researcher will be sharing all the results that were obtained from the study by contributing to the body of nursing knowledge (Brink *et al.*, 2012:58). This will further be distributed by means of submitting articles to journals in the relevant research field, and also by presenting conference papers. All participants will be informed about the study's results within six months after the study's conclusion by means of a message in the same manner that the data collection was done. The needs identified will be communicated to the participants by means of a text message. The results will also be compiled in a document, and then sent to the hospitals where recruitment of the current study's participants took place.

1.1.19 Role of the members of the research team

The research team included the researcher (master's student) who conducted the study and collected and analysed the data. As all data were in an electronic format, no transcription was needed. An independent co-coder, with vast experience in the coding of qualitative data and who holds a doctoral degree, confirmed accuracy of the data analysis. The mediator was a midwife, working at one of the hospitals included in the study. The supervisor and co-supervisor were available to support the researcher, and check the correctness of data collection and analysis.

1.1.20 Conflict of interest

There were no conflicts of interest as the researcher did not benefit in any way by doing this study, other than to obtain a master's degree, and striving to promote better breastfeeding success rates in the NWP.

1.1.21 Outline of dissertation

The dissertation comprises the following four chapters, following an article format.

Chapter 1: Overview of the study

Chapter 2: Original research article – Narrative literature review article titled: Breastfeeding educational needs of first time mothers during the puerperium, article to be submitted to the *Journal of Human Lactation*. (The study's literature review will be presented in this article).

Chapter 3: Original research article – Titled: Exploring the breastfeeding educational needs of first time mothers during the puerperium. (The study's results and methodology will be discussed in this chapter). Publication submitted to the *Journal of Perinatal and Neonatal nursing*.

Chapter 4: Limitations, conclusions and recommendations

1.1.22 Summary

This chapter has been compiled to explore the breastfeeding needs first time mothers experience during the puerperium. The research question was formulated as: What are the breastfeeding education needs of first time mothers during the puerperium? Therefore the aim of this study was to determine the breastfeeding educational needs of first time mothers during the puerperium. To be able to reach this aim, two steps were followed. Firstly, to explore what relevant breastfeeding information should be provided to mothers weekly during the puerperium

to support breastfeeding success, and thereafter to develop breastfeeding information content that could be delivered weekly during the puerperium. Recruitment of participants, data collection and data analysis were addressed.

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CHAPTER 2: LITERATURE REVIEW – MANUSCRIPT PREPARED FOR SUBMISSION TO JOURNAL OF HUMAN LACTATION

2.1 CHAPTER AIM AND OUTLINE

In Chapter 2, the literature review is presented in article format. It is the opinion of the researcher and the current study's supervisors that other researchers and clinicians could find the literature review concerning breastfeeding health education needs valuable in their work. An article is a useful method to disseminate research results. It serves to provide in-depth information about research that has already been done on the topic discussed in Chapter 1. The literature review indicated to the researcher what research still needs to be done about breastfeeding health education. This chapter has been formatted according to the author guidelines of the Journal of Human Lactation, and will be submitted after marking. Therefore the chapter's sections and subsections have been numbered for examination purposes but these numbers will be removed before the document is submitted to a journal.

Literature review: **Journal of Human Lactation**

Title: **Exploring the literature to determine breastfeeding educational needs of first time mothers during the puerperium.**

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2.2 KEYWORDS

Breastfeeding, Postnatal, Support, Educational needs, Puerperium, First time mothers.

2.3 ABSTRACT

BACKGROUND

In South-Africa, a mother is discharged from hospital within the first few hours after a normal vaginal birth. Usually breastfeeding challenges emerge five to seven days after birth when mothers might need help with breastfeeding their infants. Understanding generalised feeding, problems experienced by puerperal mothers, is essential to support breastfeeding mothers to sustain exclusive breastfeeding for six months (WHO, 2003). The first step towards gaining understanding of the topic, is to explore the relevant literature available about this topic.

REVIEW AIM/QUESTION(S)

The aim of this review was to explore the literature to determine the breastfeeding educational needs of mothers during the puerperium as described in the literature.

METHODS

A narrative review of primary research, explorative work, existing guidelines and evidence-based opinions, was conducted to compile this document. The reviewed literature mainly comprised relevant published journal articles. Keywords used during the literature search included: breastfeeding, postnatal support, educational needs, postpartum, first time mothers. Each document's title and abstract were reviewed to determine whether it addressed the review question, resulting in the inclusion of 32 suitable documents in the current literature review. Only documents that provided valuable information regarding the keywords were included in this literature review.

RESULTS

Different aspects were identified as to why mothers did not continue to breastfeed up to six months. Global and national initiatives were identified pertaining to breastfeeding support, breastfeeding challenges frequently experienced by new mothers and also an array of support measures available to breastfeeding mothers.

CONCLUSION

Aspects regarding successful breastfeeding have been explored. Challenges faced by mothers, have a direct impact on the success of exclusive breastfeeding outcomes. Although different global and national initiatives have already been implemented, success is not evident as the exclusive breastfeeding rate in South-Africa is 8%. To achieve the third sustainable developmental goal, adequate support should be provided to breastfeeding mothers.

2.4 BACKGROUND

In South Africa it is common for a mother to be discharged from hospital within the first few hours after a normal vaginal birth. Problems tend to occur five to seven days after birth when mothers might realize that they need help to breastfeed their infants successfully. Understanding the breastfeeding-related challenges mothers might experience during the puerperium could enhance the development of support measures, contributing to improved exclusive breastfeeding rates until the babies are six months old, as suggested by the World Health Organisation (WHO) (Kelleher, 2006).

Breastfeeding is beneficial to mother and infant. However, only 8% of South African mothers breastfeed exclusively up to six months and this situation has not improved since 2003 (WHO, 2016). Some reasons for breastfeeding cessation stated in the

literature, included that mothers were unprepared for the physical challenges and time commitments associated with breastfeeding (Kelleher, 2006). The literature also indicates that health education provided to mothers who wanted to or were breastfeeding significantly contributed to enhancing breastfeeding success rates. However, literature is not clear on when certain problems were generally experienced and when education about these challenges should be provided to be effective.

2.5 REVIEW AIM AND QUESTION

The aim of this review was to explore the literature to identify the breastfeeding educational needs of mothers during the puerperium. To achieve this aim, the following question was asked:

What are the breastfeeding educational needs of first time mothers during the puerperium?

2.6 RESEARCH METHOD

A narrative review of primary research, explorative work, existing guidelines and evidence-based opinions was conducted. The reviewed literature sources mainly comprised published journal articles relevant to the specific topic. Keywords included: breastfeeding, postnatal support, educational needs, postpartum, first time mothers. Each document's title and abstract were reviewed to determine whether it addressed the research question, resulting in a review of 32 relevant documents.

2.7 RESULTS

Different aspects were identified as to why mothers did not continue breastfeeding until their babies were six months old. These aspects posed challenges for breastfeeding, but initiatives supporting breastfeeding, as well as available breastfeeding support also became apparent during the review. Various global and international initiatives were

identified that support breastfeeding. Although these initiatives have been implemented, the exclusive breastfeeding rate in South Africa remains at 8% (WHO, 2016).

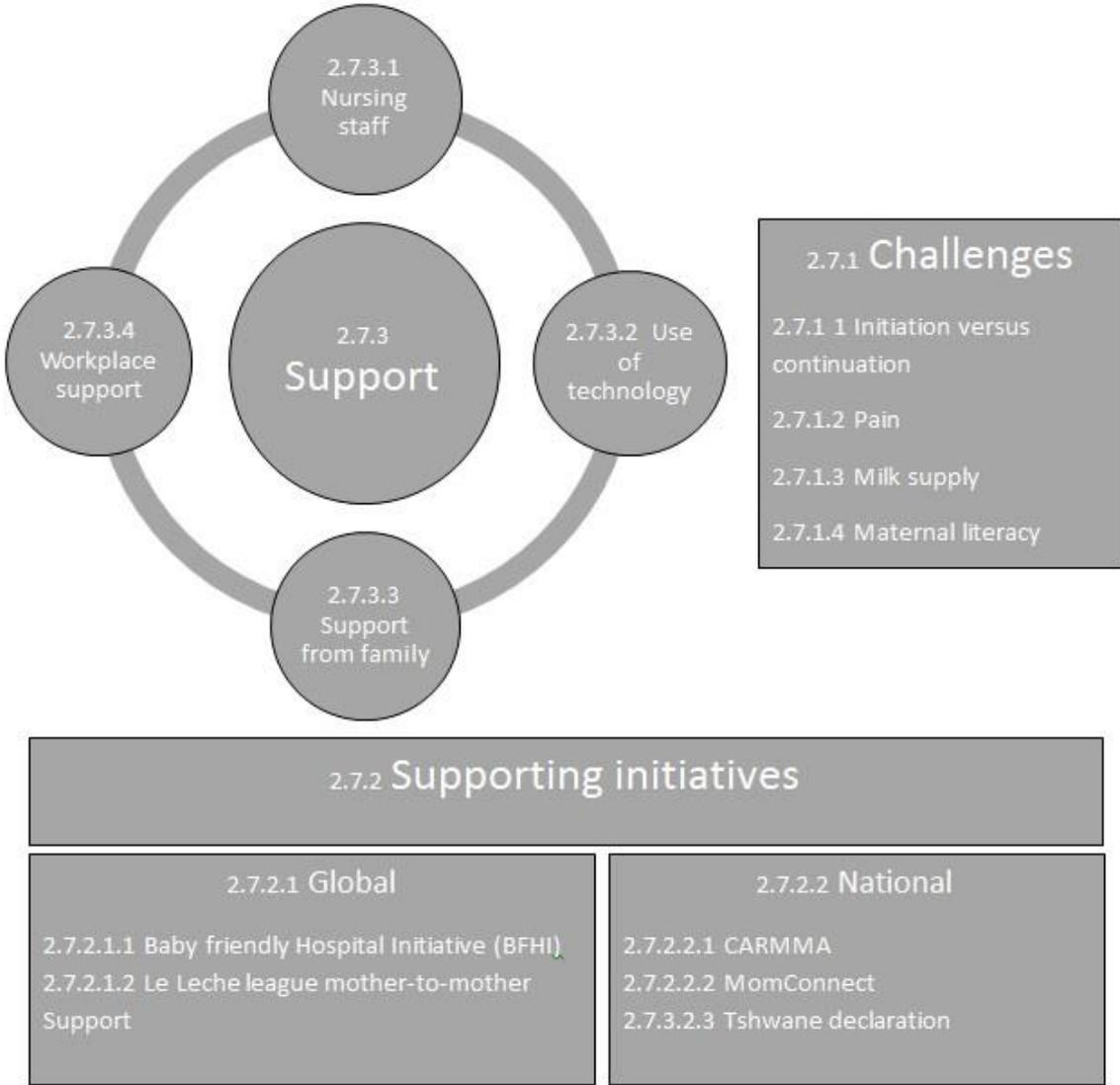


Figure 1-1:Breastfeeding success

2.7.1 Challenges influencing breastfeeding outcomes

Breastfeeding challenges can be experienced at different times during the journey and the literature differentiates between breastfeeding initiation and breastfeeding

continuation challenges. Aspects related to these timeframes will be explored as well as the mother's breastfeeding intention versus breastfeeding success.

2.7.1.1 Initiation versus continuation challenges

Breastfeeding initiation is influenced by the infant's health status, mode of birth, early initiation as well as receiving help from medical staff (Bella & Aldahan, 2015). Mothers perceived exclusive breastfeeding as an important source of infant life and health, and regarded it as an important contributor towards a loving, mother-infant relationship (Bella & Aldahan, 2015).

Factors influencing intentional versus actual breastfeeding rates: Perrine, Scanlon, Li, Odom, and Grummer-Strawn (2012) found that although 85% of mothers, participating in their study, intended to breastfeed for up to three months, only 32.4% managed to do so. Although, early initiation of breastfeeding in hospitals, where the Baby Friendly Hospital Initiative (BFHI) has been implemented, showed increase breastfeeding, rates, mothers discontinued breastfeeding earlier than they had anticipated (Perrine et al., 2012). Breastfeeding initiation within the first hour after birth and refraining from using pacifiers contributed towards breastfeeding success among mothers who intended to breastfeed (Zakarija-Grković, Boban, Janković, Čuže, & Burmaz, 2017). In a study by Bella and Aldahan (2015) two thirds of their study's participants intended to breastfeed, but breastfeeding was only initiated by one-third within the first hour after birth. Only 9.5% of those participants practised exclusive breastfeeding until their babies were six months old.

Illness and separation challenges: In the event of an ill infant being admitted to a neonatal intensive care unit, separation from the mother could interfere with breastfeeding. These mothers require individualised care and educational support in

the event of separation and illness (Moreira Marques, Oliveira Pinho, Rodrigues, Martins, & Matão, 2016).

Positive attitudes: Exclusive breastfeeding rates improve with early initiation and the presence of a positive attitude from healthcare providers and breastfeeding mothers, leading to mothers' higher satisfaction rates with their healthcare providers (Grassley & Sauls, 2012; Pamela S. Mellin, APNC, Center - Atlantic Health, & Bernardsville, 2012). The Supportive Needs of Adolescents during Childbirth Program (SNAC) is an example of how nurses' positive attitudes could influence adolescent mothers to establish early breastfeeding, thereby increasing breastfeeding rates.

Breastfeeding initiation: An increase in breastfeeding initiation rates has shown a correlation with exclusive breastfeeding six months after birth. However, even in the presence of BFHI practices, mothers continue to experience breastfeeding challenges, which could cause early cessation of breastfeeding, indicating that early initiation alone is not a guarantee for breastfeeding success, but that there is a need for continuous support. In addition, challenges associated with poor breastfeeding sustainability included mothers' experiences of breastfeeding being painful, actual or perceived insufficient milk supplies and maternal literacy levels.

2.7.1.2 Breastfeeding associated pain

Pain is one of the main factors leading to early breastfeeding cessation, with 23% of breastfeeding mothers who experienced some form of pain associated with breastfeeding during the first year, discontinued breastfeeding. Such pain could be caused by mastitis, candida, engorgement, nipple tenderness and blocked milk ducts. All these conditions could be managed with correct and timely breastfeeding education (Strong, 2011). Positioning of the infant was the main cause of nipple tenderness as

reported by McClellan, Kent, Hepworth, Hartmann, and Geddes (2015). By providing breastfeeding education to mothers, this could be prevented rather than treated. Strong (2011) found that health care providers (HCPs) preferred prescription medications to non-pharmacological treatments for breastfeeding pain. This author further stated that HCPs should use evidence-based practice to support and educate breastfeeding woman about the correct positioning of the infant, and especially in pain support, not prescription medication.

2.7.1.3 Milk supply

Breastfeeding mothers' perceptions about and experiences of an insufficient milk supply need to be considered when assessing/evaluating the breastfeeding continuation rate. A mother's perception of an insufficient milk supply is difficult to manage, since it is difficult for a mother to determine the exact volume of milk the infant drinks. Mothers might fear malnutrition (Almarzoki & Abdulkareem, 2015) due to an insufficient milk supply. Tenfelde (2012) reported that 43% of mothers in their study discontinued breastfeeding due to their perception of an insufficient milk supply before their babies were six months old as verbalised by 55% of these of participants who had discontinued breastfeeding.

2.7.1.4 Maternal literacy

Better education improves breastfeeding rates (Ickes, Hurst, & Flax, 2015) while poor socio-economic status impacts negatively on sustained breastfeeding (Behera & Pillai, 2016). Low maternal literacy levels and poor formal education of mothers who give birth at home are associated with high breastfeeding initiation rates but also with malnourishment and poor nourishment of their babies (Barenes, Slesak, Goyet, Aaron, & Srour, 2016).

Furthermore, low literacy levels could expose mothers to supplemental feeding practices associated with social habits and/or advertising campaigns, resulting in the discontinuation of breastfeeding (Almarzoki & Abdulkareem, 2015; Barennes et al., 2016). Research by Wanjiku, Mukui, Auka, and Korir (2015) has shown that mothers in rural areas intended to give supplement foods and water before their infants were six months old - a practice linked to poor breastfeeding education.

With 84% of Nigerian mothers taking part in the study and believing that colostrum is stale milk, and 98% of those mothers believing that expressed breast milk is contaminated, mothers did not really understand the properties or benefits of breastfeeding. Some mothers believed that breastfeeding would flatten their breasts and refused to breastfeed due to aesthetic reasons (Tyndall, Kamai, & Changchangi, 2016). Education about relevant breastfeeding issues should commence in antenatal clinics, to ensure that mothers are well educated about breastfeeding benefits, and that they have opportunities to ask questions should they wish to do so (Tyndall et al., 2016).

Key messages about breastfeeding challenges from literature

Breastfeeding mothers often verbalise that they did not expect it to be so difficult. Even the initiation of breastfeeding could be challenging due to pain during the first year of breastfeeding, the perceptions of sufficient milk supplies as well as maternal illiteracy. All these factors showed to have a significant impact on breastfeeding success (Kelleher, 2006, Tyndall, Kamai, & Changchangi, 2016).

2.7.2 Supporting initiatives

Various initiatives have been implemented to improve breastfeeding rates globally. These initiatives can be divided into global initiatives (BFHI and La Leche League

International) and national initiatives, such as The Campaign for Accelerated Reduction of Maternal Mortality in Africa (CARMMA), MomConnect and the Tshwane Declaration.

2.7.2.1 Global initiatives

Various global initiatives have been implemented to reach SGB 3 and specifically exclusive breastfeeding. Two global initiatives are the BFHI and La Leche League mother-to-mother support.

2.7.2.1.1 Baby-Friendly Hospital Initiatives (BFHI)

The WHO and United Nations Children's Fund (UNICEF) launched the BFHI during 1991 as a global effort to support and promote exclusive breastfeeding in infants up to six months of age and more than 152 countries participate in this initiative (Zakarija-Grković et al., 2017).

Since 2008, the number of hospitals participating in the BFHI initiative started to increase rapidly and according to Nobari, Jiang, Wang, and Whaley (2017), the breastfeeding initiation rate in BFHI hospitals was much higher than those in hospitals not implementing BFHI. The ten steps that form the basis of the BFHI include: 1) that a written policy should be available at each institution, 2) all healthcare staff should have the necessary skills to implement the policy, 3) all pregnant woman should be informed about breastfeeding benefits, 4) breastfeeding should be initiated within a half-hour after birth, 5) mothers should be educated on maintaining lactation if separated from their infants, 6) no alternative food or drink other than breast milk should be given to infants unless medically indicated, 7) rooming-in of infants, 8) breastfeeding on demand, 9) no artificial teats or pacifiers to be given to breastfeeding infants and 10) establishing support groups for the mothers where they could be referred after discharge from the hospital (Organization, 1998).

2.7.2.1.2 La Leche league mother-to-mother support

Globally, the WHO focusses on improving breastfeeding outcomes (Theron, 2016). To improve the breastfeeding practices, global initiatives have concentrated on hospital-based policies and procedures. Although hospital-based programmes had significant influences on the breastfeeding outcomes, community-based support is also needed. At community level, peer counselling and training need to be provided. La Leche League International is a non-profit organisation founded on 17 October 1956, with the aim to help mothers worldwide to breastfeed. This organisation provides mother-to-mother support, encouragement, information, and education, and to promote a better understanding of breastfeeding as an important element in the healthy development of the infant and mother (Christina G. Bobel, 2001). There was a significant improvement in breastfeeding outcomes when community members, who had completed the La Leche League training, help mothers with breastfeeding (Hauck, 2006). This initiative mainly uses their webpage to supply current relevant information to mothers. They have podcasts, mother-to-mother interaction, question-answer pages as well as personal support in some local areas.

2.7.2.2 National initiatives

In South Africa different initiatives have been implemented including the CARMMA, MomConnect as well as the Tshwane Declaration.

2.7.2.2.1 CARMMA

CARMMA was launched by the African Union during the Conference of Ministers of Health held in Addis Ababa, Ethiopia during May 2009. Although the theme was 'Universal Access to Quality Health Services: Improve Maternal, Neonatal and Child Health', it also focussed on the reduction of maternal and child mortality rates. Specific

focus was placed on infant nutrition, including Kangaroo Mother Care (KMC), providing facilities for lactating mothers when children are admitted to hospital and advocating appropriate care for pregnant women and lactating mothers in the workplace (Lubbe, 2013). The aspect of maternal lactation is further discussed under workplace support.

2.7.2.2.2 MomConnect

The National Department of Health (DoH) in South Africa rolled out a programme called MomConnect during 2014. A pregnant woman connects to a SMS system at her first antenatal clinic visit, and then receives information regarding her pregnancy every fortnight. During 2015, about 1.2 million South African women were pregnant (Bateman, 2015). One million of these women used public sector and 200 000 used private sector antenatal care (ANC) services (Bateman, 2015). Since the launch of MomConnect in 2014, 103,000 mothers enrolled during the first month of the programme, and about 10,000 mothers enrolled weekly thereafter. During 2014, 69% of antenatal clinics already participated in the programme (Bateman, 2015).

Dr Aaron Motsoaledi, South Africa's Minister of Health stated in 2014: "We can give advice and share what could be lifesaving knowledge during pregnancy – and after birth. Topics can include exclusive breastfeeding, nutrition, immunization, oral rehydration during diarrhoea and not to mention information on family planning" (Motsoaledi, 2014).

At the time of the study the information sent via MomConnect focused on pregnancy and birth only, but no breastfeeding-related information was sent to these women. This type of system could also deliver timely breastfeeding information to mothers.

2.7.2.2.3 The Tshwane declaration

In August 2011, a national consultative meeting on breastfeeding was held in Tshwane (South Africa), whereby all participants signed a declaration called the Tshwane Declaration to support breastfeeding in South Africa. This declaration addressed aspects such as promoting BFHIs, exclusive breastfeeding, comprehensive services provided to mothers, as well as basic interventions to support mothers. This declaration emphasized the urgency of improving this very important aspect of motherhood (Du Plessis, 2013).

Key messages – initiatives supporting breastfeeding

Global and national support initiatives include BHFI, La Leche League, CARMMA, the Tshwane Declaration as well as MomConnect. In spite of these initiatives' implementation, the exclusive breastfeeding rate of South Africa in 2016 was only 8% (WHO, 2016).

2.7.3 Support

Literature indicated that support plays a vital role in breastfeeding success. Various forms of support include support from nurses, the use of technology as a support medium, support at home, as well as from family, in the community and then also continuous support when returning to work.

2.7.3.1 Support from nursing staff

Educational training of healthcare staff members, regarding nutrition, could improve their attitudes towards breastfeeding (Valdés et al., 1993). Early career education, such as student nurses' training about breastfeeding, might be vital for promoting breastfeeding support from healthcare professionals (Stadtlander, 2015). Retraining and updating of healthcare staff has promoted breastfeeding (Bella & Aldahan, 2015).

Although nurses are the ones who should encourage breastfeeding, their attitudes and beliefs might contribute to poor educational support and education provided to mothers (Greene-Hughes & Bry, 2012). Comprehensive breastfeeding education materials provided to mothers, increased patient education about breastfeeding, and also enabled nurses to provide better educational support to mothers (Buchko & Gutshall, 2012).

2.7.3.2 The use of technology as a support medium

Various technological mediums of breastfeeding support have been described in the literature, such as telephone support programmes, text message support systems and Internet-based support.

Telephone support has been described by Agostino (2012) In that study mothers received weekly individualised telephone calls from a lactation consultant for the first three months after birth, followed by monthly telephone calls for three months. These structured telephone support efforts helped to decrease the risk of early weaning and therefore proved to increase the success rate of breastfeeding until their babies were at least six months old. In this study 100% of Agostino (2012) participants who received telephone support reached their ideal breastfeeding goal and 73% continued to breastfeed up to six months, opposed to the control group where only 38% of participants continued to breastfeed for at least six months. Through telephone support, the participants were able to overcome their challenges and reach their goals. Although telephone support has been described as an effective medium and intervention to support breastfeeding continuation for up to six months, it was not clear from the literature as to what information should be provided to mothers by means of a structured telephone support system (Agostino, 2012; Fu et al., 2014).

Computer support: The use of interactive, animated computer-based programmes, where breastfeeding information and support are provided to interested mothers, has been explored. Edwards, Bickmore, Jenkins, Foley, and Manjourides (2013) determined that mothers required consistent support with correct and relevant information. This information was gathered through verbal and non-verbal interactions that International Board-Certified Lactation Consultants had with participants. They concluded that by using technology, correct supplemental information could be provided to support breastfeeding mothers and to increase the breastfeeding continuation rate. However, no indication was given as to what challenges occurred at specific stages during the puerperium.

The use of a **short message system** has been explored as a form of breastfeeding support (Bruun et al., 2017; Gallegos, Russell-Bennett, Previte, & Parkinson, 2014; Jiang et al., 2014). It specifically focussed on whether an automated text message per week could increase the breastfeeding rate. It was found that sending automated text messages per week had a positive impact on the breastfeeding rate. Mothers could choose from different answers to reply whether they experienced problems or not. In that study it remained unclear whether the positive effect was due to the message received, or due to the content of the message (Bruun et al., 2017).

The technology-based breastfeeding support system described in literature is provided by healthcare professionals with the mothers being passive recipients where they select responses from a pre-determined set of criteria. The challenge of such support systems is that the support can be too non-specific when automated and very labour intensive for the HCP when individualizing responses. This poses the challenge that maternal support should be directly linked to the availability of a human responder on the other side of the technology. In South Africa and other developing countries, quality care and

support need to be provided, but the limitation of human resources also needs to be taken into account. Therefore the use of technology could be useful, but information also needs to be provided in a targeted and timely manner, which does not seem to be the case in the technologies explored in this literature review (Gallegos et al., 2014).

2.7.3.3 Support at from family

Lack of support at home after discharge from hospital contributes to early breastfeeding cessation and causes mothers to stop breastfeeding at an early stage. Most mothers could benefit from strategies aiming to encourage breastfeeding (Demirtas, 2012; Gazmararian et al., 2014), by empowering mothers through creating feelings of capability and increased self-efficacy (Demirtas, 2012). These strategies included collaboration with community and family members, confidence building, and appropriate ratio of staffing levels as well as developing communication skills. Demirtas (2012) reviewed 38 papers and concluded that collaboration such as guidance and support from communities and family members positively supported breastfeeding mothers.

In a study by Gazmararian et al. (2014), both mothers (n = 92) and health care providers (n = 20) verbalised that daily information about basic infant care, with nutrition as a monthly topic, assisted breastfeeding mothers to care for their babies. The researchers concluded that a lack of continuing support was associated with early breastfeeding cessation.

It was highlighted by Shah, Patel, and Mehariya (2014) that the need to improve knowledge and awareness in the community and society is vital for establishing a positive impact on feeding practices of new-born infants. However, myths regarding different beliefs about breastfeeding, should be eliminated.

The effect that cultural barriers have on exclusive breastfeeding was explored by Fischer and Olson (2014). By working with mothers and community members with different cultural beliefs, better exclusive breastfeeding rates were established. This required improved education and communication with the family, peer supporters and community members. Tyndall et al. (2016) also found that breastfeeding success depended on the support provided by the spouse, family and even health care providers.

2.7.3.4 Workplace support

In South Africa, the Code of Good Practice on Protection of Employees during Pregnancy and after Birth of a Child forms part of the Basic Conditions of Employment Act (BCEA) (South-Africa, 1997). According to this code, arrangements should be made for breastfeeding workers to have breaks of 30 minutes twice per day for breastfeeding or expressing milk each working day for the first six months of the child's life. However, many mothers who coped well with breastfeeding at home stopped breastfeeding as soon as they returned to work, due to inadequate nursing and/or breast milk expressing spaces at the workplace (Bostick, Albrecht, Baghdadi, Haley, & Spatz, 2016), contributing towards non-exclusive breastfeeding (Wanjiku et al., 2015) and possibly to breastfeeding cessation.

Key messages - support

Breastfeeding education is an integral part of breastfeeding success as seen in the literature. (Auerbach, 1988; Buchko & Gutshall, 2012). It is, however, also important for nurses to be well educated to give correct, concise information to breastfeeding mothers. Therefore it is of the utmost importance that nurses should receive the correct educational information to share with mothers to ensure the best possible breastfeeding outcomes.

Literature (Bateman, 2015; Demirci, Cohen, Parker, Holmes, & Bogen, 2016) has shown that the use of technology has a positive impact on breastfeeding outcomes. Many different ways have been implemented, and should be streamlined to be used effectively to support breastfeeding.

After discharge from hospitals, mothers might need additional support from the people at home to be able to continue to breastfeed which might prove difficult. With effective support for the mothers who breastfeed their babies, whether from the families, spouses or health care providers, these mothers tend to continue to breastfeed longer than mothers without such support. By considering different cultural aspects better breastfeeding outcomes could be attained (Almarzoki & Abdulkareem, 2015; Fischer & Olson, 2014).

Although the WHO encourages breastfeeding, and CARMMA also supports better breastfeeding at the workplace, mothers are not necessarily supported at work (Porter & Oliver, 2015). This results in mothers having to stop breastfeeding before their infants are six months old.

2.8 CONCLUSION

By reviewing literature, different aspects were identified as to why mothers do not continue to breastfeed at least till their babies are six months old. These were identified as challenges adversely affecting breastfeeding, initiatives supporting breastfeeding as well as support from families, communities and HCPs. Various global and international initiatives have been implemented to support breastfeeding, but the exclusive breastfeeding rate at the age of six months in South Africa remains only 8% (WHO, 2016).

2.9 Recommendations for practice

By reviewing the literature, the following recommendations for the practice could be formulated:

- Continue with early breastfeeding initiatives.
- Ensure that staff members with positive attitudes are responsible for providing breastfeeding support.
- On-going education and in-service training should be provided to nurses to ensure good education to mothers.
- Cultural beliefs should be considered and addressed.
- Technology can be useful as a breastfeeding support tool.

2.10 Recommendations for research

By reviewing the literature, the following recommendations for future research were identified:

- Explore cultural aspects that influence breastfeeding.
- Explore technology to be utilized optimally as a breastfeeding support tool.

- Determine the breastfeeding content to be provided to mothers during the puerperium.
- Determine critical times to deliver specific breastfeeding content to mothers to ensure breastfeeding continuation.

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PURPOSES:

I, the supervisor, hereby declare that the research done by ms A du Plooy reflects her input and the effort on this topic.

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Supervisor: Professor Welma Lubbe Date: 13 November 2017

DECLARATION BY THE RESEARCHER

I hereby declare that this research '**Exploring the literature to determine breastfeeding educational needs of first time mothers.**' is my own work and that all sources have been fully referenced and acknowledged.



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Date: 13 November 2017

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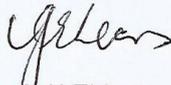
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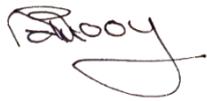


Prof VJ Ehlers

TO THE JOURNAL

"I have done the conception and design of this work, the data analysis, and the writing of this article and take full responsibility for it. I have reviewed the final version of the article and approve it for submission for possible publication".

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Dear Editor

SUBMISSION OF ARTICLE FOR PUBLICATION IN JOURNAL OF HUMAN LACTATION

Please find attached our manuscript entitled: **“Exploring the literature to determine breastfeeding educational needs of first time mothers”**.

The authors are A du Plooy, W Lubbe and A du Preez, all of whom have read and approved the paper. Prof Welma Lubbe will be responsible for correspondence.

A du Plooy conceptualised, drafted and designed the manuscript as well as its technical preparation for submission. Prof W Lubbe was responsible for co-writing and critical review of the manuscript. Dr A du Preez also critically reviewed the manuscript. All authors read and approved the final manuscript.

The paper discusses and explores literature available on the following topic: Exploring the literature to determine breastfeeding educational needs of first time mothers. We have chosen to submit the paper as a topic for discussion to your journal because you provide open access to current, disputed issues in the field of infant feeding.

We believe that our findings deserve to reach other researchers interested in providing insight into the current situation regarding breastfeeding education, and information. This could assist in improving the education to mothers and help to increase the breastfeeding rate in South Africa and other countries.

Yours sincerely



Prof Welma Lubbe

School of Nursing Science, INSINQ, North-West University

CHAPTER 3 MANUSCRIPT PREPARED FOR SUBMISSION TO THE JOURNAL OF PERINATAL AND NEONATAL NURSING

3.1 CHAPTER AIM AND OUTLINE

The following article will be submitted to the Journal of Perinatal and Neonatal Nursing after editorial permission has been granted. Formatting and style of this article differs from that of Chapters 1 and 4 of this dissertation since it was done according to the specific journal's author guidelines (see Annexure K). All references to annexures in this article are provided for the purpose of examination of this dissertation and will be removed prior to submitting the article to the journal.

Literature review: **Journal of Perinatal and Neonatal Nursing**

Title: **Breastfeeding educational needs of first time mothers during the puerperium**

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3.2 ABSTRACT

PURPOSE

A literature review identified global and national initiatives towards breastfeeding support, breastfeeding challenges often experienced by new mothers and also an array of support measures available to breastfeeding mothers. However, the literature does not indicate specific breastfeeding challenges that first time mothers experience at critical times during the puerperium. Identifying such specific needs could contribute to the design of needs-based, educational support interventions enhancing sustained breastfeeding until the baby is at least six months old.

METHODS

This study used a qualitative design, whereby data were collected by sending pre-determined questions via a text message system to first time mothers at weekly intervals during their puerperium phase. Responses were received via the text message system which was imported into a Microsoft Excel spread sheet for each postnatal week until data saturation had been reached. Tesch's eight step approach was used to analyse the data and an independent co-coder verified the analysis and findings

RESULTS

Thirty seven participants enrolled. After fallout, twelve responded with challenges, with eleven reporting no challenges.

The reported challenges included painful nipples, perceptions of insufficient milk supply, breast problems, returning to work as well as maternal or child illnesses. Participants who experienced breastfeeding challenges during the first three weeks of the puerperium, tended to continue experiencing different breastfeeding challenges.

CONCLUSION

Providing appropriate breastfeeding education to mothers, regarding possible challenges they might experience, at specific times during the puerperium, might help to address these challenges before they become problematic. This would enhance the mothers' chances of successful exclusive breastfeeding for at least six months.

3.3 KEYWORDS:

Breastfeeding, Postnatal, Support, Educational needs, Puerperium, First time mothers.

3.4 PRECIS

Challenges encountered during breastfeeding impact on the success rate of sustained breastfeeding. This could be prevented by providing correct health education to breastfeeding mothers at critical times.

3.5 BACKGROUND

Breastfeeding is beneficial to mother and infant, however only 8% of South African mothers breastfed exclusively for at least six months and this situation did not improve since 2003 (2). In South Africa, mothers are discharged from hospitals/clinics within a few hours after normal vaginal births. Mothers rarely experience breastfeeding challenges during these few hours, but usually encounter challenges 5-7 days after their babies' births. Only then would the mothers realize that they need help with to breastfeed their infants. It is therefore necessary to determine what problems mothers experience at what stages during the puerperium, to help them to breastfeed their infants exclusively to the age of at least six months as suggested by the WHO (3). Some reasons for breastfeeding cessation stated in the literature, included mothers being surprised by the physical challenges and time required to breastfeed (3). The literature review also indicated that health education provided to mothers who wanted to breastfeed, or who were breastfeeding, significantly contributed to enhancing the breastfeeding success rate and continuation for at least six months (4, 5). Literature is, however, less forthcoming about when specific problems occur, and when education should be provided during the puerperium to prevent and/or address challenges (3).

3.6 METHOD

A qualitative research design, utilizing a longitudinal, descriptive approach was employed in the current study as data were gathered weekly over a period of six weeks from the same participants. According to Botma, Greeff (6), a longitudinal design considers the variable at hand (mothers' breastfeeding educational needs in the current study), over a prolonged time period (six weeks in the current study). In addition a descriptive study is suitable where little is known about a topic. The reviewed literature

indicated that first time mothers experience breastfeeding educational needs but did not specify at what stages during the puerperium these needs should be addressed(3).

3.6.1 Study population

The study population comprised first time mothers who gave birth to live infants at one of the two participating hospitals and intended to breastfeed their infant(s). Mothers who gave birth and lived in the North West Province (NWP) of South Africa were selected, since this province represents the rural contexts of many other provinces in South Africa. Two regional hospitals were identified as recruitment sites for the study participants, since they have large catchment areas. Both hospitals were accessible to the researcher.

3.6.2 Sampling

A non-probability, purposive sampling method was used, whereby participants were recruited from the two chosen hospitals. All participants who met the inclusion criteria were invited to participate. Data were gathered until data saturation had been reached (7), which happened after the eight week of enrolment of participants and after different participants had reached week 3 after their babies' births. Participants were recruited and enrolled into the study weekly, and data were also analysed weekly to determine when data saturation had been reached.

3.6.3 Inclusion criteria

The inclusion criteria for this study specified that participants in the current study could only be first time mothers who:

- gave birth to live infants and intended to breastfeed.
- gave birth at one of the two selected hospitals.
- had infants who were less than one week old.

- were literate in English (read, write and speak).
- owned mobile telephones, being able to access text message systems.

3.6.4 Exclusion criteria

Mothers could not participate in the current study if they:

- had experienced previous pregnancies, as they might have gained prior knowledge about breastfeeding and infant feeding.
- were younger than 18 years of age, as they might experience additional challenges specific to their young age (8).
- had infants who had been born prematurely or who suffered from any illness or disability, as this would put an additional burden on the mother.

3.6.5 Recruitment of participants

Relevant ethical clearance and permissions had been obtained from the Health Research Ethics Committee (HREC), Department of Health in the NWP, Department of Health District, hospital managers.

The researcher contacted the hospital managers telephonically as well as via e-mail to schedule appointments. The purpose of the study was explained and questions addressed. A mediator was appointed to assist the researcher. The mediator was well known for her contributions to the baby friendly initiatives. The researcher and the supervisor trained the mediator to recruit participants. The mediator signed a confidentiality agreement.

After consent had been granted study by the two hospitals, the researcher enquired which days would most suitable for the mediator to recruit participants. This was communicated to the staff members at the hospitals. The mediator distributed

information pamphlets as well as informed consent forms to potential participants who met the inclusion criteria and who were still in hospital after their infants' births. The mediator remained in the maternity ward for an hour after the information had been shared with the potential participants so as to be available to answer any questions. Potential participants were requested to complete the informed consent forms and hand them to the mediator. Although participants could take the information pamphlets and consent forms home to discuss these with their families, no participant used this opportunity. A date was given to the participants to inform them when the proposed data collection process would start.

3.6.6 Data collection

Data collection of this study aimed to:

- Determine the breastfeeding educational needs experienced by first time mothers during the puerperium to improve breastfeeding outcomes.

Data collection took place by means of a text message system, as it was convenient for the mothers to send messages from the comfort of their own homes. The reason for using a text message system was to ensure fast responses to rapidly changing breastfeeding experiences. When their infants were one week old, the participants started receiving messages on their cell phones in the form of questions to answer. The messages were sent to the participants weekly for a period of six weeks. They were expected to reply to the messages. A R10 SMS bundle of data was given to each participant to be able to reply to messages, so that taking part in this study would not incur any costs for individual participants.

Mothers were requested to provide weekly feedback to ensure that all needs for a specific week would be captured and nothing would be missed due to long periods between any event and the mother's recall thereof.

When the researcher identified any participant who experienced breastfeeding difficulties, the researcher assisted the participant electronically with breastfeeding information, and also advised the mothers to visit her nearest clinic for breastfeeding support, if the problems persisted.

3.7 ETHICAL CONSIDERATIONS

The relevant university as well as hospitals that participated in this study gave ethical approval. (NWU-00349-16-A1) Written, voluntary consent from every participant was obtained. Participants were assured about confidentiality as well as anonymity issues.

3.8 FINDINGS

The findings indicated that, during the puerperium, mothers experienced specific breastfeeding challenges since longitudinal data had been collected at weekly intervals for six weeks.

Thirty seven participants (N=37) were recruited, of whom four could not participate (n=33), since messages could not be delivered to their telephone numbers. New participants were enrolled weekly over a six week period. The majority of challenges were reported when the enrolled infants reached week three after birth. Only one additional need were identified at five weeks from one participant. This indicated constipation as a new challenge. Therefore data were collected until week six as per inclusion criteria of the study.

All messages were only handled by the researcher and no responses could be linked to any participant's name or phone number. Anonymity was further assured by allocating a

code to each participant. A list of participants' names with their relevant codes was kept separately locked up from the responses to ensure that no participant could be linked to any specific response.

The following questions were asked weekly:

1. Are you still breastfeeding?
2. Do you intend to continue breastfeeding?
3. What worked well during this week regarding breastfeeding?
4. What needs, challenges or questions did you have during the past week regarding breastfeeding your infant?

Some participants did not reply to the messages. The researcher followed up telephonically to determine possible reasons for participants' failure to respond to the questions. Participants, who did not respond to the questions, did not experience any breastfeeding difficulties to report. Responses to the question: What worked well during this week? Included are infants sucking well, gaining weight and mothers experiencing increased milk production.

When analysing the question regarding breastfeeding challenges, seven participants reported challenges during week one after birth. In week two, four different participants reported challenges. However, these were the same challenges that mothers experienced during the first week after their babies' births. From week three to six, the same challenges were experienced by the same participants who had experienced challenges since weeks one to three.

WEEK	THEME 1: WHAT WENT WELL	THEME 2: CHALLENGES	THEME 3: RESPONSE
WEEK 1:	<ul style="list-style-type: none"> • Infant gaining weight (4/9/30/8) • Infant drinking more (5/5/14/6) • Producing more breast milk (3/9/30/8) • Breastfeeding goes well 	<ul style="list-style-type: none"> • Painful nipples (1/4/6/6 + 3/4/6/6 + 2/8/25/8) • Insufficient milk supply (3/5/14/6 + 5/8/25/8 + 6/9/30/8) • Infant vomiting (3/9/30/8) 	<ul style="list-style-type: none"> • Care of nipples – sunlight, release vacuum (3/4/6/6) • Positioning of infant (2/4/6/6 + 3/9/30/8 + 3/9/30/8) • Milk supply – drinking enough fluids, demand feeding, brewer's yeast (5/8/25/8 + 3/5/14/6 + 6/9/30/8)
WEEK 2:	<ul style="list-style-type: none"> • Infant drinking more (5/5/14/6) 	<ul style="list-style-type: none"> • Painful nipples (2/1/17/5) • Painful breast (2/4/6/6 + 5/5/14/6) • Insufficient milk supply (3/5/14/6) • Illness – maternal and infant (2/4/6/6 + 3/4/6/6) 	<ul style="list-style-type: none"> • Referral: <ul style="list-style-type: none"> • Illness mother – see doctor/pharmacist (3/4/6/6) • Infant vomiting – go to clinic (2/4/6/6)
WEEK 3:	<ul style="list-style-type: none"> • Producing more breast milk (5/5/14/6) 	<ul style="list-style-type: none"> • Painful breast (3/4/6/6) • Insufficient milk supply (3/5/14/6, 6/9/30/8) 	<ul style="list-style-type: none"> • Caring of breasts – express milk, warm and cold compresses
WEEK 4:	<ul style="list-style-type: none"> • Sucking improved (1/4/6/6) • Breast not swollen/sore (1/4/6/6 + 3/4/6/6) 	<ul style="list-style-type: none"> • Illness maternal (2/1/17/5) • Returning to work (1/4/6/6) • Insufficient milk supply (3/4/6/6 + 3/5/14/6) 	<ul style="list-style-type: none"> • Milk supply – feeding on demand, infant growth spurt (3/4/6/6) • Refer illness to clinic • Work policy, milk expression
WEEK 5:	<ul style="list-style-type: none"> • Infant gaining weight (1/2/24/5) 	<ul style="list-style-type: none"> • Constipation (3/7/29/6) • Struggle to breastfeed (3/4/6/6) 	<ul style="list-style-type: none"> • Milk supply – express before feeding (3/4/6/6) • Constipation – mom to drink more fluids, give probiotics and no supplemental feedings (3/4/6/6)
WEEK 6:	<ul style="list-style-type: none"> • Infant gaining weight (1/3/3/6) 	<ul style="list-style-type: none"> • Insufficient milk supply (3/5/14/6) 	

Table 3.1: Results of findings

Twenty two messages regarding challenges were reported by these twelve participants.

Challenges included painful nipples and problems , insufficient milk supply, painful breast, challenges regarding returning to work as well as maternal or child illnesses.

The following challenges were encountered by twelve breastfeeding mothers:

Week 1 : Painful nipples (n=3), perception of insufficient milk supply (n=3), baby's illness (n=1)

- Week 2 : Painful breast (n=2), perception of an insufficient milk supply (n=1), painful nipples (n=1), maternal illness (n=1)
- Week 3 : Painful breasts (n=2), perception of an insufficient milk supply (n=1)
- Week 4 : Infant's illness (n=1), returning to work (n=1), perception of an insufficient milk supply (n=2)
- Week 5: Infant's Illness (n=1), general struggling to breastfeed the baby (n=1)
- Week 6: Perception of an insufficient milk supply (n=1) – This participant discontinued breastfeeding.

When a participant experienced challenges during weeks one and two of the puerperium, these mothers continued to experience different challenges till week six. However, mothers who did not struggle during the first week, were unlikely to experience challenges (leading to breastfeeding cessation) later during the six week puerperium period. The results also showed that different mothers tended to experience the same breastfeeding challenges repeatedly.

Support, provided through text messaging, to breastfeeding mothers appeared to have been helpful as only one participant experienced the same challenge repeatedly. This participant struggled with insufficient milk supply, and discontinued breastfeeding after

six weeks. However, some mothers tended to encounter other problems later on during the puerperium.

3.8.1 Theme 1 : What went well during the last week?

Nine participants responded that breastfeeding was going well. Three participants reported that their infants gained weight, four that their infants were drinking more than previously and two stated that their breast problems (painful nipples and problems with latching) improved after receiving support through the text message system. Some of the mothers' responses were as follows: "The baby is doing fine, he doesn't give me problems". "Milk producing increased left my breast feeling a bit sore but got it figured out." and "My baby now suck both on my breast and now my nipples aren't sore"

3.8.2 Theme 2 : Challenges

During week one three participants reported that they experienced painful nipples, with three reporting that they experienced insufficient milk supply and one stated that her infant was vomiting. During week two, one participant responded that she experienced painful nipples, and two had painful breasts. Two participants reported insufficient milk supply and two participants became ill. In week three only one participant had painful breasts, and one reported insufficient milk supply. During week 4, one participant reported illness, two reported insufficient milk supply and one had uncertainty about returning back to work. During week 5 only one participant reported an insufficient milk supply, and another one struggled with breastfeeding in general. Constipation was also mentioned by one participant. During week six, only one participant reported an insufficient milk supply. During week four, five and six, the same participant struggled to breastfeed due to the perception of insufficient milk supply, and this participant also stopped breastfeeding when the infant was six weeks old. Some of the mothers'

responses were. Week 1 (1/4/6/6) “What I'm struggling with is the itchinness in ma nipples even when I apply nipple cream and my question is, what other option(s) can I use for my nipple sore?? I wanna enjoy breastfeeding my baby” Week 2 (2/1/17/5) “The baby is just struggling to hold the nipple.” Week 3 (3/4/6/6) ”Hello my breast is swallon n stiff wat can b th couse its painful when I breasfeed”. Week 4 (1/2/24/5) “Lately I dnt tht mil an am eatng well y is that hppning [Lately I don't think that milk is enough. I am eating well. Why is this happening]”. Week 5 (1/2/24/5) “Am struggling to breastfeed it seems like the bby doesn't want the breast I hv tough time wen coming to feedng him I cn spend 15 min tryng to give him the breast n he wll b cryng thn start sacking.” Week 6 (3/5/14/6) “Stopped breastfeeding. I felt baby did not get enough milk supply. Baby was crying to much.”

3.8.3 Theme 3 : Responses:

Although different mothers encountered similar challenges during different weeks, the responses that were given (by the researcher) according to these challenges remained the same. The following responses were provided to mothers during the six week data collection period to address the breastfeeding challenges they encountered.

Care of nipples: “Please remember no to pull the baby off the nipple. Break the vacuum to release the suction. Expose the nipple to sunlight for at least ten minutes per day. Put breast milk on the nipple after feeding and let it dry. If you continue to battle, visit your nearest clinic. Good luck.”

Painful (swollen and stiff) breasts – Positioning of infant: “Hi there. It can be that there is a lot of milk and baby is not drinking everything. Before baby drinks try to express a little bit by hand so that baby attach better to the breast. Put a warm compress on the breast in between feedings and also take a shower and let the milk

flow freely. You can also take cabbage leaves and put them in freezer before putting them on the breast. Let baby drink as often as needed. Do not stop breastfeeding. If it worsens please go to your nearest clinic”.

Lately I do not have enough milk (milk supply): “Sometimes at week 4 baby have a growth spurt and then drinks a bit more than before. Breast milk production needs to start becoming more and adjust to demand. Continue on demand feeding and milk will increase.”

Milk supply: “Mommy needs to drink lots of water and rest often. You can also get brewers’ yeast from pharmacy. The more baby drinks the better the milk production will become. If you continue to battle, contact the nearest clinic.”

Infant vomiting: “Sometimes babies are a bit too full. Try not to lie baby flat after drinking. Let baby sit up a bit with upper body. Try to feed little bit less but more often. Make sure you take out winds after feeding. If you continue to struggle, please contact your nearest clinic.”

Battling to breastfeed: “Sometimes it happens that baby refuses one specific breast. We do not always know the reason. Can also be that breast is too full. Then baby battles to latch. Try to express little bit of milk so that the latch is better. If you continue to battle, please go to the nearest clinic.”

Returning to work: “Make sure you are aware of your policy at work regarding expression of breast milk. Try to express as much as possible and store it correctly”

It was noted that when a participant had challenges during the first three weeks after their babies’ births, then they tended to continue to struggle with different challenges, even though previous challenges had been resolved. When analyzing the data further it

was seen that in week 1, participant **1/4/6/6** reported a challenge with painful nipples. A response was sent to this participant, and no further problems were encountered. In week 4 the participant responded that the infant was drinking from both breasts and no nipple problems were experienced. This, however, was not the case with other participants. Participant **2/4/6/6** also reported challenges regarding painful nipples. A response was sent and in week four the participant reported that the problems with the nipple had been resolved, but that she then had problems with an insufficient milk supply. She also struggled to breastfeed in week 5. Responses to challenges seem to have resolved these problems as no challenges were reported in week 6. This was also seen with participant **3/4/6/6** where she struggled with swollen nipples in week 1; she had influenza in week 2 and breast engorgement in week 3. The responses sent to her addressed these challenges, but other challenges were reported during the puerperium. Participant **3/5/14/6** reported an insufficient milk supply since week 1. A response was sent to her, but it did not seem to resolve this problem. She kept on reporting that she thought she did not have enough milk, and after six weeks she discontinued breastfeeding. Participant **6/9/30/8** worried about insufficient milk supply during week one, and in week 3 she battled with painful nipples but reported no further challenges. Participant **6/9/30/8** also complained that her infant tended to vomit after feeds. Responses were given and the challenge was resolved. She did have another problem regarding insufficient milk supply in week 3, which was also resolved. Participant **2/1/17/5** reported in week 1 that the infant tended to struggle to hold the nipple. This was resolved, but she also reported that the infant was losing weight in week 3. The response to this participant was to contact the clinic regarding weight loss, which she did and then responded that she was helped her to resolve her challenges.

3.9 DISCUSSION

During the first week of the puerperium, the participants in the current study reported that they experienced **challenges** including painful nipples, insufficient milk supply and an infant who was vomiting. In week two the challenges concerned problems with nipples, breasts and milk supply. In week three again the challenge of milk supply came forth as well as painful breasts. The challenges that were prominent in week 4 included maternal illnesses and the challenge of returning to work as well as an inadequate milk supply. During weeks five and six the reported challenges included struggling to breastfeed, insufficient milk supply and constipation. In the literature (3, 9) these challenges were also described and management thereof were described. The literature was used to compile messages that were sent to the mothers whenever they experienced challenges. Providing **responses** to the participants helped to resolve the challenges experienced. Different responses were given to the participants, regarding the challenges that they experienced. In all instances, with the exception of one participant, the response had a positive outcome, and the participant did not have that specific challenges again within the six weeks of data collection. The **recommendation** can therefore be made that mothers could benefit if they received text messages regarding specific challenges that they might experience during certain weeks postpartum to prevent and/or address challenges before they become problematic. The following aspects should be communicated to mothers in this specific week during the puerperium.

- Week 1 : Problems with nipples, milk supply, illness
- Week 2 : Problems with breast milk supply
- Week 3 : Milk supply
- Week 4 : Illness, returning to work,

- Week 5 : Illness
- Week 6 : Returning to work

The following information should be provided to mothers at the above mentioned time-frames (10):

Painful breasts

Engorgement (hard, painful flushed breasts)

- If baby is unable to latch, hand express a little bit of milk until baby can latch
- Frequent feeding
- Do not wear any form of tight breast support
- Apply warm compresses or go for a warm shower for milk to flow freely
- Try to relax as much as possible
- Apply cold compresses by putting cold cabbage leaves on breasts for 15-20 minutes
- Mother can use Paracetamol 500mg every 6 hours for pain

Insufficient milk supply

- Baby gets enough milk if he/she has 8 or more wet nappies during the day
- No time limit should be set when baby nurses
- Feed baby on demand
- Mother must take in enough fluids during the day (at least two litres every day)
- Mother must rest as much as possible

Maternal or infant illnesses

- Mother and infant to go to the nearest clinic for medical help when ill.

Returning to work

- Start to express breast milk in advance before going back to work
- Find out about the policy at work regarding breast milk expression
- Try to express at work as much as possible, and take care about the correct safe storage of expressed breast milk
- Breastfeed the baby before going to work and as soon as you get home after work, as well as during the night.

3.10 LIMITATIONS

3.10.1 Limitations pertaining to question delivery and replies

As the messages were sent via a text message system, there was no guarantee that the mothers had actually received the messages. All participants who did not respond were phoned to determine whether or not they had received the messages and whether they experienced any breastfeeding problems.

3.10.2 Limitations of the research setting

Only mothers whose babies were born in the Klerksdorp/Tshepong Hospital Complex and in the Potchefstroom Hospital were included in this study. The analysis of the data collected during this study, produced themes congruent with those described in the literature. These challenges included breastfeeding as a painful experience (11, 12), insufficient milk supply (13, 14) as well as maternal literacy (4, 15, 16). Although only mothers older than eighteen years of age were included, teenage mothers (younger than 18 years of age) might have benefitted from participating in the study, as verbalised by these mothers when recruitment was done. Only primi-gravidas (first time mothers) were included, but some mothers whose previous babies had been born a long time ago, also wanted to take part in this study, as mentioned during the recruitment procedure.

3.10.3 Limitations due to methodological issues

Weekly telephonic calls and conversations might have ensured a better response to questions, and could also lead to more in-depth discussions of the problems at hand.

The current study relied solely on text messages to collect data. No observations were done and no interviews were conducted with breastfeeding mothers nor with health care professionals.

Data were only collected during the breastfeeding mothers' puerperium phase (implying for the duration of six weeks after the birth of their babies). Therefore no recommendations, based on the current study's findings, could be made to improve the exclusive breastfeeding rate for the first six months of babies' lives.

3.11 RECOMMENDATIONS

Based on the findings of the current study, recommendations were formulated for clinical practice, education and future research.

3.11.1 Recommendations for clinical practice

- Mothers should not be discharged from hospital before initiation of breastfeeding has been established.
- The use of observation is very important for nurse to see how the mother is coping with breastfeeding.

3.11.2 Recommendations for education

- Nurses should be trained about the correct breastfeeding information to provide correct breastfeeding-related health education to mothers.
- Breastfeeding-related health education should be given to mothers before discharge from hospital after the birth of a baby, on all five aspects that were identified during

the current study, namely: nipple problems, milk insufficiency, painful breasts, returning to work (and expressing and safe storage of breast milk), maternal or infant illnesses

- During the post natal follow-up visit at the hospital, on the day three after the baby's birth, healthcare providers should ensure that mothers do not experience any breastfeeding difficulties.
- Correct information should be provided to mothers at weekly intervals regarding breastfeeding problems via the MomConnect text messaging system which has been initiated throughout South Africa.

3.11.3 Recommendations for further research

Future research should compile information regarding the breastfeeding-related challenges identified during the current study. This data information should be formulated as guidelines in understandable language that can be sent to mothers via the MomConnect SMS system. This could be effective as most mothers who participated in the current study could resolve their problems after they had received text messages, and they did not encounter the same problems again. If these problems could be addressed on a weekly basis in text messages sent to all breastfeeding mothers during their puerperium phase, then different aspects could be handled weekly

In future studies, this research can be expanded to include teenage mothers. The needs of multi-gravida mothers also need to be explored and a message support system, specifically addressing their breastfeeding needs should be designed.

Observations of breastfeeding mothers' actions could be beneficial for future studies as observations could produce rich and valuable data.

As the current study focussed on breastfeeding during the first six weeks of babies' lives, future studies should focus on exclusive breastfeeding during the first six months of babies' lives. The findings of such studies might produce guidelines for improving the exclusive breastfeeding rate for at least six months in South Africa, which was reportedly only 8% (2).

3.12 CONCLUSION

Exclusive breastfeeding, or even some form of breastfeeding is beneficial for the infant as well as the mother (17). However, only 8% of South African mothers breastfed exclusively for at least six months, and this percentage has not changed since 2003 (2), implying that it remained unchanged for 13 years.

Kelleher (3) reported that some first time mothers were surprised by the physical challenges of breastfeeding and the time required to breastfeed. The mothers in that study maintained that nobody told them what their bodies would really feel like while breastfeeding. The literature review indicated that health education provided to breastfeeding mothers and to those and who intended to breastfeed, could provide the support they required to implement and sustain breastfeeding (3, 4, 18).

By supporting first time mothers who encounter breastfeeding challenges during the puerperium, by providing health education at appropriate times, could help to increase the breastfeeding rate in South Africa, to the benefit of mothers and babies, as well as society at large.

The aim and objective of the study had been reached because the breastfeeding educational needs of first time mothers during the puerperium were identified, and these findings correlated with other researchers' findings reported in the literature that was

reviewed in chapter 2 of this dissertation during August to November 2017. Therefore this study has contributed towards reaching the SDG 3 to help increase the exclusive breastfeeding rate which, in turn, could contribute to improved infant survival rates in South Africa.

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PERMISSION TO SUBMIT THIS ARTICLE FOR EXAMINATION

PURPOSES:

I, the supervisor, hereby declare that the research done by A du Plooy reflects her input and the effort on this topic.

I hereby grant permission that she may submit this article for publication for examination in partial fulfilment of the requirements for the degree Magister Curationis and that this dissertation will not be uploaded onto the institutional repository before the manuscript has been submitted for publication.

Lubbe

Supervisor: Professor Welma Lubbe Date: 13 November 2017

DECLARATION BY THE RESEARCHER

I hereby declare that this research '**Breastfeeding educational needs of first time mothers during puerperium**' is my own work and that all sources have been fully referenced and acknowledged.

I have done the conception and design of this work, the data analysis, and the writing of this article and take full responsibility for it. I have reviewed the final version of the article and approve it for submission for possible publication.



A du Plooy

Date: 13 November 2017

DECLARATION BY THE LANGUAGE EDITOR

Valerie Janet Ehlers

Nurse Consultant and Researcher

Emeritus Professor and Research Fellow: University of South Africa

Associate Editor: International Nursing Review (2014-2017)

(B Soc Sc (University of Natal), Honours B Soc Sc, BA Cur, Honours BA Cur, MA Cur, D Lit et Phil, Diploma in Development Administration, TAALKU-F for Diploma in Translation- Unisa))

CONFIRMATION LETTER: EDITING OF A DOCUMENT

266 Pat Dyer Avenue
ERASMUSRAND
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PO Box 65075
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0165
4 November 2017

Tel: 012 347 8287
Cell: 084 587 3303
e-mail: ehlersjh@mweb.co.za

4 November 2017	I HEREBY CERTIFY THAT I HAVE EDITED THE FOLLOWING MASTER'S DISSERTATION: Breastfeeding educational needs of first time mothers during puerperium For Ms Ansie du Plooy St no: 24940615
--------------------	---

Thank you



Prof VJ Ehlers

TO THE JOURNAL – ETHICAL APPROVAL



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South Africa 2520

Tel: 018 299-1111/2222
Web: <http://www.nwu.ac.za>

Faculty of Health Sciences Ethics Office for
Research, Training and Support

Health Research Ethics Committee (HREC)

Tel: 018-285 2291
Email: Wayne.Towers@nwu.ac.za

30 October 2017

Prof W Lubbe
Nursing-INSINQ

Dear Prof Lubbe

APPROVAL OF YOUR AMENDMENT REQUEST BY THE HEALTH RESEARCH ETHICS COMMITTEE (HREC) OF THE FACULTY OF HEALTH SCIENCES

Ethics number: NWU-00349-16-A1

Kindly use the ethics reference number provided above in all future correspondence or documents submitted to the administrative assistant of the Health Research Ethics Committee (HREC) secretariat.

Study title: Breastfeeding educational needs of first time mothers during puerperium

Study leader/researcher: Prof W Lubbe

Student: A du Plooy

You are kindly informed that your amendment request (Submission of final approval documents) to the aforementioned project has been approved. Any future amendments to the proposal or other associated documentation must be submitted to the HREC, Faculty of Health Sciences prior to implementing these changes. These requests should be submitted to Ethics-HRECAppl@nwu.ac.za with a cover letter with a specific subject title indicating, "Amendment request: NWU-XXX-XXX". The letter should include the title of the approved study, the names of the researchers involved, the nature of the amendment/s being made (indicating what changes have been made as well as where they have been made), which documents have been attached and any further explanation to clarify the amendment request being submitted. The amendments made should be indicated in **yellow highlight** in the amended documents. The *e-mail*, to which you attach the documents that you send, should have a specific subject line indicating that it is an amendment request as well as the nature of the amendment e.g. "Amendment request: NWU-XXX-XXX". This submission will be handled via the expedited process.

1

We wish you the best as you conduct your research. If you have any questions or need further assistance, please contact the Faculty of Health Sciences Ethics Office for Research, Training and Support at Ethics-HRECApply@nwu.ac.za.

Yours sincerely



Prof Wayne Towers
HREC Chairperson



Prof Minrie Greeff
Ethics Office Head

TO THE JOURNAL



Private Bag X1290, Potchefstroom
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INSINQ

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Dear Editor

SUBMISSION OF ARTICLE FOR PUBLICATION IN JOURNAL OF PERINATAL & NEONATAL NURSING

Please find attached our manuscript entitled: **Breastfeeding educational needs of first time mothers during the puerperium.**

The authors are A du Plooy and W Lubbe, both of whom have read and approved the paper. Prof Welma Lubbe will be the corresponding author.

A du Plooy conceptualised, drafted and designed the manuscript as well as its technical preparation for submission. W Lubbe was responsible for co-writing and for critically reviewing manuscript. Both authors read and approved the final manuscript.

The paper discusses the research done on breastfeeding educational needs of first time mothers during the puerperium. We have chosen to submit the paper as a topic for discussion to your journal because you provide open access to current, disputed issues in the field of infant feeding.

We believe that our findings deserve to reach other researchers interested in providing insight into the current situation regarding breastfeeding education, and information. This will assist in improving the education provided to mothers and could help to increase the breastfeeding rate in South Africa and other countries.

Yours sincerely



Prof Welma Lubbe

School of Nursing Science, INSINQ, North-West University

Valerie Janet Ehlers

Nurse Consultant and Researcher

Emeritus Professor and Research Fellow: University of South Africa

Associate Editor: International Nursing Review (2014-2017)

(B Soc Sc (University of Natal), Honours B Soc Sc, BA Cur, Honours BA Cur, MA Cur, D Lit et Phil, Diploma in Development Administration, TAALKU-F for Diploma in Translation- Unisa))

CONFIRMATION LETTER: EDITING OF A DOCUMENT

266 Pat Dyer Avenue
ERASMUSRAND
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PO Box 65075
ERASMUSRAND
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4 November 2017

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4 November 2017	I HEREBY CERTIFY THAT I HAVE EDITED THE FOLLOWING MASTER'S DISSERTATION: Breastfeeding educational needs of first time mothers during puerperium For Ms Ansie du Plooy St no: 24940615
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Thank you



Prof VJ Ehlers

CHAPTER 4: RECOMMENDATIONS

CONCLUSIONS, LIMITATIONS AND

4.1 Chapter aim and outline

The aim, objectives, purpose, literature review, research design, method, analysis and results of this study have been discussed in the previous chapters. Chapter 4 will focus on whether the aim and objectives of this study have been reached. The conclusions are based on the literature as well as on the findings of the qualitative study that was done. The study's limitations will be addressed. Recommendations will be suggested for education and clinical practice concerning mothers' breastfeeding educational needs. Some aspects of chapter 4's contents have been mentioned in previous chapters and might seem to be duplications. This is the case because chapters 2 (literature review) and 3 (presentation of the qualitative study's findings) were written in the format of journal articles. The journals, to which these articles will be submitted for publication, require sections on the conclusions, limitations and recommendations of the study. Thus inevitable repetitions of these aspects occur in chapter 4 of this dissertation in an effort to provide a comprehensive presentation in the final chapter of this dissertation.

4.2 Purpose and objectives of the study

The purpose of this study was to identify the breastfeeding educational needs of first time mothers during the puerperium, and the objectives were to:

- explore what specific breastfeeding information should be provided to first time mothers during each week of the puerperium to enhance breastfeeding success
- develop concise, focussed breastfeeding information which could be shared with first time mothers at weekly intervals during the puerperium by using a text message system.

4.3 Conclusions

The objectives set for the study were reached as the researcher could formulate conclusions based on the literature and on the qualitative findings of the current study.

4.3.1 Conclusions based on the literature review

A review of the literature provided background information for conducting the study (Chapter 1) and an overview of the existing information (presented in Chapter 2). Thus the literature review enabled the researcher to acquire a deeper understanding of concepts to consider in

relation to the current study's qualitative findings and to compare them with other published reports of a similar nature (Chapter 3).

The literature review provided descriptions of terms and concepts relevant to the studied phenomenon, namely breastfeeding health education needs of first time mothers during the puerperium. Studies addressed the breastfeeding challenges encountered by lactating mothers as well as the support required by these mothers. The importance of different global initiatives to support breastfeeding has been addressed by many researchers (Morrow *et al.*, 1999:1226; Du Plessis, 2013:120; Bateman, 2015:839; Zakarija-Grković *et al.*, 2017:1-10). Despite the availability and implementation of various initiatives to support and improve breastfeeding, the exclusive breastfeeding rate in South Africa during 2016 was only 8% (WHO, 2016).

Various aspects related to breastfeeding mothers' health education needs were addressed in the literature reviewed. These challenges were also identified and included:

- Breastfeeding initiation versus continuation
- Breastfeeding as a painful experience
- An insufficient milk supply
- Maternal literacy

The benefits of breastfeeding during the puerperium have been well documented and also the initiatives that were developed and implemented both globally and nationally, such as BFHI, CARMMA, the Tswane Declaration, La Leche League International as well as MomConnect.

Support for mothers has been identified as being an important intervention and various modes of delivery of educational materials have been explored and described by researchers. However, critical times is not described or specified. This specific content is especially important when automated delivery of breastfeeding-related content is provided to mothers at given intervals, such as using a text message system to send a specific message to lactating mothers every week.

4.3.2 Conclusions based on the current study's qualitative findings

The analysis of the current study's qualitative findings regarding mothers' experiences with breastfeeding challenges during the puerperium produced different themes, indicating when (at which critical times) during the puerperium the mothers encountered specific challenges.

Out of 33 participants, eight reported challenges since week one after the infant's birth, and four participants reported challenges from week 3. Twenty two messages regarding challenges were received from these twelve participants. The other eleven participants did not report any challenges. Challenges included painful nipples and nipple problems, fear of insufficient milk supply, breast problems, challenges regarding returning to work as well as maternal or infant illnesses.

When a participant experienced challenges during the first week of the puerperium, the tendency (in this sample) was that those mothers continued to experience different challenges throughout the six weeks of the puerperium. Support through text messaging, provided to the mothers, apparently helped the mothers to cope with their breastfeeding challenges. However, some of those mothers tended to have different problems later on during the puerperium. Mothers, participating in the current study, who did not struggle with breastfeeding during the first week also did not experience challenges (leading to breastfeeding cessation) later during the six week puerperium period. The results also showed that different mothers tended to experience the same challenges repeatedly.

Challenges identified by participants per week	Challenges according to literature	Conclusion
Week 1: Painful nipples Milk supply Illness	<p>In the literature, no indication was given towards what challenges mothers have during puerperium with breastfeeding. Therefore, challenges that mothers experienced according to literature could not be allocated towards weeks.</p> <ul style="list-style-type: none"> • Pain associated with breastfeeding: (Kelleher, 2006:2727; Strong, 2011:28; McClellan <i>et al.</i>, 2015:10833) • Perception of insufficient milk supply: (Tenfelde, 2012:144; Almarzoki & Abdulkareem, 2015:7) • Maternal or infant illness: (Moreira Marques <i>et al.</i>, 2016:495) • Returning to work: (South-Africa, 1997) • General struggling: (Kelleher, 2006:2727) 	<p>During the first two weeks post-partum mothers should be provided with information on the management of painful nipples, perceptions of insufficient milk supply and maternal of infant illness.</p> <p>During week three on the puerperium mothers should receive information on the management of painful breasts and how to improve milk supply as well as information to understand the process of milk supply.</p> <p>During week four information to new mothers should include explanations on maternal and infant illness, tips regarding breastfeeding when returning to work and how to improve milk supply.</p> <p>Although no new challenges were experienced during week five, it would be advisable to again give information regarding milk supply as the infant do tend to have growth spurts during this time.</p> <p>In week six, the information regarding returning to work can again be discussed.</p>
Week 2: Painful breasts Milk supply Maternal illness		
Week 3: Painful breast Milk supply		
Week 4: Illness Returning to work Milk supply		
Week 5: Illness General struggling to breastfeed		
Week 6: Milk supply		

Table 4-1: Correlation between findings and literature.

4.4 Limitations of the study

The limitations of the current study will be addressed according to limitations concerning the literature review, the questions that were asked, and the study's setting and methodological issues.

4.4.1 Limitations pertaining to the literature review

Limited literature was available identifying critical times during the puerperium period when mothers could experience specific breastfeeding-related challenges. Knowing what educational content is time-sensitive, would be helpful when designing an educational delivery system and/or providing breastfeeding-related support where resources for individual breastfeeding consultations or support are limited.

4.4.2 Limitations of the questions

The questions posed to the participants were clear and participants did not have problems understanding them. However, when participants experienced no problems, they also did not respond by text message stating this. The researcher conducted follow-up telephone calls to these non-responding mothers to identify the reason for their non-responses. These mothers indicated that they did not reply to the text messages because they experienced no problems. It might have been useful to pose each question in such a way that it required a response even in the absence of breastfeeding-related challenges.

4.4.3 Limitations of the questions' deliveries and replies

As the messages were sent via the text message system, it was not guaranteed that the mothers had actually received all messages. Some participants failed to respond to the weekly questions because they considered it to be irrelevant to reply when they encountered no breastfeeding-related challenges.

4.4.4 Limitations of the research setting

Only mothers whose infants were born in the Klerksdorp/Tshepong Hospital Complex and in the Potchefstroom Hospital in the North West Province were included in this study. Mothers whose infants were born at other institutions might have experienced similar or different breastfeeding-related challenges.

Only mothers older than eighteen years of age participated in the current study. However, some teenage mothers asked questions during the recruitment of participants, indicating that

teenage mothers might have benefitted from taking part in the current study. Only primi-gravidas participated in the current study, but some mothers' whose previous infants had been born a long time ago, also wanted to participate in this study. This was also verbalised by the mothers during the process of recruiting participants.

4.4.5 Limitations due to methodological issues

Weekly telephonic calls and conversations might have ensured a better response to questions, than merely relying on text messages. Better responses could have produced more in-depth discussions of the problems at hand.

4.5 Recommendations

Based on the findings of the current study, recommendations will be provided for clinical practice, education and future research.

4.5.1 Recommendations for clinical practice

Breastfeeding mothers should receive time-sensitive educational content at frequent intervals during the puerperium to support these mothers and to ensure that challenges are identified, addressed and resolved timeously to prevent breastfeeding cessation.

Although a text message system can potentially provide standardised breastfeeding support for a large number of new mothers, such a system should make provision for individualisation and for referrals to healthcare professionals/facilities in cases where challenges are not resolved via this electronic medium.

4.5.2 Recommendations for education

- Nurses should be trained to provide the correct breastfeeding information and education to mothers.
- On the day-three follow-up visits at the hospital or clinic, nurses should ensure that mothers do not experience any breastfeeding difficulties, as some mothers experienced challenges during the first week of the puerperium (especially nipple-related problems).

4.5.3 Recommendations for mothers

Correct information could be given to the mothers at weekly intervals regarding problems identified via the MomConnect text messaging system, implemented throughout South Africa. All mothers who use public antenatal care and maternity services are registered on this test

messaging system. This could be a useful system to roll out a breastfeeding support system during the puerperium period. Information on the following topics should be provided to mothers during specific weeks during the puerperium (Marshall & Raynor, 2016:175):

- Week 1

Message a: Positioning of infant– Check the positioning of your baby, use a pillow to level head of infant just below your breast. Make sure the infant’s mouth covers most of the areola (the darker coloured area around the nipple). After feeding, release the vacuum created by the infant's mouth by inserting your little finger in the corner of the baby’s mouth.

Message b: - Care of painful nipples. Leave some breast milk on nipple to dry after feeding. Do not use harsh soaps to clean the breasts. Apply ice before feeding. Air nipples as much as possible, and expose to sunlight 10 minutes per day. Apply nipple cream if necessary. If painful nipples continue, make sure the baby does not have thrush (white layer on baby’s tongue that does not go away with wiping), visit your nearest clinic.

Message c: - Milk supply – Your infant gets enough milk if he/she has 8 or more wet nappies per day. Do not set a time limit for nursing. Feed infant on demand. Make sure mommy takes enough fluids per day (at least 2 litres). Rest as much as possible.

Message d: - Maternal or infant illness – If you, or your baby, experience any form of illness, please go to your nearest clinic for medical care. Do not stop breastfeeding – it is medicine!

- Week 2

Message e: - Painful and engorged breast – If infant is unable to latch onto the nipple due to breast fullness, express a little bit of milk until infant is able to latch. Offer breast frequently. Do not wear tight breast support. Apply cold and warm compresses. Take a shower to let milk flow freely. Put cold cabbage leaves on breasts for 15-20 minutes, and change is warming up. Mother can take paracetamol tablets (500mg) six hourly for pain.

- Week 3

Message f: Milk supply – Your infant gets enough milk if he/she has 8 or more wet nappies per day. Do not set a time limit for nursing. Feed infant on demand. Make sure mommy takes enough fluids per day (at least 2 litres). Rest as much as possible. Baby might drink more than normal, as they might experience a growth spurt.

- Week 4

Message g: - Returning to work – Start to express some milk twice a day in advance before returning to work and store it correctly. Find out about the policy at work regarding breast milk expression. Breastfeed before going to work, and when you get home as well as during the night and over weekends.

- Week 5 and 6

As milk supply is an important factor for breastfeeding success and mothers have to go back to work soon, the message regarding returning to work as well as milk supply could be repeated.

4.5.4 Recommendations for research

The findings of this study should be tested with larger sample sizes, to ensure that generalisations could be made. The formulated weekly text messages should be tested for clarity, correctness and alignment with the latest evidence. A suitable text message delivery system, such as MomConnect should be explored and pre-tested to deliver messages to mothers. The effect of a text message support system on the breastfeeding outcomes of mothers in different settings South Africa should be determined.

In future studies, this research can be expanded to include teenage mothers. The needs of multi-gravida mothers also need to be explored and a message support system to address their breastfeeding needs designed.

4.6 Final concluding remarks

The aim and objectives of the study have been reached because the breastfeeding educational needs of first time mothers during the puerperium have been identified, and these were similar to the reviewed literature. Information collected during the current study indicates when mothers experience certain breastfeeding challenges, and this could be used to improve breastfeeding experiences of mothers by supplying appropriate messages during each specific week throughout the puerperium. Therefore this study has made a contribution towards meeting the third Sustainable Developmental Goal 3 and increases the exclusive breastfeeding rate, which should, in turn, improve infant survival rates.

4.7 REFERENCES

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- Tenfelde, S. 2012. Perception of Insufficient Milk in a WIC Sample. *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing, 41:S144-145*
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- Zakarija-Grković, I., Boban, M., Janković, S., Čuže, A. & Burmaz, T. 2017. Compliance With WHO/UNICEF BFHI Standards in Croatia After Implementation of the BFHI. *Journal of Human Lactation:1*.

ANNEXURE A: ETHICAL APPORVAL HREC



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Faculty of Health Sciences Ethics Office for
Research, Training and Support

Health Research Ethics Committee (HREC)

Tel: 018-285 2291
Email: Wayne.Towers@nwu.ac.za

30 October 2017

Prof W Lubbe
Nursing-INSINQ

Dear Prof Lubbe

APPROVAL OF YOUR AMENDMENT REQUEST BY THE HEALTH RESEARCH ETHICS COMMITTEE (HREC) OF THE FACULTY OF HEALTH SCIENCES

Ethics number: NWU-00349-16-A1

Kindly use the ethics reference number provided above in all future correspondence or documents submitted to the administrative assistant of the Health Research Ethics Committee (HREC) secretariat.

Study title: Breastfeeding educational needs of first time mothers during puerperium

Study leader/researcher: Prof W Lubbe

Student: A du Plooy

You are kindly informed that your amendment request (Submission of final approval documents) to the aforementioned project has been approved. Any future amendments to the proposal or other associated documentation must be submitted to the HREC, Faculty of Health Sciences prior to implementing these changes. These requests should be submitted to Ethics-HRECApply@nwu.ac.za with a cover letter with a specific subject title indicating, "Amendment request: NWU-XXX-XXX". The letter should include the title of the approved study, the names of the researchers involved, the nature of the amendment/s being made (indicating what changes have been made as well as where they have been made), which documents have been attached and any further explanation to clarify the amendment request being submitted. The amendments made should be indicated in **yellow highlight** in the amended documents. The *e-mail*, to which you attach the documents that you send, should have a specific subject line indicating that it is an amendment request as well as the nature of the amendment e.g. "Amendment request: NWU-XXX-XXX". This submission will be handled via the expedited process.

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We wish you the best as you conduct your research. If you have any questions or need further assistance, please contact the Faculty of Health Sciences Ethics Office for Research, Training and Support at Ethics-HRECApply@nwu.ac.za.

Yours sincerely



Prof Wayne Towers
HREC Chairperson



Prof Minrie Greeff
Ethics Office Head

ANNEXURE B: APPROVAL LETTER: DEPARTMENT OF HEALTH: NORTH WEST PROVINCE



health

Department of
Health
North West Province
REPUBLIC OF SOUTH AFRICA

23 April 2017

Mrs Ansie du Plooy
School of Nursing Science
Potchefstroom Campus
Email: ansie.duplooy@nwu.ac.za
cc. Prof W Lubbe
Nursing-INSINQ

Dear Mrs Du Plooy

RE: REQUEST FOR PERMISSION TO CONDUCT A SINGLE STUDY: BREASTFEEDING EDUCATIONAL NEEDS OF FIRST TIME MOTHERS DURING PUERPERIUM

Ethics number: NWU-00349-16-S1

As sub district family physician employed by the Department of Health in North West Province in the Tlokwe local municipality, I have reviewed your application. Further to the ethical clearance by Human Research Ethics Committee of the Faculty of Health Sciences NWU and North-West University Institutional Research Ethics Regulatory Committee (NWU -IRERC), permission is given to conduct the study in the Tlokwe Sub District facilities.

The Department of Health would like to remain at your service. We also request that all new information will be disseminated to the North West Department of Health.

We hope that you will find this in order.

Yours Sincerely
Dr Carien Lion-Cachet
Mobile: 083 3957376
E-mail: carienlc@koshcom.co.za

ANNEXURE C: APPROVAL LETTER: TLOKWE



23 April 2017

Mrs Ansie du Plooy
School of Nursing Science
Potchefstroom Campus
Email: ansie.duplooy@nwu.ac.za
cc. Prof W Lubbe
Nursing-INSINQ

Dear Mrs Du Plooy

RE: REQUEST FOR PERMISSION TO CONDUCT A SINGLE STUDY: BREASTFEEDING EDUCATIONAL NEEDS OF FIRST TIME MOTHERS DURING PUERPERIUM

Ethics number: NWU-00349-16-S1

As sub district family physician employed by the Department of Health in North West Province in the Tlokwe local municipality, I have reviewed your application. Further to the ethical clearance by Human Research Ethics Committee of the Faculty of Health Sciences NWU and North-West University Institutional Research Ethics Regulatory Committee (NWU -IRERC), permission is given to conduct the study in the Tlokwe Sub District facilities.

The Department of Health would like to remain at your service. We also request that all new information will be disseminated to the North West Department of Health.

We hope that you will find this in order.

Yours Sincerely
Dr Carien Lion-Cachet
Mobile: 083 3957376
E-mail: carienlc@koshcom.co.za

ANNEXURE D: APPROVAL LETTER: KLERKSDORP / TSHEPONG HOSPITAL

 **health**
Department of
Health
North West Province
REPUBLIC OF SOUTH AFRICA

*All correspondence to
be directed to:*
The Clinical Manager
Dr. David Leburu
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Tel: (018) 456 4740
Fax: (018) 462 1923
E: DLeburu@nw.gov.za
E: Shoozi@nw.gov.za

CLINICAL MANAGER'S OFFICE

04th March 2017

To : Mrs. Ansie du Plooy
School of Nursing Science
Potchefstroom Campus

Dear Sir/ Madam

RE : Breastfeeding educational needs of first time mothers during puerperium.

Presenter – Mrs Ansie du Plooy
(B.Tech; RN; RM; NE)
Lecturer
School of Nursing Science
Potchefstroom Campus

Date – 16th February 2017

This letter serves to confirm that permission has been granted by K/T Hospital Complex Patient Safety Group (PSG) in Klerksdorp/Tshepong Hospital Complex for study on Breastfeeding educational needs of first time mothers during puerperium. The researcher is requested to submit regular study progress reports and final study report upon completion of the study.

Kind Regards


.....
Dr. N.D. Leburu
Clinical Manager
K/T Hospital Complex


Healthy Living for All

1

ANNEXURE E: APPROVAL LETTER: POTCHEFSTROOM HOSPITAL



health
Department of
Health
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OFFICE OF THE CLINICAL MANAGER

TO: Ms Ansie Du Plooy
North West University

FROM: Dr. JMM Shakung
Clinical Manager
Potchefstroom Hospital

Dear Ansie Du Plooy

This is to inform you that your request to conduct research on the 14/03/2017.

It was approved by the Potchefstroom Patient Safety Group.

We wish success on your research.

Sincerely

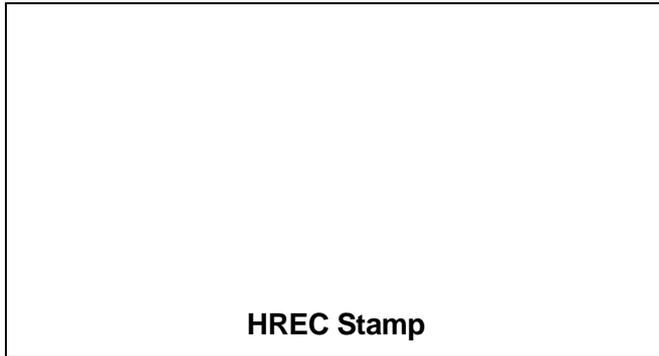

DR. JMM SHAKUNG
CLINICAL MANAGER
POTCHEFSTROOM HOSPITAL




Healthy Living for All

1

ANNEXURE F: INFORMED CONSENT



INFORMED CONCENT DOCUMENTATION FOR BREASTFEEDING MOTHERS

TITLE OF THE RESEARCH STUDY: Breastfeeding educational needs of first time mothers during puerperium.

ETHICS REFERENCE NUMBER: NWU-00349-16-A1

PRINCIPAL INVESTIGATOR: Prof Welma Lubbe

POST GRADUATE STUDENT: Ansie du Plooy

ADDRESS: 4 Louis Leipoldt Street

Heilige Akker

Potchefstroom

CONTACT NUMBER: 082 856 2618

You are being invited to take part in a research study to determine the breastfeeding educational needs of first time mothers during puerperium. Please take some time to read the information presented here, which will explain the details. Please ask the mediator or person explaining the research any questions if you do not fully understand. It is very important that you are fully satisfied that you understand what this research entails. Also, your participation is

entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from this study at any point, even if you agree to take part now.

This study has been approved by the Health Research Ethics Committees of the Faculty of Health Science of the North-West University (NWU-00349-16-S1) and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and Ethical Guidelines for Research of the National Health Research Ethics Council. It might be necessary for the research ethics committee members to inspect the research records.

What is this research study all about?

This study will be conducted in Potchefstroom and Klerksdorp Hospital, and will involve breastfeeding mothers. You will receive a text message every week with five questions on which you need to reply via text message. We plan to determine what important information first time mothers need during puerperium, and at what stage those information should be shared with the mothers. The questions that you can expect to get are as follows:

- a. What needs did you have during the past week regarding the breastfeeding of your infant?
- b. What would have helped you during the past week, to better your breastfeed experience?
- c. What worked well during this week regarding breastfeeding?
- d. Are you still breastfeeding
- e. Do you intend to continue breastfeeding?

Why have you been invited to participate?

You have been selected to participate because you are a first time mother, older than 18 years, who has a infant younger than six weeks and breastfeed or plan to breastfeed. You have been admitted in Klerksdorp or Potchefstroom Hospital. You are also able to read, write and speak English. Lastly you have a mobile telephone.

You are kindly invited to participate in this study because the researcher trusts that you would have a contribution to make towards understanding breastfeeding educational needs that a new mother has regarding breastfeeding, and that you will be able to give more insight in those matters.

What will be expected of you?

If you agree to be in this study you will expected to:

- Sign this consent form that you are willing to participate in this study.
- Reply to a text message that you will receive from the researcher every week for six weeks, sharing your needs for health education during breastfeeding.

Will you gain anything from taking part in this research?

Although you will not benefit directly with this study, you will contribute to a better understanding of your own breastfeeding experience with your infant. You may also be able to help other mothers to succeed in exclusively breastfeeding their babies. You will also be able to contact the researcher electronically if you are battling with breastfeeding. Then you will be able to receive help. If the researcher are unable to help you, then you will be referred to the nearest clinic for help.

Are there risks involved in your taking part in this research and what will be done to prevent them?

All data will be handled as confidential as possible. No individuals identifiers will be used in any publications resulting from this study and only the team of researchers will work with the information that you shared. All personal information will be protected by locking it up and storing it on a password protected computer. No physical harm will be inflicted to you and you will be treated fairly throughout this study. If you want to withdraw at any time it is possible and your opinion will be respected. If you do have breastfeeding problems during the data collection, and are in need of help, you will be helped telephonically or you will be referred to a breastfeeding consultant therefore are more gains for you in joining this study than there are risks.

How will we protect your confidentiality and who will see your findings?

Anonymity will be ensured by not linking any names to the cell phone numbers that are used. Your privacy will be respected by only sending messages once in a week for six weeks, and you only have to share the information that you feel comfortable to share. Your results will be kept confidential by not displaying any names at any time during the study. Only the researchers and co-coder will be able to look at your responses. Findings will be kept safe by locking the computer with the data on it, as well as the phone with the messages in the researcher's office and data will be password protected. As soon as data is transferred from the phone to the computer, it will be deleted from the phone's memory. Data will be stored for 5 years, and thereafter deleted from the computer, as well as the recycle bin of the computer.

What will happen with the findings or samples?

The findings of this study will only be used for this study, and data will be used in scientific articles and presentations.

Will you be paid to take part in this study and are there any costs for you?

The study is funded by the researcher. You will not be paid to take part in the study, as you take part voluntarily. A SMS bundle or data bundle to the value of R10 will be offered to you to upload on your cell phone, depending what system you use, as the researcher do expect of you to answer messages once a week for 6 weeks. The mediator will collect the informed consent forms from the hospital, that will be located in the reception area of each maternity ward should

you decide to participate in the study. Furthermore, there will be no additional cost to you, if you do take part in the study.

Is there anything else you should know or do?

You can contact Ansie du Plooy at 082 856 2618 if you have any further questions or have any problems. You can also contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018-299 1206 or carolien.vanzyl@nwu.ac.za if you have any concerns that were not answered about the research or if you have any complaints about the research. You will receive a copy of this information and consent form for your own purposes.

CONSENT FORM

Declaration by participant

By signing below, I agree to take part in a research study titled: To explore the breastfeeding educational needs during puerperium.

I declare that:

- I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions to both the person obtaining consent, as well as the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interest, or if I do not follow the study plan, as agreed to.

Signed at (*place*) On (*date*) 20....

.....

.....

Signature of participant

Signature of witness

Declaration by person obtaining consent

I (*name*) declare that:

- I clearly and in detail explained the information in this document to:
.....
- I did/did not use an interpreter.
- I encouraged her to ask questions and took adequate time to answer them.
- I am satisfied that she adequately understands all aspects of the research, as discussed above.
- I gave her time to discuss it with others if she wished to do so.

Signed at (*place*) On (*date*) 20....

.....

.....

Signature of person obtaining consent

Signature of witness

Declaration by researcher

I (*name*) declare that:

I had the information in this document explained by _____ who I trained for this purpose.

An interpreter was not used.

The mediator encouraged her to ask questions and took adequate time to answer them.

I was available should the mediator want to ask any questions.

The informed consent was obtained by an independent person.

I am satisfied that she adequately understands all aspects of the research, as discussed above

I am satisfied that she had time to discuss it with others if she wished to do so.

Signed at (*place*) On (*date*) 20....

Signature of researcher

Signature of witness

ANNEXURE G: DEMOGRAPHIC QUESTIONNAIRE

Full name & surname:
Date of birth:
Are you able to speak, read and write English?
Contact cell number: _____ Service Provider: _____
Second contact cell number: _____ Service Provider: _____
Age of infant in weeks:
Clinic name where Antenatal care attended:
Method of intended infant feeding:
Method of birth: Planned? _____ Actual _____
How many weeks were you pregnant before infant was born:
How many times have you been pregnant: _____
How many live children do you have: _____
Sex of the infant:
Stay alone: _____ Stay with family: _____ Other: _____

ANNEXURE H: CONFIDENTIALY AGREEMENT



NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

CONFIDENTIALITY UNDERTAKING

entered into between:

Co – Coder / Mediator

I, the undersigned

Prof / Dr / Mr / Ms _____

Identity Number: _____

Address: _____

hereby undertake in favor of the **NORTH-WEST UNIVERSITY**, a public higher education institution established in terms of the Higher Education Act No. 101 of 1997

Address: Office of the Institutional Registrar, Building C1, 53 Borchard Street, Potchefstroom, 2520

(hereinafter the “NWU”)

1 Interpretation and definitions

1.1 In this undertaking, unless inconsistent with, or otherwise indicated by the context:

1.1.1 “Confidential Information” shall include all information that is confidential in its nature or marked as confidential and shall include any existing and new information obtained by me after the Commencement Date, including but not be limited in its interpretation to, research data, information concerning research participants, all secret knowledge, technical information and specifications, manufacturing techniques, designs, diagrams, instruction manuals, blueprints, electronic artwork, samples, devices, demonstrations, formulae, know-how, intellectual property, information concerning materials, marketing and business information generally, financial information that may include remuneration detail, pay slips, information relating to human capital and employment contract, employment conditions, ledgers, income and

expenditures and other materials of whatever description in which the NWU has an interest in being kept confidential; and

1.1.2 “Commencement Date” means the date of signature of this undertaking by myself.

1.2 The headings of clauses are intended for convenience only and shall not affect the interpretation of this undertaking.

2 Preamble

2.1 In performing certain duties requested by the NWU, I will have access to certain Confidential Information provided by the NWU in order to perform the said duties and I agree that it must be kept confidential.

2.2 The NWU has agreed to disclose certain of this Confidential Information and other information to me subject to me agreeing to the terms of confidentiality set out herein.

3 Title to the Confidential Information

I hereby acknowledge that all right, title and interest in and to the Confidential Information vests in the NWU and that I will have no claim of any nature in and to the Confidential Information.

4 Period of confidentiality

The provisions of this undertaking shall begin on the Commencement Date and remain in force indefinitely.

5 Non-disclosure and undertakings

I undertake:

5.1 to maintain the confidentiality of any Confidential Information to which I shall be allowed access by the NWU, whether before or after the Commencement Date of this undertaking. I will not divulge or permit to be divulged to any person any aspect of such Confidential Information otherwise than may be allowed in terms of this undertaking;

5.2 to take all such steps as may be necessary to prevent the Confidential Information falling into the hands of an unauthorised third party;

5.3 not to make use of any of the Confidential Information in the development, manufacture, marketing and/or sale of any goods;

5.4 not to use any research data for publication purposes;

5.5 not to use or disclose or attempt to use or disclose the Confidential Information for any purpose other than performing research purposes only and includes questionnaires, interviews with participants, data gathering, data analysis and personal information of participants/research subjects;

5.6 not to use or attempt to use the Confidential Information in any manner which will cause or be likely to cause injury or loss to a research participant or the NWU; and

5.7 that all documentation furnished to me by the NWU pursuant to this undertaking will remain the property of the NWU and upon the request of the NWU will be returned to the NWU. I shall not make copies of any such documentation without the prior written consent of the NWU.

6 Exception

The above undertakings by myself shall not apply to Confidential Information which I am compelled to disclose in terms of a court order.

7 Jurisdiction

This undertaking shall be governed by South African law be subject to the jurisdiction of South African courts in respect of any dispute flowing from this undertaking.

8 Whole agreement

8.1 This document constitutes the whole of this undertaking to the exclusion of all else.

8.2 No amendment, alteration, addition, variation or consensual cancellation of this undertaking will be valid unless in writing and signed by me and the NWU.

Dated at Potchefstroom this _____ 20____

Witnesses:

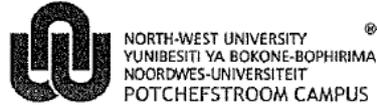
1

2

(Signatures of witnesses)

(Signature)

ANNEXURE I: PROOF OF ETHICAL TRAINING: A DU PLOOY



Private Bag X6001, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Web: <http://www.nwu.ac.za>

**Health Sciences Ethics Office for Research,
Training and Support**
Tel: 018 299 2092
Fax:
Email: minnie.greeff@nwu.ac.za

1 March 2016

Dear Mrs Ansie du Plooy

PROOF OF ATTENDANCE

This letter certifies that you have attended the 2 day ethics training, entitled:

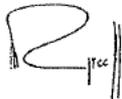
The Basics of Health Research Ethics

presented by Prof Minrie Greeff (Head of the Health Sciences Ethics Office for Research, training and Support)

on the 18 and 19th of January 2016.

This proof of attendance, as recognised by HREC and the Ethics Office, NWU, is valid for 3 years and expires on the 19th of December 2018.

Yours sincerely



Prof Minrie Greeff
Head of Health Sciences Ethics
Office for Research, Training and Support



Prof Awie Kotzé
Dean of Faculty of Health Sciences

ANNEXURE J: AUTHOR GUIDELINES - JOURNAL OF HUMAN LACTATION

Manuscript Submission Guidelines: *Journal of Human Lactation*

Submit all *JHL* articles to: <http://mc.manuscriptcentral.com/jhl>

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JHL Publishing Policies

Manuscripts should be prepared according to the guidelines set forth in the *American Psychological Association Manual of Style*, 6th Edition (VandebBos, 2010). This applies to all headings within the text, pagination, running head, in-text citations, reference list, tables and figures, along with statistical notations, punctuation and word usage. All text should be double-spaced, size 12 pt. font. Margins should be set at 1 inch. **Do not include page or line numbers**, as these will automatically be added when the manuscript is submitted and converted to a PDF file.

Language preferences

Acceptable American English usage and syntax are expected. Do not use slang, medical jargon, or obscure abbreviations or phrasing. Adherence to the *ILCA Style Guidelines for Written Professional Resources* (ILCA Professional Resources Committee, 2016) for preferred language is required (see Appendix B). For example, **human milk or mother’s milk is correct, rather than breast milk, and is written as two words; breastfeeding is one word**. Participants in research studies need to be referred to as participants or respondents, never subjects.

Metric measurement is preferred; equivalent measurements may be included in parentheses.

Always provide the complete form of an acronym/abbreviation the first time it is presented in the text. Use generic names for drugs or devices; put trade names in parentheses.

Resources for authors whose native language is not English are:

- Sage offers English Language Editing services: <http://languageservices.sagepub.com/en/>
- For non-Native English writers: *Author Aid*: <http://www.authoraid.info/en/>
- For novice writers: University of Utah’s *Journal Writing*:

<http://nursing.utah.edu/journalwriting/>

Peer review policy

All manuscripts are reviewed initially by the Editors and only those papers that meet the scientific and editorial standards of the journal, and fit within the aims and scope of the journal, will be sent for outside review. Each manuscript is reviewed by at least **three** referees. All manuscripts are reviewed as rapidly as possible, and an editorial decision is generally reached

within eight weeks of submission. *JHL* operates a conventional double-blind reviewing policy in which the reviewers' and authors' names are always concealed.

Ethical Publishing Policies

Avoiding Plagiarism

Plagiarism is a serious breach of ethical scholarship. To avoid this possibility, we use a software program (*iThenticate*) to check all manuscripts for plagiarism. It is important that authors understand the importance of using quotes with appropriate in text citations including page numbers when using the written words of other authors. Failure to do so constitutes plagiarism.

Avoiding Referencing Predatory Journals

Over the past 5 years there has been a spread of unethical publishing practices that use an exploitative business model, which charges authors and provides none of the editorial services and quality control measures provided by legitimate journals. Several organizations concerned with ethics in publishing "have collaborated in an effort to identify principles of transparency and best practice that set apart legitimate journals and publishers from non-legitimate ones and to clarify these principles" (Redhead, 2013, p. 1). They have published the *Principles of Transparency and Best Practices in Publishing* (Redhead, 2013). In accordance with these publishing standards, we will **not** publish references from any known predatory journal. **We require all authors submitting manuscripts to carefully check their references and delete any found to be from predatory journals.**

Protection of Human Rights

We accept manuscripts for publication only if it is made clear that investigations were carried out using a high ethical standard. **Evidence of protection of human subjects approval from an appropriately credentialed Institutional Review Board is required for all research manuscripts submitted** (including case studies), with the exception of literature reviews. The specifics about how informed consent was obtained should be described in the Data Collection section of the submitted manuscript. All experimental studies must conform to the *Declaration of Helsinki* (World Medical Association, 2001). Authors are required to ensure the following guidelines are followed, as per the *International Committee of Medical Journal Editors Recommendations* (Fees, 2015). Participants have a right to privacy, which should not be infringed upon without their informed consent. Identifying information, including patients' names, initials, or hospital numbers should not be published in written descriptions, photographs, or pedigrees unless the information is essential for scientific purposes and the participant (or parent or guardian) has given written informed consent for publication. Informed consent in this situation requires that an identifiable participant be shown the manuscript and provide consent prior to submission.

Identifying details should be omitted if they are not essential. Complete anonymity is difficult to achieve; therefore, informed consent should be obtained if there is any doubt. For example, masking the eye region in photographs of participants is inadequate protection of anonymity. If identifying characteristics are altered to protect anonymity (e.g., in genetic *Journal of Human* pedigrees) authors should provide assurance that alterations do not distort scientific meaning.

Authorship

Manuscripts should be submitted for consideration after all contributing authors give consent. Authors submitting papers should carefully check that all the information about contributing authors is correct and complete. The list of authors should include all those who can legitimately claim authorship. This is all those who (a) made a substantial contribution to the concept and

design, acquisition of data or analysis and interpretation of data; (b) drafted the article or revised it critically for important intellectual content; **and** (c) approved the submitted version. When a large, multicenter group has conducted the work, the group should identify the individuals who accept direct responsibility for the manuscript and who meet the listed criteria; only these individuals should be listed as authors. Acquisition of funding, collection of data, or general supervision of the research group alone does not constitute authorship, although all contributors who do not meet the criteria for authorship should be listed in the Acknowledgments section. Please refer to the *International Committee of Medical Journal Editors (ICMJE) Authorship Guidelines* (Fees, 2015): <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of->

authors-and-contributors.html

Manuscript Format

Title page

All submissions require a Title Page. This is the only file that should include the authors' names. The Title Page must be uploaded as a separate file to ensure blind peer-review. The Title Page needs to include: (a) Complete manuscript title; (b) Authors' full names, academic degrees, and affiliations; (c) Corresponding author's name, address, telephone number, and e-mail address; and (d) Acknowledgments, if the authors wish to include them. All contributors who do not meet the criteria for authorship should be listed in the 'Acknowledgements' section. Examples of those who might be acknowledged include a person who provided purely technical help, writing assistance, or a department chair that provided only general support. Authors should disclose whether they had any writing assistance and identify the entity that paid for this assistance. In addition, authors may acknowledge persons who have contributed to the research or manuscript development. Participants may be acknowledged, but participants must not be specifically named. For example, thank you to all the families that participated in this research. Limit acknowledgments to 50 words.

Please refer to the information and guidance on how best to title your article, write your article and abstract by visiting SAGE's *Journal Author Gateway Guidelines on How to Help Readers Find Your Article* online: <https://us.sagepub.com/en-us/nam/help-readers-find-your-article>

Abstract

Abstracts are required for all research manuscripts, with the exceptions of case studies. A structured abstract of no more than 250 words is required. Content about each of the following with **these** bolded headings is required: (1) Background, (2) Research Aim/question(s), (3) Methods, (4) Results, and (5) Conclusion(s). Abstracts do not count in the manuscript word count. Non-research manuscripts (e.g., Insights into Practice, Insights into Policy, etc.) do not need abstracts. Do **not** use abbreviations in the abstract. Randomized Clinical Trials must also include the following statement following the abstract: "This RCT was registered (registration number here) with [name site] on [date]."

Keywords

Keywords should only be entered into ScholarOne and not included in the main manuscript file. Authors need to choose keywords from the list of appropriate words in Appendix C, which are entered into the mandatory keyword list in *ScholarOne*. Optional additional MeSH (US National Library of Medicine's Medical Subject Headings) keywords, may be listed in the optional keyword box. You can submit your abstract to *MeSH on Demand* (<https://www.nlm.nih.gov/mesh/MeSHonDemand.html>), which will identify and provide you a list

of MeSH keywords appropriate for your manuscript. You can check to see if your selected keywords are MeSH terms on their website: <https://www.nlm.nih.gov/mesh/MBrowser.html>

Key Messages

All Research manuscripts should include a separate file containing Key Messages. The .doc or .docx file should be uploaded separately from the manuscript under the “**Key Messages**” file designation. This list of 3-4 bullet points written in complete sentences without abbreviations should contain the following information:

- One statement about context of study (i.e., what is the gap in the knowledge base that is the rationale for doing this study?).
- 1-2 statements about the core findings of the study.
- One statement of the significance of the study (i.e., how does this research add to the existing knowledge base?).

Body of manuscript

The main manuscript file should be a Word document (.doc or .docx). Please do not submit images of tables embedded into the Word document, rather as separate .doc or .docx files. *Format your manuscript according to the specific type of manuscript you are submitting as detailed below.*

Funding Acknowledgement

*JHL complies with the World Health Organization’s (1981) International Code for the Marketing of Breast milk Substitutes (the International Code) by accepting no advertising by non-International Code compliant companies and by not publishing research funded by non-International Code compliant organizations. Additionally, to comply with the *Guidance for Research Funders, Authors and Publishers* issued by the *International Committee of Medical Journal Editors (ICMJE; Fees, 2015)*, **all authors are required to acknowledge their funding in a separate heading after the body of the text and before the reference list** (see specific details below).*

Declaration of conflicting interests

It is the editorial policy of *Journal of Human Lactation* to require a declaration of conflicting interests from all authors, enabling a statement to be carried within the paginated pages of all published articles. When making a declaration the disclosure information must be specific and include any financial relationship that any and all authors of the article has with any sponsoring organization and the for-profit interests the organization represents, and with any for-profit product discussed or implied in the text of the article.

Any commercial or financial involvements that might represent an appearance of a conflict of interest needs to be additionally disclosed in the cover letter accompanying your article to assist the Editor in evaluating whether sufficient disclosure has been made within the *Declaration of Conflicting Interests* provided. For more information please visit the *SAGE Journal Author Gateway*.

References

All in-text citations and the reference list must be APA formatted. The Reference list is double-spaced in 12-point font. References need to be current, **published within the past 5 years**,

with the exception of classic works in the field. All in-text citations must be cited in the Reference list. For meta-analysis include all studies in the reference list with an asterisk next to those used in the analysis (APA, 2010, p. 183). Examples of APA formatted references are listed below. **Please note the capitalization rules, complete titles of journals and the differences between different types of citations.**

Journal

Kamholz, K. L., Parker, M. G., & Philipp, B. L. (2012). Implementing change: Steps to initiate a human donor milk program in a US level III NICU. *Journal of Human Lactation*, 28(2), 128-131.

Journal Article with DIO (for web-based materials)

Herbst-Damm, K. L., & Kulik, J. A. (2005). Volunteer support, marital status, and the survival times of terminally ill patients. *Health Psychology*, 24, 225-229. doi: 10.1037/0278/6133.24.2.225

Book

Michaels, P. J., & Balling, R. C., Jr. (2000). *The Satanic Gases: Clearing the Air about Global Warming*. Washington, DC: Cato Institute.

Website

United States Environmental Protection Agency. (2016). *Climate Change*. Retrieved from the Environmental Protection Agency website: <http://www.epa.gov/climatechange>

Tables

Format all tables according to APA format (APA, 2010, p. 193), including the use of statistical abbreviations and footnoting (see Appendix D for examples). Tables, graphs and charts should be in Word format.

Figures

Photographs/Figures **should not** be copied into a Word or PowerPoint document; they should be provided in their original format (.jpg, .tiff, .eps). For photographs, please ensure that they are high-resolution (at least 300 dpi). Titles and legends should follow APA formatting (APA, 2010, p. 150).

Manuscript Types

JHL accepts various types of research manuscripts (i.e., case reports, original and student research, brief research reports and literature reviews). **It is our policy to publish only research where the data has been collected within the past 5 years.** In addition, we also accept non-research manuscripts with lactation relevant content of interest to clinicians and researchers (i.e., Insights into Practice, Insight into Policy, Letters to the Editor and their responses). Each category has specific organizational and formatting requirements that are listed below.

Research Manuscripts

JHL is a multi-disciplinary international journal with a diverse readership. It is therefore essential that authors clearly explain their research methods, data analysis process and their results in a

way that can be understood by professionals in other disciplines. *JHL* welcomes manuscripts from all disciplines and methodologies. In all research manuscripts include the following:

1. Background 5. **Methods:** All of the following sub-sections must be included a. Design: Clearly state the study design with a rationale; include protection of human b. Setting: Provide an environmental context for the study, including the dates of data

Should succinctly summarize the literature with regard to the study aims/research question(s). This includes the gap in the literature addressed by the research aim(s), which need to be clear, along with a succinct statement of the significance of the study. ***The study aims need to be clearly and explicitly stated at the end of the Background section*** (before the methods section). subjects in this section.

collection. Qualitative research needs to have a more in-depth contextualization than does quantitative research.

c. Sample: Identify the target population and the sample population, include participant selection criteria, inclusion and exclusion criteria, method of sampling, and sample size rationale with power analysis, if applicable. Refer to study participants, as participants or respondents, not subjects. Include a PRISMA diagram as needed to clarify how your sample was obtained.

d. Measurement (if applicable): Clearly define each variable and how it has been measured, providing information on the reliability and validity of all instruments. If survey methods are used, provide enough information on these tools to inform readers about the appropriateness of their use within your specific population. f. Data collection: Describe who, how and when data were collected. This includes how informed consent was obtained, if applicable.

- g. Data analysis: The data analysis plan for each research aim/question should be addressed separately in this section. This section should include any relevant information about decisions to group individual variables in to indices or scales and how these new constructs were evaluated. The analysis plan should describe rationale for selection of statistical tests or why the test are appropriate to address both the study question and the level of measurement. When multivariate modeling is applied, the analysis plan should include a description of the modeling procedures, including how variables were entered and evaluated and the criteria by which the final models shown in the results were determined. In most cases, 95% confidence intervals are preferred over the *p*-value for evaluating statistical significance. In the case of *p*-values, the analysis plan should state if values shown are one or two tailed.

- **6. Results**

Structure this section according to each of the research aims/questions. It is appropriate to summarize findings displayed in table(s) and/or highlight key findings; however, avoid repeating most findings displayed in tables.

- a. Quantitative results:
 - • Follow table guidelines for all tables, including APA formatting (APA, 2010, p. 119-120), including statistical notations (i.e., N=total sample; n=number of cases in a subsample).
 - • Use metric measurement
 - • The inclusion of *p*-values is unnecessary when 95% confidence intervals are presented. As appropriate, identify and specify units of measurement (metric measures are preferred). Do not use excess precision in expressing results. In
 - most cases two decimal places is sufficient.
 - • Presentation of the results from logistic regression, Poisson regression, or Cox regression should be the exponentiated parameter estimate or measure of effect (i.e., the odds ratio, incidence rate ratio, or hazard ratio) and corresponding 95% confidence interval rather than the parameter estimate. Indicators of the goodness of fit of the model, such as a model log likelihood ratio for logistic regression, should be included.
 - • All randomized controlled trials submitted for publication should include a completed *Consolidated Standards of Reporting Trials* (CONSORT) flow chart. Please refer to the CONSORT statement website at <http://www.consort-statement.org> for more information.
 - • **We require authors to register their clinical trials** at <http://clinicaltrials.gov> or other suitable databases identified by the *International Committee of Medical Journal Editors*. The *WHO International Clinical Trials Portal* (WHO, 2014) currently lists 15 acceptable registries. Pilot studies or secondary analyses will not require registration; however, the parent study registration for all secondary analyses should be documented. You will need to specify the registration number in ScholarOne and in the required statement following the abstract (“The RCT was registered (registration number here) with [name site] on [date].”)
- b. Qualitative results:
 - • Many disciplines conduct qualitative studies; therefore, there are many appropriate ways to report study results. Because *JHL* is a multi-disciplinary international journal and we have a diverse readership, it is the responsibility of
 - the author(s) to clearly explain their analysis process and their results.
 - • Although there are many ways to conduct qualitative research, commonalities do exist. O’Brien and colleagues (2014) analyzed these commonalities. These researchers

“formulated and defined standards for reporting qualitative research while preserving the requisite flexibility to accommodate various paradigms, approaches, and methods” (p.1245). ***JHL adheres to their guidelines in reviewing qualitative manuscripts and recommends authors use these guidelines when developing their manuscripts with the understanding that not all of these standards are applicable to every qualitative methodology.***

4. **Discussion:** The purposes of this section are to: • Establish the ways the researchers have addressed their research questions;

- • Provide alternative possible explanations for the current findings;
- • Compare the current study findings with the previously reported research;
- • Identify areas that need further study;
- • Suggest possible applications to lactation practice.

5. Conclusion

a. Limitations: Describe study limitations due to design and operationalization in a separate subsection of the Discussion section with a section heading.

Summarize the results with several broad statements and the discussion with several general statements. Although the content for the manuscript text should include all of the components listed, there may be some variation depending on the research methodology used. For example, it would be inappropriate to have a measurement section within a qualitative research manuscript.

a. Background: A brief introduction, including a review of the literature relating to the b. Case: The case presentation, including informed consent, history of the problem and other pertinent information, clinical approach, and outcome.

Types of Research Manuscripts: Specific Guidelines

Additional guidelines for specific types of research studies are listed below. Word limits are adhered to generally; however, *if your manuscript is longer than the recommended length, please query the editor and we may be able to be flexible depending on the situation.*

Case Reports

The manuscript has a word limit of 1500 words, excluding tables, figures, and references. Include headers and content for just the following sections:

problem.

- c. Discussion: Discussion/recommendations regarding future investigations and/or assistance of future clients.

- d. Conclusion: Client confidentiality must be protected in the presentation, and if identifiable photos are used, a statement regarding obtaining written consent must be included (see Photographs section above). Tables should be kept to a minimum.

Original Research

The manuscript has a word limit of 3500 words for quantitative manuscripts and 4000 words for qualitative manuscripts; however, exceptions may be made with the Editor in Chief's prior approval. Include all the research components in this type of manuscript.

Brief Original Research Reports

Brief reports on new, interesting findings will meet the same criteria as Original Research; however, they need to be reported in shorter format reflecting a less complex study design or original findings not requiring an extended manuscript. The manuscript has a 2000 word limit, excluding tables, figures, and references; limit to 1 table and 1 figure.

Manuscripts should be formatted using all the components of research articles, including Key Messages (see above).

Student Research

Students currently enrolled in a degree-seeking program may submit Original Research and Brief Original Reports by following the requirements above (see Original Research and Brief Original Reports sections). We seek to foster an interest in the field and in early career development, by dedicating space to student-led research. Student Research manuscripts will undergo the same blinded, external peer-review process as other manuscripts. It is expected the student will be the first-author on the manuscript and has had a significant contribution to at least two of the following areas: Study design and concept, implementation, data collection, statistical analysis and interpretation, or drafting of the manuscript. *On the title page, please include 1-2 sentences describing the student's current situation, i.e., the course/program where the student is currently matriculated.*

Literature Review

Literature reviews critically analyzing relevant lactation specific topics, which use an established review methodology, are welcomed. Many different ways of conducting literature reviews exist; however, commonalities do exist across these different methodologies, which include a rigorous identifiable methodology. Although *JHL* accepts all types of reviews (e.g., integrated, systematic and other types of literature review manuscripts) we adhere to the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) guidelines for literature reviews (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009). We strongly urge authors to incorporate a PRISMA flow diagram of the identification, screening and inclusion of reviewed literature into their manuscript. The manuscript should be limited to 4000 words, excluding tables, figures, and references. Content should include all research manuscript components, as listed above.

Non-Research Manuscripts

Insights into Policy

This article category is designed to feature new steps in policymaking, for example, innovative policies on lactation-related hospital clinical practice, or steps forward in national or international policymaking (e.g., development of national guidelines for implementation of the *Baby-Friendly*

Hospital Initiative). We also invite general discussion and contemporary insights about policymaking and ways in which policies can be changed or implemented.

This type of manuscript has a word limit of 2000, excluding tables, figures, and references. The manuscript should include the following headings and content: (a) The background stating the issue/problem, (b) presentation of the recommendations, and (c) the conclusion.

Insights into Practice

Innovative teaching aids and procedures, charting, and referral forms specific to a lactation workup are appropriate for this article category. We also invite general discussions about running a lactation consultant practice, hospital-based management and service issues, and contemporary insights related to clinical experience.

The manuscript has a word limit of 2000 words excluding tables, figures, and references. The following headings and content should be included: (a) The background stating the issue/problem, (b) presentation of the recommendations, and (c) the conclusion.

Letters to the Editor

JHL readers are encouraged to exchange information or provide input related to an article published in the journal within the past three months or contributions to a controversy or debate by submitting a Letter to the Editor. Letters should not exceed 750 words (no abstract required). Letters commenting on articles should reference the particular article. References should be kept to a minimum. In addition to including a title page (see Title Page section above), please include the following information in the Letter's main document: Authors' names, academic degrees, affiliation, city, state/province, country, and e-mail for correspondence. Letters to the Editor are not sent out for peer review.

Response to the Letter to the Editor

Authors of published manuscripts are given the opportunity to respond to a Letter to the Editor. These are invited manuscripts and should be no more than 750 words and contain no figures or tables. References should be kept to a minimum. In addition to including a title page (see Title Page section above), please include the following information in the Letter's main document: Authors' names, academic degrees, affiliation, city, state/province, country, and e-mail for correspondence. Letters to the Editor are not sent out for peer review.

Submitting Your Manuscript

***JHL* is hosted on SAGE Track; a web based online submission and peer review system.**

Please read the Manuscript Submission guidelines below, and then visit <https://mc.manuscriptcentral.com/jhl> to login and submit your article online.

IMPORTANT: Please check whether you already have an account in the system before trying to create a new one. If you have reviewed or authored for the journal in the past year it is likely that you will have had an account created. If you are unable to access your account, please contact the *JHL* Editorial Office for assistance at jhlmanagingeditor@gmail.com. For further guidance on submitting your manuscript online please visit ScholarOne Online Help.

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Authors who would like to refine the use of English in their manuscripts might consider using the services of a professional English-language editing company. Visit SAGE Language

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2. File types

Only electronic files conforming to the journal's guidelines will be accepted. Preferred formats for the text and tables of your manuscript are Word doc, rtf, LaTeX files are also accepted. The text should be double-spaced throughout, 1 inch margins. Text should be standard 12-point sized font.

3. Artwork, figures and other graphics

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Photographer/copyright holder permission is required for the use of photographs or unique illustrations/images. If your manuscript is accepted for publication, you will be asked to have the photographer/copyright holder sign a *JHL* "Permission to Reprint Material" form. If the photographer is one of the authors on the article, no permission form is needed. If the photograph is recognizable (i.e., shows a face), you will also be asked to have the person in the photograph (or parent) sign a *JHL* consent form. Please include a statement in your manuscript indicating that written consent for using the photograph(s) was obtained.

Audio/Video Files

JHL is now accepting audio/video files. The following files types can be handled by our manuscript submission website, ScholarOne. Audio/Video: asf, avi, flv, mov, mp3, mp4, mpeg, mpg, wav, wma, wmv. For optimal viewing, videos should be 480x360 pixels. If it is a different size/aspect ratio, it will be resized upon upload. There is no limit to the length of the video, although the maximum file size allowed is 1GB. Videos hosted elsewhere (such as YouTube), can be included as links. Once uploaded, the videos will only be viewed in the HTML version of an article.

Figures and Tables

Each table/figure/image must be uploaded as a separate file, not as part of the main text document. If there are multiple tables/figures/images, please upload each one as a separate file. Number tables/figures/images consecutively as referred to in the text. Provide each table/figure/image with a brief title above the table/figure/image. Place general explanatory matter in a note at the end of the table, labeled 'Note.'. A specific note referring to a particular column, row, or cell and are indicated by superscript lower case letters. (See the *APA Manual 6th Edition* for additional information.)

Figures

Submit all figures, images, and charts separately, in .tif, .jpeg, or .eps format, and in the highest resolution, at least 300 dpi. Include a brief and specific title at the top of all figures and images followed by a description (if applicable) at the bottom. Make titles and axis labels editable. Figures and images can be printed in color for a fee (online color reproduction is free). Contact the SAGE production editor for more information.

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This journal is able to host additional materials online (e.g. datasets, AV files) alongside the full-text of the article. These will be subjected to peer-review alongside the article. For more information please refer to SAGE's *Guidelines for Authors on Supplemental Files*. Please

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Further information

Any correspondence, queries or additional requests for information on the manuscript submission process should be sent to the JHL editorial office as follows:
jhlmanagingeditor@gmail.com.

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ANNEXURE K: AUTHOR GUIDELINES - JOURNAL OF PERINATAL & NEONATAL NURSING

Information for Authors

Scope

The purpose of *The Journal of Perinatal & Neonatal Nursing* (JPNN) is to provide nurses caring for perinatal and neonatal patients and their families with evidence-based information that is cutting-edge and relevant to clinical practice. We publish manuscripts that have strong clinical implications for perinatal and neonatal practice. These manuscripts are focused around a central theme for each issue, with one issue a year dedicated to various selected topics. The topics of the issues are determined by the editorial board members based on their collective assessment of the most important issues relevant to practice. These topics are posted on the JPNN website, and can be found here.

We welcome authors to submit clinically focused, academically sound articles that (1) add new knowledge to the field of perinatal/neonatal nursing, (2) challenge and/or confirm existing knowledge or (3) provide information that ensures practice is evidence-based and uniformly excellent across the perinatal and neonatal care spectrum. Papers achieving these goals may be original research, systematic or scoping reviews, state of the science or practice reports, or quality improvement reports. All manuscripts are peer-reviewed. Acceptance or rejection of manuscripts is based on the peer-review process and how well matched the manuscript is with the scope of the journal as assessed by the editor.

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- All direct quotes from a periodical article
- All excerpts from a newspaper article or other short piece
- Any borrowed table, figure, or illustration being reproduced exactly or adapted to fit the needs of the subject.

Manuscript Preparation

Manuscripts that do not adhere to the following instructions will be returned to the corresponding author for technical revision before undergoing peer review.

Each manuscript **must** include the following, each on its own page:

Title page including

- (1) title of the article
- (2) author names (with highest academic degrees) and affiliations (including titles, departments, and name and location of institutions of primary employment)
- (3) corresponding author's name and complete address including email, and
- (4) any acknowledgments credits, or disclaimers.

The title page must also include disclosure of funding received for this work from any of the following organizations: National Institutes of Health (NIH); Wellcome Trust; Howard Hughes Medical Institute (HHMI); and other(s). See the "Conflicts of Interest" section above for more information.

Abstract of 200 words or fewer describing the main points of the article. Limit the use of abbreviations and acronyms, and avoid general statements (e.g. the significance of the results is discussed, etc.) If it is a research article, prepare a structured abstract describing

- (1) what was observed or investigated,
- (2) the subjects and methods, and
- (3) the results and conclusions.

Key Words 3-5 key words that describe the contents of the article like those that appear in the *Cumulative Index to Nursing and Allied Health Literature* (CINAHL) or the *National Library of Medicine's Medical Subject Headings* (MeSH).

Abbreviations Write out the full term for each abbreviation at its first use unless it is a standard unit of measure. Avoid error prone abbreviations as identified by the Institute for Safe Medicine Practices, a complete list is available at: <http://www.ismp.org/Tools/errorproneabbreviations.pdf>

Precis – A synopsis of the manuscript of 25 words or fewer.

Clear indication of the placement of all tables and figures in text.

Signed and completed copyright transfer and disclosure agreement for each contributor.

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The manuscript will be submitted as a separate file when you are instructed to attach files to your submission. Compose your manuscript using your computer and Microsoft Word software, then attach this file when you reach the "attach files" step in the submission process.

Please note the following guidelines for preparing your manuscript:

- Prepare the manuscript double spaced in Microsoft Word. Leave a one-inch margin on all sides. Do not right justify.
- Type all headings on a separate line.
- Number all manuscript pages consecutively in the upper right-hand corner (text and references, followed by illustrations on separate pages).

- All legends for Tables and Figures are to be included with the manuscript; include these at the end of manuscript after the list of references. Tables and Figures are attached as separate files when you reach "attach files" in the submission process. Prepare tables and figures in a format ready for reproduction. Further instructions for preparing figures are given below.
- Manuscript length (excluding all references, tables, figures) should be no more than 20 pages (standard 8.5 x 11 inch page size).
- Use the *American Medical Association Manual of Style*, 10 Edition, Copyright 2007 for citations and references. See examples for citations and references below.
- No identifying information (authors' names) should be included on the manuscript. If you cite your own works, list them as "Author, YYYY" in the citation and the reference list in order to maintain your anonymity for the review process.

References

The authors are responsible for the accuracy of the references. Include the references (double-spaced) at the end of the manuscript. Cite the references in text in the order of appearance. Cite unpublished data—such as papers submitted but not yet accepted for publication and personal communications, including e-mail communications—in parentheses in the text.

The citations and reference list is to be styled according to the *American Medical Association Manual of Style*, 10 Edition, Copyright 2007, AMA. Examples of citations within the text and reference list style are as follows:

Examples:

Journals: Author. Article title. *Journal*. Year; volume: inclusive pages.

Leidecker, K, Dorman, K. Pulmonary disorders complicating pregnancy: An overview. *J Perinat Neonat Nurs*. 2016; 30(1): 45-5318:41—58.

Books: Author. *Book Title*. Place of publication: Publisher: year.

Sumner J Yaffe MD, Jacob V Aranda MD, PhD, FRCP(C), *Neonatal and Pediatric Pharmacology*, Lippincott Williams & Wilkins, 4th ed. 2010

Simpson KR, Creehan PA. Strategies to develop an evidence-based approach to prenatal care and pregnancy and childbirth practices of selected cultures and religions. *AWHONN's Perinatal Nursing*. 4th ed. 2013.

For multiple authors in journals and books:

- If six or fewer, list all authors
- If more than six, list the first three followed by et al.

Figures

A) Creating Digital Artwork

1. Learn about the publication requirements for Digital Artwork: <http://links.lww.com/ES/A42>
2. Create, Scan and Save your artwork and compare your final figure to the Digital Artwork Guideline Checklist (below).
3. Upload each figure to Editorial Manager in conjunction with your manuscript text and tables.

B) Digital Artwork Guideline Checklist

Here are the basics to have in place before submitting your digital artwork:

- Artwork should be saved as TIFF, EPS, or MS Office (DOC, PPT, XLS) files. High resolution PDF files are also acceptable.
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- Diagrams, drawings, graphs, and other line art must be vector or saved at a resolution of at least 1200 dpi. If created in an MS Office program, send the native (DOC, PPT, XLS) file.
- Photographs, radiographs and other halftone images must be saved at a resolution of at least 300 dpi.
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- Each figure must be saved and submitted as a separate file. Figures should not be embedded in the manuscript text file.

Remember:

- Cite figures consecutively in your manuscript.
- Number figures in the figure legend in the order in which they are discussed.
- Upload figures consecutively to the Editorial Manager web site and enter figure numbers consecutively in the Description field when uploading the files.

If a figure has been previously published, in part or in total, acknowledge the original source and submit written permission from the copyright holder to reproduce or adapt the material. Include a source line. Type "Source: Author" on figures that you created. This will help Lippincott Williams & Wilkins identify the status of each figure.

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Tables should be on a separate page at the end of the manuscript.

Number tables consecutively and supply a brief title for each.

Include explanatory footnotes for all nonstandard abbreviations. For footnotes, use the following symbols, in this sequence: *, †, ‡, §, ||, **, ††, etc.

Cite each table in the text in consecutive order.

If you use data from another published or unpublished source, obtain permission and acknowledge fully. Type "Source: Author" on tables that you created.

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A listing of Supplemental Digital Content must be submitted at the end of the manuscript file. Include the SDC number and file type of the Supplemental Digital Content. This text will be removed by our production staff and not be published.

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- concise, logical ordering of ideas;
 - sound argument and defense of original ideas;
 - accuracy of content;
 - adequacy of documentation;
 - consistency with the purpose of the journal.
- Second, the Editor makes a decision regarding acceptance of the article for publication based on the comments and

recommendations of the Editorial Board reviewers. At least two reviewers must recommend the article for publication for the article to be accepted by the Editor. A rejection by one reviewer may eliminate that manuscript from further review.

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ANNEXURE L: EDITORS LETTER

Valerie Janet Ehlers

Nurse Consultant and Researcher

Emeritus Professor and Research Fellow: University of South Africa

Associate Editor: International Nursing Review (2014-2017)

(B Soc Sc (University of Natal), Honours B Soc Sc, BA Cur, Honours BA Cur,
MA Cur, D Lit et Phil, Diploma in Development Administration, TAALKU-F for
Diploma in Translation- Unisa))

CONFIRMATION LETTER: EDITING OF A DOCUMENT

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4 November 2017

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4 November 2017	I HEREBY CERTIFY THAT I HAVE EDITED THE FOLLOWING MASTER'S DISSERTATION: Breastfeeding educational needs of first time mothers during puerperium For Ms Ansie du Plooy St no: 24940615
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Thank you



Prof VJ Ehlers