Breastfeeding Determinants in South Africa: Systematic Review Protocol

Date: 4 June, 2014

A. Background

An estimated 13% of global under-five mortality could be averted if exclusive breastfeeding (EBF) for six months and continued breastfeeding for up to a year were practiced universally (Jones, Steketee, Black, Bhutta, & Morris, 2003). Far from universal, however, South Africa’s EBF rate for six months falls well below the 40% average observed in low and middle income countries (LMICs) (Bamford, 2013). In a recent multi-country randomized control trial to promote EBF, only 8% of the South African intervention group reported EBF at 12 weeks, with the control group even lower, at 4% (Tylleskar et al., 2011). One explanation for South Africa’s low rates of EBF is the country’s high HIV prevalence and now past practice of providing free formula to HIV positive mothers (Doherty, Sanders, Goga, & Jackson, 2011). However, high levels of mixed feeding, even among HIV positive women, suggest that this is only part of the explanation (Goga et al., 2012).

B. Analytic Framework

This systematic review will be guided by an existing multi-level analytic framework that explains the facilitators and barriers to breastfeeding (Ramara, Maputle, & Lekhuleni, 2010). This has been adapted by the Developmental Pathways Health and Research Unit (DPHRU), as depicted in the below diagram.
In addition, a time dimension will be incorporated into the analysis aligned with data collection periods to account for shifts in the infant feeding policy environment between 1994 and present. This will be explained in the background to the full review.

C. Multidisciplinary Research Team

The systematic review process will be conducted by a multidisciplinary research team. The research team will be responsible for all of the activities and decisions involved in the conduct of the systematic review.

<table>
<thead>
<tr>
<th>Name</th>
<th>Relevant disciplinary background</th>
<th>Role in review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Shane Norris</td>
<td>Experienced in systematic review and content expert</td>
<td>Methodological oversight</td>
</tr>
<tr>
<td>Sara Niewoudt, MPH &amp; PhD</td>
<td>Behavioral scientist with mixed-methods research background and experience with multi-level</td>
<td>Coordinator of day-to-day review activities, including search, review, data</td>
</tr>
<tr>
<td>Candidate</td>
<td>analytic framework.</td>
<td>extraction and write-up</td>
</tr>
<tr>
<td>Professor Lenore Manderson</td>
<td>Medical anthropologist with multiple publications on infant feeding.</td>
<td>Validation of qualitative meta-synthesis</td>
</tr>
<tr>
<td>Chrystelle Wedi Rhodes Scholar</td>
<td>Recently completed a quantitative systematic review</td>
<td>Support for paper review, data extraction and quantitative meta-analysis</td>
</tr>
<tr>
<td>PhD Candidate</td>
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This team will work together to finalize the search terms, refine the analytic framework and support inter-coder reliability through the definition of terms and relationships during the review.

**Expert Inputs**

In addition to the multidisciplinary team, advice will be sought at critical junctures from the following experts, who will not be directly involved in conducting the review.

Dr John Eyers. As an expert in systematic reviews and literature searches, his advice has been sought on the optimal search engines and search terms for this review. His recommended search strategies are listed in Appendix 1.

Dr Nigel Rollins. Will provide technical support and will review write-up and comment on policy relevance.

External peer reviewers, such as Linda Richter, Anna Coutsoudis (Durban), Marianne Visser, Debra Jackson and Ameena Goga, may be asked to comment on a final draft of the review prior to formal submission for peer review.

D. Research Question

The overarching research question the review will seek to answer is:

**What factors support exclusive breastfeeding for six months postpartum (EBF) among women in South Africa?**
This reflects a positive deviance approach to exploring EBF, given the infrequency with which it is observed in the South African population. The review will seek to explore what differs in the profiles or contexts of women who manage to exclusively breastfeed for six months, in order to inform policy and/or interventions. As indicated in the conceptual framework, these will be classified as individual, group or societal-level factors.

**PICO definitions**

The key population of interest is *women in South Africa giving birth to a healthy baby with known infant feeding practices through at least the first month postpartum.*

The intervention or exposure is left open, as it is what we intend to explore. Significant determinants will be noted from both observational studies as well as intervention evaluations, e.g. RCTs.

The key comparator of interest is any breastfeeding vs. no breastfeeding. Among those breastfeeding, duration of breastfeeding (longer vs. shorter) and exclusivity (yes vs no) will also be explored. When possible, these data will be disaggregated by the mothers’ HIV status.

The key outcome of interest is *exclusive breastfeeding for up to six months postpartum.* This will be compared with other feeding behaviours, including predominant breastfeeding, exclusive formula feeding and mixed feeding anytime within the first six months. The duration of each behaviour will be noted.

**E. Methods**

**Literature Search**

The systematic review will be led by the multidisciplinary team. The search strategy has been developed in consultation with experts (NR and JE) and will be conducted independently by two members of the team (SN and CW) to reduce bias. Abstracts will be screened at the first stage. The full texts will only be retrieved of potentially relevant literature. These will then be screened based on the predetermined criteria. Full texts recommended for inclusion in the review will then go to the larger multidisciplinary team for approval before data extraction.

A flow diagram of this process using the PRISMA guidelines will be maintained to ensure that the review process could be replicated and for inclusion in a publication. Table 1 outlines the selection criteria that will be applied once an initial list of abstracts has been identified.

**Table 1. Review selection criteria.**

<table>
<thead>
<tr>
<th>Selection Criteria</th>
<th>Proposed standard</th>
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<tbody>
<tr>
<td>Study types</td>
<td>Peer-reviewed primary studies employing quantitative and/or qualitative methods and well as primary studies reported in the gray literature. Commentaries and opinion pieces will not be included.</td>
</tr>
<tr>
<td>Settings</td>
<td>South Africa. Multi-country studies will be permitted, but only data from South Africa will be extracted.</td>
</tr>
<tr>
<td>Languages</td>
<td>English, French, and Spanish</td>
</tr>
<tr>
<td>Publishing date</td>
<td>1980-present</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Breastfeeding practice (not just intention)</td>
</tr>
</tbody>
</table>
Search Strategy

The following databases will be consulted: Africa-Wide, PubMed, Popline, PsychINFO, Ebsco Databases (CINAHL and Global Health), Web of Science and The Cochrane Library.

Given differences in the databases, specific strategies have been proposed for each, which were trialed on June 2 & 3 and are presented in Appendix 1.¹

The search terms include variations of the following: infant feeding, breast feeding, bottle feeding, mixed feeding, solid feeding and South Africa restricted to 1980 and thereafter.

The citations of relevant reviews and articles will also be searched and content experts, e.g. UNICEF-South Africa, will be consulted to capture all relevant gray literature.

Data Extraction and Presentation

Findings from qualitative studies will be captured in one evidence table, while data from quantitative studies will be captured in a separate evidence table. These tables will include information identifying the study year, infant feeding policy context, study design, sample, analysis techniques, outcome measures, and a synthesis of the relevant findings related to barriers and facilitators.

Assess Methodological Quality and Applicability of Studies

The team will critically analyze the quality of extracted quantitative studies using STROBE (Ubesie, 2012) or CONSORT (Young et al., 2013) depending on the study design. COREQ (Torpey et al., 2012) will be used to assess the quality of the qualitative papers. This will be summarized in another table.

Meta-Analysis and Meta-Synthesis

Depending on the quality of the studies, meta-analysis will be conducted for quantitative studies while meta-synthesis will be applied to qualitative studies with EBF for different lengths of time being the outcome(s) of interest.

Triangulation

Given the inclusion of both quantitative and qualitative data in this review, triangulation will be used to synthesize the findings. These findings, will in turn be used to revise the conceptual framework to reflect the best data available for South Africa.

Dissemination Plan

The systematic review will be written up for publication in a peer-reviewed journal. SN will lead the writing, as this will constitute the first publication towards her PhD at the University of the Witwatersrand. The findings will be used internally by DPHRU and collaborators to inform the design of two additional studies that are being planned in Soweto to explore infant feeding practices.

¹ In some of the strategies, the eligibility criteria of being published between 1980 and present has not been applied, so the actual number of results may be somewhat lower.
References


Appendix 1. Recommended Search Strategies by Database for Breastfeeding in South Africa

Author: Dr John Eyers

1. Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily, Ovid MEDLINE(R) and Ovid OLDMEDLINE(R) 1946 to Present – Searched 2nd June 2014 [NOTE: This strategy will be applied to PubMed with additional date restrictions]

1. (infant feed* or (bottle adj3 feed*) or (breast adj3 (milk or fed or feed*)) or breastfeed* or breastfed or breast-feed* or breast-fed).ti,ab.
2. infant feeding/ or bottle feeding/ or breast feeding/ or solid feeding/
3. 2 or 3
4. south africa/ or "south africa*".ti,ab.
5. 3 and 4


1. south africa/ or "south africa*".ti,ab.
2. infant feeding/ or bottle feeding/ or breast feeding/ or solid feeding/ or infant formulae/
3. (infant feed* or (bottle adj3 feed*) or (breast adj3 (milk or fed or feed*)) or breastfeed* or breastfed or breast-feed* or breast-fed).ti,ab.
4. 2 or 3
5. 1 and 4
6. limit 5 to yr="1980 -Current"

3. Popline – Searched 3rd June 2014

All Fields: ((infant AND (formula OR fee*)) OR (bottle AND fee*) OR (breast AND (milk OR fed OR fee*)) OR breastfee* OR breastfed)

AND

Region/Country: South Africa

4. & 5. Ebsco Databases – Cinahl & Global Health – Searched 3rd June 2014 [Note: Will also be used for Africa-Wide]

S1 TI("south africa*") OR AB("south africa*") OR SU("south africa*") Limiters - Published Date: 19800101-20140631 [Database - CINAHL Plus with Full Text ]
S2 TI((infant N3(formula or feed*)) or (bottle N3 feed*) or (breast N3 (milk or fed or feed*)) or breastfeed* or breastfed or breast-feed* or breast-fed) OR AB((infant N3(formula or feed*)) or (bottle N3 feed*) or (breast N3 (milk or fed or feed*)) or breastfeed* or breastfed or breast-feed* or breast-fed) OR SU((infant N3(formula or feed*)) or (bottle N3 feed*) or (breast N3 (milk or fed or feed*)) or breastfeed* or breastfed or breast-feed* or breast-fed) [Database - CINAHL Plus with Full Text ]
S3 S1 AND S2 [Database - CINAHL Plus with Full Text ]

6. Central Register of Trials (Cochrane Library - Issue 5 of 12, May 2014) – Searched 3rd June 2014

1. ("infant feed" or "infant feeds" or "infant feeding" or (bottle near feed*) or (breast near (milk or fed or feed*)) or breastfeed* or breastfed or breast-feed* or breast-fed):ti,ab
2. [mh ^"infant feeding"] or [mh ^"bottle feeding"] or [mh ^"breast feeding"] or [mh ^"solid feeding"]
3. [mh ^"south africa"] or ("south africa" or "south african" or "south africans" or "south africa's"):ti,ab
4. (#1 or #2) and #3 – Limited by date 1980-Present