

# Linking traditional treatments of maternal anaemia to iron supplement use: an ethnographic case study from Pemba Island, Zanzibar

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### Abstract

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Iron deficiency anaemia is the most common form of malnutrition in the world. Pregnant women are particularly at risk for anaemia. Insufficient attention has been paid to the reasons underlying the only moderate success of iron supplementation. In this article an additional factor that can affect the use of iron supplements is proposed: their relevance to 'traditional' or nonbiomedical treatments of anaemia. This paper represents what is to our knowledge the first ethnographic description of nonbiomedical treatments for maternal anaemia. The research was conducted over several months on Pemba, one of the islands of the Zanzibar archipelago. Data were collected using a variety of qualitative methods, including in-depth interviews, focus group discussions and participant observation. Informants included 25 mothers and 27 traditional and biomedical health care workers. The resulting ethnography elucidates Pembans' beliefs about the relationship of food, traditional medicine, spirits and biomedical medicine in relation to anaemia. In the analysis of the ethnography, both anthropology and public health perspectives are incorporated to suggest how the understanding of these beliefs is useful for increasing iron supplement use.

*Keywords:* anaemia, Zanzibar, Africa, iron supplements, ethnography, traditional medicine.

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### Introduction

Iron deficiency anaemia is the most common form of malnutrition in the world (Stoltzfus, 1997;

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Oppenheimer, 2001). Pregnant women are particularly at risk for anaemia. It is estimated that as many as 20% of maternal deaths are caused by anaemia and that anaemia may be an associated factor in as many as 50% of maternal deaths worldwide (Galloway *et al.*, 2002).

When anaemia cannot be prevented by eating food with greater amounts of bioavailable iron and treating infectious causes (such as malaria and intestinal

parasites), supplementation becomes the most effective means of treatment (DeMayer, 1989). Though the biomedical effectiveness of supplementation is proven, such treatment programs have not reached their potential for reducing maternal anaemia. To date, insufficient attention has been paid to the reasons underlying the failure of anaemia interventions (Galloway & McGuire, 1994). In an effort to better understand the lack of compliance with iron supplementation programmes, a number of studies have begun to look more carefully at how (pregnant) women use iron tablets (Bonnar *et al.*, 1969; Charoenlarp *et al.*, 1988; Callahan *et al.*, 1989; Schultink *et al.*, 1993; Galloway & McGuire, 1994; Menendez *et al.*, 1994; Atkinson & Farias, 1995; Massawe *et al.*, 1995; Ekstrom *et al.*, 1996; Kafle *et al.*, 1996; Pappagallo & Bull, 1996; Shulman *et al.*, 1999; Galloway *et al.*, 2002; Jefferds, 2002; Young, 2002a). Haphazard supply, forgetfulness, unpleasant side-effects, inadequate counselling, irregular distribution, poor antenatal care services, prohibitive cost and cultural beliefs about the inappropriateness of medicines during pregnancy have been theorized as contributing to the suboptimal results of supplementation programmes. Indeed, several of these factors contribute to the low rate of iron supplement use in Pemba (Young, 2002b).

In this brief report, an additional factor that may affect the use of iron supplements is proposed: the perceived relevance of iron supplements to 'traditional' or nonbiomedical treatments of anaemia. It is often incorrectly assumed that iron supplements are the only treatment option available to anaemic pregnant women. This assumption may be because of a bias in a biomedical community generally opposed to 'traditional' cures and/or the dearth of ethnographic research regarding the treatment of anaemia. To rectify this absence of ethnographic data, this paper represents what is to our knowledge the first ethnographic description of nonbiomedical treatments for maternal anaemia, and then frames this knowledge as a means of encouraging iron supplement use by pregnant women.

This ethnographic data about traditional treatments of maternal anaemia is intended to assist health planners to become aware of the existence, as

well as the implications of the various choices pregnant women have for the treatment of anaemia. The value of such an ethnographic description is premised on the belief that when acceptable nonbiomedical treatments of maternal anaemia are understood, more culturally appropriate means of encouraging iron supplement use can be implemented, which will in turn increase use of iron supplements, thereby reducing maternal iron deficiency anaemia (cf. Hardon *et al.*, 2001).

## Materials and methods

Pemba, the second largest island in the Zanzibar archipelago, is located 50 km off the coast of Tanzania. The main economic activities are clove farming and fishing. Swahili is the principal spoken language. Islam is the predominant religion, and Pemba is known throughout East Africa as the heart of powerful spirit activity. Society is patriarchal, polygynous and patrilineal, and men bear responsibility for household maintenance and leadership (Government of Zanzibar & UNICEF, 1995). The total fertility rate for the whole archipelago is 8.2, and is probably higher in rural areas (Garssen, 1993). In general, the culture and ecology of Zanzibar are similar to the rest of coastal East Africa (Middleton, 2004).

Anaemia is a serious health problem for many people, especially pregnant women and young children (Stoltzfus *et al.*, 1997). The prevalence of severe anaemia ( $Hb < 70 \text{ g L}^{-1}$ ) in pregnant Pemban women was established at 20.2% and mild anaemia ( $110 \text{ g L}^{-1} < Hb < 70 \text{ g L}^{-1}$ ) is thought to be as high as 72% (Montresor *et al.*, 2003). Despite the high incidence of maternal anaemia, pregnant women do not often use the iron supplements that are available for free or at a very low cost. The multitude of reasons for this, from inadequate medical advice, to structural limitations, to the acceptance of ill-health as an inevitable part of pregnancy, are addressed elsewhere (Young, 2002b).

Data were collected through a combination of informal conversations, in-depth interviews, focus group discussions and participant observation at a government hospital, antenatal clinics and private pharmacies from May to July 2002. The purpose and

methods of the research were orally explained to all mothers and health care workers to ensure their informed consent; written permission was inappropriate because of the high levels of illiteracy. Twenty-five formal interviews were conducted with mothers, 17 of whom had been or were presently anaemic. All of the women were Muslim, born on Pemba and, with one exception, had been married. They ranged in age from 17–60 years, with 0–10 years of education and had borne up to nine surviving children. Interviews were conducted with 27 health care workers. The term ‘health care worker’ is used to refer to any person who works to help ailing people get better. As such, the health care workers interviewed for this study included four high-ranking governmental health officials, three biomedical trained doctors, two maternity ward nurses, four health aides, two pharmacists at government dispensaries, three traditional birth attendants, one diviner/healer, three traditional medicine makers and five employees at private pharmacies.

After each interview, data were checked for completeness and internal consistency. The majority of the interviews were recorded; those passages of the interviews thought to be particularly relevant were transcribed. Informants’ responses were coded *in vivo* and then summarized on master sheets by hand. These findings were shaped into conceptual frameworks that were then discussed with key informants and research assistants to ascertain completeness of information and correct understanding. An ethnographic approach was considered the most appropriate because of the descriptive, exploratory nature of the study. Furthermore, ethnography captures informants’ perceptions in ways that surveys cannot.

The primary author’s (S.L.Y.) identity as an unmarried, childless, American woman may have adversely influenced the quality of information shared by some informants. However, her ability to speak Swahili and residence with a Pemban family alleviated some of the cultural differences. Moreover, the competent research assistants, both of whom were Pemban, one of whom was a mother, facilitated open communication. Another potential weakness of the study was the perceived affiliation of the research with biomedical institutions. This could have influenced informants to

give answers that they thought biomedical institutions would approve of. However, the various methodologies permitted triangulation (Hardon *et al.*, 2001), through which the results emerged as reliable. Furthermore, findings about anaemia were cross-checked with other independent sources and were found to be similar (Geissler *et al.*, 1999; Herr, 1999).

## Results

### Food

*Chakula bora*, literally ‘better food’, such as eggs, spinach, meat, beans, chicken and fish, was the most frequently mentioned treatment for all of the anaemias.<sup>1</sup> Significantly, *chakula bora* was often translated by informants into English as ‘blood-giving food’, thus acknowledging nutritious food’s impact on blood quality.

Another food-based treatment<sup>2</sup> for anaemia is *uwatu* [*Trigonella Foenum-graecum* or fenugreek (Mburu *et al.*, 1985)]. Fenugreek is considered very nourishing for people in need of a dietary boost, such as the elderly or pregnant. Sometimes it is sprinkled directly into food, other times it is mixed with *sami ya ngombe* (ghee made of cow’s milk), garlic, milk, honey and several other untranslatable ingredients,

<sup>1</sup>There are several ‘types’ of anaemia on Pemba, as is the case elsewhere in East Africa (cf. Geissler *et al.*, 1999). In Swahili, a number of terms refer to anaemia: *safura*, *upungufu wa damu*, *ukosefu wa damu* and *baridi yabisi*. These only partially overlap with the biomedical term ‘anaemia’; one term cannot easily replace another. Each of these conditions is considered to have different aetiologies (e.g. insufficient nutritious food, worms, spirits feeding on blood) and require different courses of treatment. A final linguistic difficulty is that some women do not recognize anaemia during pregnancy using any of the above terms, but instead used a descriptive phrase, such as ‘the blood is reduced’ (*imepunguza*). A more extensive discussion of the types of anaemias is found elsewhere (cf. Young, 2003).

<sup>2</sup>It is a false distinction to oppose food to medicine; they are often overlapping realms (cf. Etkin & Ross, 1982). For example, because avocado leaves are not a typical part of the Zanzibari diet, it is not entirely appropriate to categorize this treatment of anaemia as food.

such as *habasoda* and *zamda* to make *haluwat saumu*, a treatment for *baridi yabisi*, yet another type of anaemia.

Drinking the dark red water that results from boiling avocado leaves (*maji ya mapaya*) is believed to be another way of fortifying a person's blood.

Lastly, geophagia, the consumption of earth, is a behaviour commonly associated with iron deficiency. Geophagia was practised by approximately half of the mothers interviewed. Many Pembans believe that the earth provides supplemental iron required by pregnant women. While some viewed it as a beneficial practice for pregnant women, other Pembans believed it was the cause of maternal anaemia, because of transmission of geohelminths.

### Traditional medicines

Informants indicated that treatments of anaemia offered by any of the three types of traditional healers were not frequently used during pregnancy. Women stated that they feared traditional medicinal preparations because of potential danger to their baby, and that if there was a serious problem, they went to a governmental clinic. They seemed to rely on traditional healers more for fertility regulation, i.e. either for help with conceiving or with ending a pregnancy. Likewise, traditional midwives stated that they were not particularly involved with the treatment of anaemia, during pregnancy or otherwise. They declared their domain to be the antenatal massage of the mother's abdomen (the legally acceptable role for them), but many also prepared traditional medicines to ease some of the discomforts of pregnancy, which sometimes overlapped with the symptoms of anaemia, such as nausea and dizziness.

There is one traditional medicine that pregnant women use to cure anaemia: *chomwe*. *Chomwe* is a fragrant traditional medicine used to treat *safura*, one of the 'anaemias' in Pemba. It is made from powdered iron filings and *dawa za kikaango* 'medicine of the clay pot', a combination of medicines<sup>3</sup> available

<sup>3</sup>The ingredients of *dawa za kikaango* are *halmar*, *kamuni aswedi*, *kamuni abiyadh*, *haldal*, *habasoda*, *halelungi*, *zamda*, *darafilfil*, *suga*, *sokota*, *shomkari*, *kuzbarat*, *uwatu* and *sanamaki*.

premixed from traditional medicine shops. The name *chomwe* probably comes from *chuma*, Swahili for iron. Both of the *chomwe* makers interviewed were women who had learned the technique from their fathers who had been traditional healers.

There are at least two versions of *chomwe*, one for pregnant women, the other for nonpregnant adults. One *chomwe* maker explained that a nonpregnant adult should use a small teaspoon of it three times per day, either placing it directly on the tongue, or mixing it with millet porridge. She added that 'this recipe is too strong for pregnant women and can cause miscarriages'. In contrast with hospital medicine, she pointed out, her *chomwe* 'works for everyone who uses it because it is very strong from the number of ingredients'. The second *chomwe* maker said that pregnant women could use *chomwe*, only the ingredients and dosage need to be adjusted accordingly. 'A pregnant woman should use a small teaspoonful of a mix of *sanamaki* (dried crumbled leaves with laxative properties), *zamda* (a minty, opaque, crystal-like substance that dissolves in water, obtained in Oman), turmeric, and *chomwe* once a day. A nonpregnant adult should combine all of those ingredients with *kamul-abyadh*, a type of dried leaf, twice a day.'

Although many of the women who were questioned about *chomwe* did not acknowledge using it as a treatment during pregnancy, all were familiar with it. One older, more outgoing participant in a focus group discussion was an exception. She felt that *chomwe* was superior to iron tablets because, 'With iron, they tell you to eat nutritious foods, but with *chomwe*, you don't even have to do that.' The general indifference to *chomwe* is likely to be partially an artefact of this research's association with the biomedical world as well as the urban demographics of the informant group. Rural women were much more familiar with it.

### Spirits

It is believed that spirits *kunyonya* 'suck' a person's blood until that person is dry, which is how they become anaemic. '*Damu ni chakula chao*', we were told again and again. 'Blood is their food.' It is interesting to note that the spirits' thirst for blood is an

antithesis to the diet of good Muslims, for whom blood is forbidden (Caplan, 1997).

There are three main ways in which spirits can be prevented from doing this, and two ways to be cured. Spirits are attracted to the smell of women's blood; several informants commented about how 'the smell of blood during pregnancy is especially pungent and enticing to spirits'. As such, it is believed that masking the smell of blood, either before it is released from the body or afterwards, is very important to prevent anaemia. During the period of 40 days after birth, known as *ujusi*, women often add pleasant-smelling substances such as sugar, incense or herbs to the charcoal fire that smoulders under the bed in which they spend most of their time. These added substances disguise the smell of the postpartum blood that drips onto the fire and that remains within their body. Rural women mentioned the importance of hiding the smell of *ujusi* much more frequently and emphatically than urban women did, although all women engaged in the practice to some degree.

A second way of protecting one's blood and that of the unborn child is by wearing special jewellery. *Hirinzi* are necklaces on which small black pouches are attached. In these small black cloth pouches are *yasini*, verses from the Quran. '*Hirinzi ni dawa*', one mother reported. 'These necklaces are medicine.' One can also wear *mvuje*, a bracelet of black cloth, in which herbs are concealed; it is common to see small children wearing these. Not all women wear these; some claimed they are forbidden by their religion.

A third way of protecting oneself against spirits is by limiting movement. Precautions include: not standing in doorways, not standing at crossroads and not walking around anywhere after dark. Midnight and high noon are considered to be the most dangerous times of the day. Spirits are thought to be most active then and are more likely to 'attack' small children and pregnant women.

If protection fails, and one becomes 'infected' with spirits, the spirits that were causing anaemia could be treated with *kuchanjwa*. *Kuchanjwa* is a treatment performed by an *mganga* (traditional healer) whereby several small incisions are made on the forehead, near the armpits, the knees and the ankles. A paste of chicken blood, honey and secret roots is

rubbed into the wounds. This process is purported to change the smell of the person's blood. This is an expensive treatment; the cost begins at about 30 USD and can run upwards to 80 USD. One informant who was anaemic used iron supplements to no avail. After she underwent *kuchanjwa* treatment, she again used iron supplements, this time with a marked improvement in her health.

Exorcising the spirit is another way of ridding oneself of it (Caplan, 1997). Exorcisms are also performed by an *mganga*. Exorcisms are ceremonies filled with special drumming and sacrifices to the spirit. On Pemba, they culminate in the *mganga* touching his forehead to the forehead of the possessed person and absorbing his or her spirits. This too is a costly treatment.

### Iron supplements

Iron supplements are well regarded. Women who have used iron supplements thought favourably of them. 'It helped my swollen feet and my breathing.' 'I felt better after 2 weeks.' One woman's neighbour had used iron supplements given by the hospital when she had anaemia, and seen improvements in her health, so she too said she would be happy to use it. Another woman said she liked it, although she did not know what it was for, 'But my hands weren't yellow anymore, and my eyes weren't so white.' Another woman said, '[Iron supplements] help me... I couldn't eat, and the red ones, they helped me to eat.' One nurse explained that the only complaint women had about iron supplements was that there was none available. 'If they didn't believe in the effectiveness of tonic [iron supplements], they wouldn't ask for it', she reported. Thus, the low usage rates are not attributable to Pembans' unfavourable opinion of them, but to other factors (Young, 2002b).

### Discussion

It is encouraging to note that there are accepted indigenous treatments of anaemia, and that one of them includes iron as a main ingredient. This implies both that the illness can be recognized and that it is considered treatable. Pembans' willingness to spend

large amounts of money on some traditional cures for anaemia indicates that it would be acceptable to spend money on iron tablets.

A diet of nutritious food, the most clearly delineated commonality between traditional and biomedical cures of anaemia, should continue to be fostered. Traditionally valued nutritionally rich foods, foods that 'increase the blood', should be encouraged by health care workers.

Colour is an important characteristic of treatments. The red colour of the avocado leaf juice can be linked to the red colour of the available iron supplement pills. Parallels could be drawn to the rust colour of the iron tablets currently available on Pemba and the colour of iron rust itself. Informants' statements made it clear that white pills would be considered much less efficacious; darker colours imply stronger acting medicines and should be offered whenever possible.

The infrequent use of traditional medicines to cure anaemia during pregnancy means that ferrous supplements will not have to 'compete' with existing treatments that are perceived as efficacious during pregnancy. In fact, it seems that biomedical and traditional treatments each have their own niche; traditional treatments are generally intended to prevent anaemia, while iron supplements are mainly used to cure anaemia. Furthermore, women suffering from spirit-caused anaemia perceived iron supplements as efficacious after having received traditional healing, but not before, indicating that they are compatible with traditional cures which address different aetiologies.

Though *chomwe* is not frequently used by pregnant women, the value of *chomwe* for treating anaemia in nonpregnant people can be drawn upon. As the main ingredient of *chomwe* is iron, just as it is in iron supplements, it can be considered an analogous medicine. Yet currently, no connection is made to the commonality of any of the ingredients of *chomwe* to those of iron supplements. All Pembroans know that *chuma* (iron) is an ingredient of *chomwe*, but few realize it is the active ingredient in iron supplements. Iron supplements are referred to in Swahili as either as 'tonic' or 'ferrous', but ferrous and iron are not understood as associated. On this basis, the strength of iron could be linked to the powers of the

supplements. Iron's uses in daily Pemban life, e.g. house foundations, machetes and pots, provide for rich imagery. '*Moyo wa chuma*' or a 'heart of iron' is a Swahili expression used to describe someone who is courageous. This fitting phrase can be used in iron supplementation promotional material that draws on the images of iron hearts and strong mothers.

The already acute awareness of blood status during the 40-day postpartum period could be piqued to include an awareness of anaemia status. If the use of iron tablets could be integrated into the *ujusi* time period, a practice not common currently, a woman would recover more quickly from the exertions of birth. If it is explained that iron tablets help to dry up the blood of *ujusi*, similar to how fire is now perceived to help dry up the wound left from birth, women will probably be more eager to use them to reduce bleeding and perhaps their vulnerability to spirits.

Finally, ideas about restricted movement could be tapped into to encourage pregnant women and their families to reduce the workload of pregnant women. In rural areas, where beliefs about spirits are most common, women also have the heaviest workload. If the woman's family can encourage her to not be in the fields during midday when spirits are most active, she may be able to partake of much needed rest.

## Conclusion

Maternal iron supplementation has achieved only a fraction of its potential health benefits in Zanzibar for many reasons (Young, 2002a, 2002b, 2004); a lack of compatibility of iron supplements with existing 'traditional' treatments of anaemia is one such reason. Patients have their own ideas about taking medicines and on the basis of these, create their own medication practice (Conrad, 1985). This means that medicine needs to be understood in the context of existing treatments, as cultural perceptions are important factors in the success of drug interventions.

Yet, despite the influence of an individual over his own medication practice, health planners have not always considered what people's views are when formulating and implementing drug policies (Hardon, 1987). And, although anthropological studies have pointed to public health problems that need to be



addressed, they have done little toward solving the problems in culturally appropriate ways (Van der Geest *et al.*, 1996).

In an effort to address the shortcomings of both perspectives, this brief article has combined anthropology and public health perspectives to make suggestions about how iron supplement use can be increased.

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