Qualitative study of supplementary suckling as a treatment for SAM in Infants

This article summarises key findings of an MSc thesis

By Natasha Lelijveld

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Background

Mothers and children waiting outside the malnutrition ward at the Queen Elizabeth Hospital, Blantyre

The focus of most acute malnutrition research and programming to date has been on the management of children aged 6 to 59 months; this is slowly changing. A recent study estimated that of 20 million children under 5 years with severe acute malnutrition (SAM) worldwide, 3.8 million are infants under 6 months (infants <6m)\(^2\), dispelling a common misconception that malnutrition in this age group is rare. Further, the final report from the Management of Acute Malnutrition in Infants (MAMI) Project\(^3\) stressed the paucity of research regarding management of this age group, in particular highlighting the insufficient evidence and lack of a ‘gold standard’ treatment method.

The prevalence and immediate/longer term consequences of growth faltering during the first 6 months of life have received greater attention of late, as further evidence of the importance of nutrition between conception and 2
years (the ‘critical 1000 days’) has come to light\textsuperscript{4,5}. This period of 1000 days is also referred to as the ‘window of opportunity’ as nutrition interventions have the potential to prevent lasting damage and are most cost-effective during this time\textsuperscript{6}.

Three distinct stages of nutrition affect growth during these ‘critical 1000 days’: maternal nutrition during pregnancy, exclusive breastfeeding for 6 months and the complementary feeding period from 6 - < 24 months. Each stage is different and requires unique knowledge and research, care and interventions. Nutrition interventions during pregnancy and from 6 - 24 months are well studied and largely understood. However it is a very different story for interventions between birth and 6 months, the least studied and understood stage of the ‘1000 days’.

The motivation for this research project was in response to the MAMI Report, to build the evidence base regarding the use of supplementary suckling (SS) in infants <6 months (see Box 1 on SS). This qualitative research explores the barriers and facilitating factors to implementing SS as a treatment for SAM in infants <6m. The project also explored the acceptability of using SS with orphans who are malnourished, and investigated perceived underlying causes of SAM in infants, in order to improve use and acceptability of SS across all settings.

**Box 1: What is Supplementary Suckling?**

Supplementary Suckling (SS) provides the SAM infant <6m with therapeutic milk in order to initiate rehabilitation and weight gain, while also aiming to re-establish exclusive breastfeeding through stimulating relactation.

SS is sometimes referred to as Nursing Supplementer, LactAid Supplementer or Breastfeeding Supplementer.

Malawi’s National Guidelines on Community Management of Malnutrition recommend SS be implemented as follows:

1. The therapeutic milk is given using a size 8 NGT (naso-gastric tube).
2. Therapeutic milk is put in a cup. The mother holds the baby in her arms and the cup with the milk in one hand.
3. One end of the tube is put in the cup and the other end of the tube is put on the breast at the nipple. The infant is offered the breast in the normal way so that the infant attaches properly.
4. When the infant suckles on the breast, with the tube in his/her mouth, the milk from the cup is sucked up through the tube and taken by the infant.
5. The cup should be at least 10cm below the level of the breast so the milk does not flow too quickly.
6. The mother can hold the tube at the breast with one hand or may find it more convenient to hold the tube in place with a strip of tape.
7. It may take one or two days for the infant to get used to the tube and taste of the therapeutic milk.

*See also Figure 2*

**Supplementary suckling in the literature**

A review of international and national guidelines\textsuperscript{2} found that SS is recommended by the majority (97%) of guidelines as the main method of treatment for SAM in infants <6m, however in practice it appears to be rarely used. Malawi is a typical example of this and hence was the setting for this research.

A literature review of SS also revealed a disparity between its regular mention in national policy documents and very little evaluation, or even mention, in the scientific literature. Just two studies, previously published by ENN’s Field Exchange, have evaluated SS as a treatment for malnutrition in infants\textsuperscript{8,9}. One further study assesses
effectiveness of SS at preventing hospital-induced malnutrition in infants\textsuperscript{10}. Other studies have considered SS in relation to situations besides malnutrition, such as initiation of lactation in adopting mothers or feeding of Low Birth Weight (LBW) infants following a period of hospitalisation.

\textit{Treatments available to infants <6m}

The management of infants <6m suffering from SAM is challenging as the treatments generally on offer (Ready-to-use Therapeutic Food (RUTF)) are not indicated in this age group. SAM management in infants <6m requires specialist staff knowledge and time-intensive skilled input to treat and restore effective, exclusive breastfeeding whenever possible. There is currently no evidence-based treatment for infants <6m with SAM as SS has not been formally evaluated. Other treatment options for infants at present include administering therapeutic milk via a cup, a spoon or an NG tube. SS is, however, thought to be the best treatment option for these infants as it is unique in its potential to re-establish exclusive breastfeeding in the context of therapeutic treatment.

The lack of an evidence-based treatment method for infants <6m, in addition to the limited implementation of SS worldwide, leads to the need to understand better the barriers and facilitating factors for implementing SS, with the ultimate aim of improving its usage and the evidence base.

\textbf{Method}

Qualitative interviews and focus group discussions (FGDs) were conducted at Queen Elizabeth (QE) Hospital in Blantyre, Malawi with mothers, carers and nursing staff (caregivers) using a semistructured topic guide. Thematic analysis of data using Long Table Method\textsuperscript{11} was applied in order to identify themes.

\textbf{Objectives}

\begin{itemize}
  \item To explore the barriers and facilitators to implementing SS, as perceived by caregivers in Blantyre, Malawi.
  \item To explore the acceptability of using SS as a treatment for malnutrition in orphans, as perceived by caregivers in Blantyre, Malawi.
  \item To explore the causes of SAM in infants <6 m, as perceived by caregivers in Blantyre, Malawi.
\end{itemize}

The background literature notes that staff support and mothers’ confidence appear to be important in the success of SS\textsuperscript{12}, hence these groups comprise the target populations for this study. Convenience sampling was largely used, however purposive sampling ensured that healthcare staff recruited had some experience of treating SAM and that the ‘mothers’ were a female carer of an infant less than 2 years old, either breastfeeding or nonbreastfeeding. See Figure 1 for sample size; it was felt that saturation was reached and exceeded.
Interviews and FGDs began with a standardised explanation of SS, including an image used in the Malawi national guidelines (see Figure 2). Participants were then encouraged to ask questions, allowing further clarifications where needed.

The topic guide was initially designed by the researcher, with input from relevant professionals, including the
national Infant Feeding in Emergencies (IFE) committee. It was then piloted on three mothers, one nurse and one focus group, and discussed with the translator prior to completion. All participants were offered a convenient time for interview and use of a translator. No staff members requested the use of the translator whereas all but one of the mothers did. Interviews lasted between 20 and 40 minutes. FGDs lasted between 1 hour and 1 hour 30 minutes.

Inductive coding and taking of memos took place throughout data collection; as saturation was reached themes began to solidify and emerge clearly. Following the creation of some key themes, Long Table Method was used, with the translator, to further link, expand and refine themes, until the final results were created. The translator’s active role as an additional coder was important due to his prominence during the interviewing and translating process.

**Results**

Mothers attending one of the focus groups

**Barriers, facilitating factors and solutions to SS implementation**

Five Major Themes and patterns emerged from the data which relate to each of the barriers, facilitating factors and solutions discussed by the participants.

1. Motivation
2. Breastfeeding views
3. Practicality
4. Understanding
5. Perception of medicine

These Major Themes are generic and will likely affect the implementation of SS in all settings. For the Malawi setting, this study identified Sub-themes under each major theme, which are less generic but allowed for tailored solutions to implementing SS in Malawi (see Table 1 for summary of Major Themes and Subthemes).

**SS well received following thorough explanation:**

“On my side it is not difficult to follow”

Mother of infant on Nursery Ward

“Siyovuta” – “It is not a difficult one”

Mother in a FGD

‘Understanding’ as a barrier to implementing SS:

“Some would not be happy to use [SS] because of not understanding how it is working”
Mother of child on Malnutrition Ward

“The problem is telling others of this technique; they could be scared that you would pierce though their breast with the tube or feed the infant through the nostrils”

Mother on Malnutrition Ward

“There are some who could ask, but others won’t, they will just start telling others that I have found such-such a mother feeding a child with a tube, I think she is HIV infected... they will say you have a problem... saying she is just pretending to use the breast, the main feeding channel is the tube”

Mother in a FGD

“I don’t know how much is the milk or what type or who will be offering it. Will we be buying?”

Mother on Nursery Ward

**Extra staff support needed:**

“I think first of all, the mothers should have a health education about the tube, yes, how to take care of it... and maybe there should be somebody to help them with the milk because a child could be crying and needs to be breastfed... Maybe there should be somebody to help so that the milk should be readily diluted”

Nurse working on Nursery Ward

**Concerns for using SS with orphans:**

“Of course it can be difficult but if you have discussed it with the family first, it is fine”

Nurse on Malnutrition Ward

“Due to this disease [HIV] one is supposed to be tested first; you should know the HIV status, if she is ok she could take the child and breastfeed it, but if HIV infected then it is not right for her to breastfeed the child”

Mother in FGD

“They must take the carer from the particular ‘family line’ that the mother has died...if the sister is not breastfeeding then the grandmother must breastfeed”

Nurse on Malnutrition Ward

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**Table 1: Summary of major themes and sub-themes affecting SS implementation**

<table>
<thead>
<tr>
<th>Major Themes</th>
<th>Motivation</th>
<th>Breastfeeding views</th>
<th>Practicality</th>
<th>Understanding</th>
<th>Perception of intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s</td>
<td>Choosing not to</td>
<td>Hygiene</td>
<td>Lack of</td>
<td>Dislike of</td>
<td></td>
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</table>
This research found that SS is generally received positively by caregivers in Blantyre, Malawi, with 82% of participants saying they would use SS and 74% saying it looked easy.

However, ‘understanding’ of a variety of aspects of SS stood out particularly as a common barrier but with a relatively simple solution. A tailored explanation of SS, particularly of aspects which were frequently asked about such as the placement of the tube, HIV-related fears and practicalities such as hygiene, would address many of the barriers perceived by caregivers in this setting. As a result of this research, a tailored explanation of SS, addressing FAQs, has been created and will be used by QE Nursery Ward as they begin to implement SS. Other settings should consider conducting a small number of interviews with mothers and nurses in order to tailor this explanation of SS to their specific location.

Staff also identified that their workload is over-stretched and therefore worried about the amount of time needed to address mother’s understanding of SS and other practicalities. The solution suggested for this was the acquisition of a dedicated staff member for this task, which has been acknowledged by the hospital. Other health facilities need to consider strongly their human resource requirements before implementing SS as it is thought to be fairly time-intensive.

**Use of SS for orphans**

The application of SS for orphans (where a wet nurse is identified for an orphaned infant <6m with SAM) was also explored by this study, with mixed results. Participants were divided as to whether breastfeeding of an orphaned infant is acceptable in the culture; the usual barriers and facilitating factors also applied here. HIV was a particularly contentious issue in this case. Some participants did feel that SS for an orphan is acceptable provided the carer is a direct family member, is HIV negative and a discussion has been held with the family. It is therefore advised that, at this time, application of SS for orphans should be assessed on a case-by-case basis in Malawi and in settings with similarly high prevalence of HIV.

**Perceived causes of SAM in infants < 6m**

Lastly, causes of SAM in infants in this setting were found to be largely related to breastfeeding problems or choices, such as perceived breastmilk insufficiency, consistent with causes identified in previous studies. One cause worth highlighting is ‘maternal infection’, which was frequently mentioned by participants as the main cause of malnutrition in infants. The relationship between child infection and malnutrition is widely recognised, however the relationship between maternal infection and child malnutrition far less so. The results of this study suggest that this may be a major cause of infant malnutrition which is in need of further exploration.

These results are having immediate policy and practice implications for the Nursery Ward at QE hospital, which now plans to implement SS and hire a Lactation Support nurse in order to address notable barriers within themes of Understanding, Breastfeeding views and Practicality. In addition, the ward will be using the ‘Explanation of

<table>
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<tr>
<th>Barriers</th>
<th>comfort</th>
<th>breastfeeding culture</th>
<th>concerns</th>
<th>understanding</th>
<th>intervention</th>
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</thead>
<tbody>
<tr>
<td>Disinterest</td>
<td></td>
<td></td>
<td>Time pressures</td>
<td>Empathy for lactation issues</td>
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<td></td>
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<td></td>
<td>Own responsibility</td>
<td></td>
<td>Abide by doctors</td>
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<td></td>
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<td>Better than the alternatives</td>
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Sub-themes

<table>
<thead>
<tr>
<th>Sub-themes</th>
<th>Doing the best for Infant</th>
<th>Strong breastfeeding culture</th>
<th>Abide by doctors</th>
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<tr>
<td>Facilitating factors</td>
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SS’ created from these results. These changes to local policy and practice are first aimed at having an immediate positive impact on infants on the ward, but also aim to contribute to existing research findings. Conducting a larger-scale acceptability trial, post SS intervention, is necessary to consider whether caregiver’s acceptance of SS is still present having actually used the technique.

Other inpatient health facilities across the world should consider the prevalence of SAM in infants <6m in their setting and then consider implementing SS. Locating specific views of caregivers within the five major themes outlined should help to plan the best mode of implementation and maximise chances of success. As a result of this research, further work in QE Hospital now has the potential to revolutionise treatment of SAM in infants <6m across the world, giving infants a much better outlook, both during and after those critical ‘1000 days’. It is hoped that health facilities in other inpatient settings will also follow suit.

For more information on this study, contact: Natasha Lelijveld, email: natasha.lelijveld.11@ucl.ac.uk

If you are planning studies around infants <6m, let us know, email: marko.kerac@gmail.com


6World Bank (2006). Repositioning Nutrition as Central to Development; a strategy for large scale action. Washington DC, USA.


