

# How Education can help Solve Huge Perinatal Problems in Africa

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## ABSTRACT

We begin this article stating the dramatic situation of perinatal medicine in Africa. Then we revise the problems derived from the poor education of the population regarding reproductive health, the limited number of maternal and infant health professionals and their lack of technical training. We especially focus on the problems of standardizing the use of ultrasound in obstetrics and perinatal medicine. Finally, we insist on the role of education for professionals and for the people in general, as a tool to improve perinatal results.

**Keywords:** Education and health, Education in reproductive health, Perinatal problems and education.

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## PERINATAL PROBLEMS IN AFRICA

Africa is, no doubt, the continent with the most health problems, particularly those referring to mother and child health care. This is especially true for sub-Saharan Africa where maternal mortality rates are 90 times higher than in European countries. Perinatal mortality rates are 30 times higher and infant mortality rates are 20 times higher (Table 1).

According to the WHO, Africa has 24% of the world's disease burden but only 3% of the world's health workforce to deal with it. While in Europe there is a doctor for every 330 people, in sub-Saharan Africa there is only one for every 20,000 people.<sup>1</sup> And the same happens with midwives and nurses (Table 2). As a consequence of this lack of resources and the bad economic situation of these countries 47% of children younger than 5 suffer from under nourishment and the infant mortality rate is 160/100,000 live births (LB).<sup>2</sup>

**Table 1:** Perinatal problems in Africa<sup>1,2</sup>

	Global Africa	Sub-Saharan Africa
Maternal mortality per 100,000 LB	620	900
Maternal mortality by unsafe abortion per 100,000 LB	400	600
Perinatal mortality per 1,000	100	160
Infant undernutrition per 100	80	120
Low birthweight per 100	22	47
Obstetric fistula (millions)	20	24

**Table 2:** Deficits in sanitary resources<sup>1,2,4,5</sup>

	Global Africa	Sub-Saharan Africa
Doctors per 10,000 inhabitants	2	0.5
Midwives and nurses per 10,000 inhabitants	11	2
Hospital beds per 10,000 inhabitants	9	3
Delivery care coverage per 100	40	20
Water supply per 100	40	20
Births without register per 100	71	90
Budget to health (% government budget)	>10	<3

The main reasons that explain this situation are: (a) poverty (due to colonial plundering and the chronic lack of resources), (b) corruption and negligence of factual powers, (c) structural deficit (limited budget for the Department of Health), (d) cultural and social deficit (people with poor or inexistent education on reproductive health) and (e) limited number of mother and infant health professionals.

## CURRENT SITUATION OF POPULAR AND PROFESSIONAL EDUCATION ON REPRODUCTIVE HEALTH

### Information and Popular Education on Reproductive Health

Most sub-Saharan African population have scarce or no information on reproductive health. This is due to several facts: (a) illiteracy (70% of illiterate people are women); (b) low government budget on education; (c) cultural prejudices, especially in rural areas (80% of the population); (d) chronic sexual discrimination on education (in many countries education is limited to boys) and (e) social exclusion of women because they are not allowed to take their own decisions (Table 3).<sup>3</sup>

This lack of education on reproductive health, together with several cultural factors, explains that over 20% of pregnant women are adolescents (younger than 16). In some countries like Somalia, for example, the figure exceeds 40%. Only between 10 and 15% of these pregnancies have the necessary prenatal control (Table 4).

Besides, being pregnant means leaving school and giving up any socioeconomic project.

### Level of Training of Health Professionals

As we have already mentioned, Africa has a dramatic deficit in human and structural resources to provide quality health

**Table 3:** Illiteracy in Africa (% of inhabitants)

Region	%
Northern Africa	35.84
Western Africa	55.87
Central Africa	40.98
Eastern Africa	40.18
Southern Africa	25.13

The 70% of the illiterate are women (Source: UNESCO, 2010)

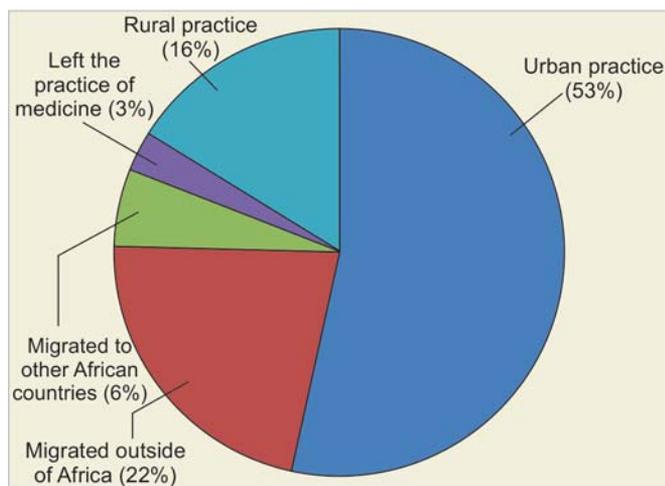
**Table 4:** Adolescent mother (<16 years old). Early marriage, pregnancy and prenatal care

	Global Africa	Sub-Saharan Africa
Child marriage	30%	40%
Adolescent mothers	10-15%	>20%
Perinatal care	25%	<15%

Source: UNICEF (2009), World Bank (2011)

care. This deficit is especially severe in sub-Saharan Africa (Table 2). In some countries such as Ethiopia and Somalia the lack of physicians is very serious (1 per 40,000 people). Midwives, essential to offer a minimum perinatal assistance are less than 1 per 10,000 people. As a consequence only 10% of women from these countries give birth in a hospital.<sup>1</sup>

The causes of the scarce number of health professionals are: (a) shortage of medical schools (1 for every 5 million people) and most of them badly equipped. (80%); (b) the emigration of professionals to other countries (especially Europe and the USA) looking for better life conditions. The sub-Saharan Africa Medical School Study<sup>4</sup> reports that 5 years after graduation 23% of the doctors have left Africa (Fig. 1). This means that during the last 3 decades a million professionals emigrated to developed countries. There are more doctors from Benin in France than in Benin. And there are more doctors from Sierra Leone in Chicago than in Sierra Leone. Something similar happens in Ethiopia and other neighboring countries.

**Fig. 1:** Estimated location of doctor 5 years after graduation<sup>4</sup>

Moreover, the level of training of the few local professionals there is usually inadequate and they have no updated technology resources.

### Level of Training in Ultrasonography

It is difficult to know exactly the situation of perinatal ultrasonography in some African countries. A study carried out by Matres Mundi volunteers in 20115 shows that sub-Saharan Africa is the area where the shortage of ultrasound professionals is highest.

North African countries (Morocco, Tunisia, Egypt, etc.) have significant prenatal coverage that includes and ultrasound scan. In urban areas 88% of pregnant population has been given, at least, one. However, the figures are particularly low in rural areas where 84% of expectant mothers are not given any ultrasound at all (Table 5).

The situation is much worse in sub-Saharan Africa. In countries such as Mali, Mauritania, Niger, Chad, etc. most pregnant women do not even know what an ultrasound is.

However, in Southern Africa, particularly in the Republic of South Africa, the situation improves somewhat in urban areas where around 58% of expectant mothers have had, at least, one ultrasound scan.

The theoretical and practical training provided to the health professionals who perform obstetric scans in Africa is generally low quality. Ultrasound is an operator-dependent technique. Therefore, the results depend crucially on the sonographer's knowledge and experience. In Africa very few practitioners receive a practical course or learn the technique in a hospital environment. It is therefore understandable that the results are very poor (Table 6).

Unfortunately, in many parts of Africa, whether for cultural or financial reasons, the introduction of ultrasound

**Table 5:** Prenatal ultrasonography in Africa

Geographical area	Urban area		Rural area	
	1 exam	≥3 exam	1 exam	≥3 exam
North Africa	88%	23%	16%	3%
Sub-Saharan Africa	22%	5%	2%	0%
Southern Africa	58%	28%	18%	4%

Source: Matres Mundi<sup>5</sup>

**Table 6:** Training of sonologists in Africa

Type of training	Percentage
Short course (theoretical)	40.4
No training	38.3
Practical course	14.9
Self-study	6.4
In service training	2.1

Source: Foulkes S et al (2004)

has caused a considerable number of problems. The lack of practitioners' adequate training leads to misinterpret scans and as a consequence there is an unjustified rise in obstetric and gynecological surgery procedures. Frequently the market forces dominate instead of health requirements. Too much ultrasound is performed unnecessarily, while other important aspects (blood pressure, for example) are neglected.

### African Societies and Scientific Production

A number of different ultrasound societies and associations have been created in Africa in recent years. Apart from some considerable active national societies, a number of different continental and regional societies have been formalized (African Society of Radiology and Ultrasonography, South Africa Society of Ultrasounds, Mediterranean and African Society of Ultrasounds, West African Medical Ultrasound Society, etc.).

About Obstetrics Schools of Ultrasound we have to highlight the significant work being done by the Ian Donald School which runs different-level courses across the whole continent and has branches in Sudan, Egypt, Tunisia, Libya, Cameroon, Ghana, Ethiopia, etc.<sup>13</sup>

Finally the foundation of the 'International School of Perinatal Medicine for Africa'<sup>14</sup> supported by the majority of International Societies of Perinatal Medicine will improve the quality of training.

Despite the fact that Africa continues to be the continent with the lowest production of scientific work, the situation has now changed. In the last 10 years no fewer than 1,000 papers regarding obstetric ultrasound have been published in national and international journals. Some of the papers are very good, and there are new specialized African journals.

### WAYS TO IMPROVE PERINATAL RESULTS IN AFRICA THROUGH EDUCATION

#### The Role of Education on the Population in General

One of the most successful ways to improve reproductive health of African population is to increase their education, especially sexual health education, by promoting the use of contraceptive methods and delaying marriage age.<sup>19</sup>

There is a significant connection between education, reproductive health knowledge and the use of contraceptive methods. While 45.9% of women with secondary education adopt modern and effective family planning methods, only 9.8% of women with no education adopt them (Table 7). Similarly, as school attendance is much higher in urban areas

**Table 7:** Characteristics of currently married women according to the practice of family planning (Ethiopia, 2005)

<i>Age of women</i>	
15-19	8.5%
20-24	15.4%
25-29	16.2%
30-34	13.7%
<i>Education</i>	
No education	9.8%
Primary	21.9%
Secondary and higher	45.9%
<i>Place of residence</i>	
Urban	10.5%
Rural	42.2%

Source: Akililu Demissie<sup>6</sup>

than in rural areas, the use of contraceptive methods is four times higher in cities (42.2%) than in rural areas (10.6%).<sup>6-8</sup>

Unfortunately the youngest married women<sup>15-19</sup> are the ones that use contraception less (8.6%) whereas more women over 25 use it<sup>16</sup> (20%).

No doubt, family planning is one of the most effective instruments to reduce maternal and perinatal mortality.<sup>18</sup>

Early marriages usually lead women to give up school and social, economic and cultural prospects.<sup>9-12</sup> Delaying marriage has also a positive effect on education. If a girl marries at 18 or later she will be able to complete primary education and improve her knowledge on family planning and reproductive health in general. In this case, the first pregnancies can be faced in a more rational way, substantially improving perinatal results.<sup>2,9,17,19</sup>

Local governments should also make an effort to improve their GNP increasing the budgets for education and health care. According to the World Bank data (2002, 2010), if the increase in GNP was focused on education maternal and perinatal mortality rate would reduce by 10% and child mortality rate by 2 to 4%.

#### The Role of Education and Training of Health Professionals

Because of the above-mentioned reasons, in Africa the number of maternal-infant health professionals is scarce and their level of education and training is usually low. There is a connection between the number of health professionals and perinatal results. In Northern Africa (Morocco, Tunisia, Algeria, etc.) and in Southern Africa where the number of physicians is higher than 4 per 10,000 people, perinatal results are clearly better than those in sub-Saharan Africa where the number of physicians is 0.5 per 10,000 people.

The WHO and several other NGOs have worked hard to increase these ratios. They have implemented regional programs, they have set up schools of medicine and they have helped those already existing that were worse

equipped. They have also planned courses for empirical midwives and updating courses for specialists in reproductive health, general practitioners and qualified midwives.

At the beginning, the WHO was in favor of retraining traditional midwives but the dramatic maternal and perinatal mortality rates have not improved.

Another necessary action is to increase the number of publications on reproductive health for professionals adapted to African context.<sup>14,15</sup>

The most recent attempt to increase significantly the number of health professionals in Africa has been promoted by the International School of Perinatal Medicine for Africa, a nonprofit entity supported by all the International Societies of Perinatal Medicine (IAPM, WAPM, EAPM, AAPM, etc.) and managed by MATRES MUNDI an international NGO specialized in maternal-infant health.<sup>16</sup>

### The Role of Education and Training in Ultrasound

All the actions focused on ultrasound education and training mentioned in section 2.3, have considerably improved the level of training in ultrasonography of African obstetricians and perinatologists and have overcome some of the problems that have hindered the implementation of this technique in Africa: (a) bad economic situation, (b) cultural resistance, (c) lack of electricity supply, (d) lack of local training system, etc.

Some of the dangers derived of the incorrect use of ultrasonography such as: (a) absence of any type of control regarding operators and equipment, (b) lack of practitioner training, (c) unjustified rise in obstetric and gynecological surgery procedures, (d) commodification of obstetric ultrasound, etc.<sup>5</sup> have diminished; thanks to specific professional societies that have developed guidelines and protocols and, above all, thanks to the co-operation of international schools, such as the Ian Donald School that provide theoretical and practical courses and settle in every country through national branches.

In those African countries where ultrasonography has been introduced correctly, according to international regulations and with well trained ultrasonographers, perinatal results have improved.

### CONCLUSION

We can state that education on reproductive health for the population in general and the increase in number and training of health professionals (midwives, obstetricians, pediatricians, nurses, etc.) is basic to improve perinatal medicine in Africa and reduce the high rates of maternal, perinatal and infant mortality.

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