A review of young child feeding practices in Africa and the Middle East: need for improvement

Francis DELPEUCH
Marie-Claude DOP

1. INTRODUCTION

A review of young child feeding practices must be based on the concept of the child's diet as a process starting with the systematic introduction of significant amounts of complementary foods, and ending with the cessation of regular and substantial breastfeeding. This process is, in essence, a period of transition during which feeding practices change both qualitatively and quantitatively.

It is widely agreed that the most serious nutritional problems during this period are relevant to the following issues: breastfeeding practices; complementary feeding practices (early or late introduction of complementary foods, meal frequency, and relational aspects); and nutritional value of the diet (energy, protein, micronutrient content, and food contamination).

Therefore this process is complex and multidimensional; it is dependent on the child's age and on multiple determinants, which can be described and analysed in different ways. A discussion of necessary improvements must be based on a widely accepted set of recommendations for child feeding; an assessment of feeding practices and their determinants is needed, based on operational indicators. There must be a consensus on the definition of the indicators and the method for calculating them, as well as on the data collection techniques.

In these two areas, recommendations and indicators, the most significant progress towards standardization has been made under the aegis of WHO, particularly in 1991, with the definition of indicators for assessing breastfeeding practices (WHO, 1991).

2. METHODOLOGY

2.1. Current recommendations

The recommendations adopted in 1992, as part of the World Declaration and Plan of Action for Nutrition of the International Conference on Nutrition (WHO, 1991; WHO/FAO, 1992), form the basis for evaluating feeding practices and for estimating the need for improvement.

These recommendations are the following:

- all infants should be exclusively breastfed until 4 to 6 months of age;
- from 6 months, almost all children should receive nutritionally adequate and safe foods to complement breast milk;
- until 2 years of age and beyond, children should continue to be breastfed and receive these complementary foods;
- after weaning, children should continue to receive a healthy and nutritionally adequate diet.

2.2. Indicators

To date a limited number of indicators have been proposed (WHO, 1991):

- The exclusive breastfeeding rate is the proportion of infants less than 4 months receiving breast milk only, i.e. no other liquid or solid.
- The predominant breastfeeding rate is the proportion of children less than 4 months of age receiving breast milk as a predominant source of nourishment, including children receiving water, water-based drinks or fruit juice, but excluding those receiving non-human milk and food-based liquids or solids.
- The timely complementary feeding rate is the proportion of children aged 6 to 9 months receiving both breast milk and complementary foods. The quality of these foods has not been taken into account because it is difficult to measure.
- The continued breastfeeding rate at 1 year is the proportion of children aged 12 to 15 months who are breastfed.
- The continued breastfeeding rate at 2 years is the proportion of children aged 20 to 23 months who are breastfed.
- The bottle-feeding rate is the proportion of children under 12 months receiving food or beverages from a bottle.

These key indicators are presented in Annex 1 of this book. They were mainly chosen because they describe the breastfeeding practices that have the most important implications in terms of child health, particularly with reference to the Innocenti Declaration on the Protection, Promotion and Support of Breast-feeding (WHO/UNICEF, 1991). The indicators have also been selected because their computation and interpretation are straightforward. Moreover, the indicators allow the implementation of breastfeeding promotion programmes to be monitored and progress made in feeding practices to be evaluated. The indicators permit comparisons to be made within a country, over time and between areas or population groups; they are also useful for comparisons between countries and to highlight regional specificity. Beyond their focus on breastfeeding practices, the indicators provide a set of age-specific feeding guidelines for young children. The present review is based on these indicators.

A recent critique has shown that additional — potentially useful — indicators can be computed using the data that are available without any additional data collection effort (McCann et al., 1994). A few examples will illustrate the type of indicators that may be proposed to improve the assessment of complementary feeding practices and the design of programmes and messages in this area.

2.3. Data sources

In parallel with the WHO efforts to standardize recommendations and indicators, the Demographic and Health Surveys (DHS) represent the most important attempt to collect data systematically using standardized procedures (Sommerfelt et al., 1991). The DHS are cross-sectional surveys based on national probability samples of women 15 to 49 years of age and their children aged less than 3 or 5 years.

In addition to the questionnaires completed by the participants of the Alexandria and Addis Ababa workshops, the present review is based on the results of the DHS and, in some cases, on results of other surveys using a similar methodology, for instance the multiple indicators cluster surveys (MICS), in the following countries:[1]

Algeria (1995), Benin (1996), Botswana (1988), Burkina Faso (1993), Burundi (1987), Cameroon (1991), Côte d'Ivoire (1994), Djibouti (1995), Egypt (1995), Eritrea (1995), Ethiopia (1992), Ghana (1993), Guinea (1992), Iran (1995), Jordan (1990), Kenya (1993), Lebanon (1990), Madagascar (1992), Malawi (1992), Mali (1996), Morocco (1992), Namibia (1992), Niger (1992), Nigeria (1990), Pakistan (1995), Rwanda (1992), Senegal (1993), Togo (1988), Tunisia (1988), Uganda (1995), United Republic of Tanzania (1992), Yemen (1992), Zambia (1996) and Zimbabwe (1994).

For some countries the only source of data was the WHO Global Data Bank On Breast-feeding (WHO, 1996). Caution must be exercised when interpreting the data because the surveys were conducted between 1987 and 1996; practices may have changed since the earliest data were collected.

There are a few differences between the definition of the WHO key indicators and the format of the data presented in the DHS reports:

- The predominant breastfeeding rate, as defined by WHO includes breastfed infants who receive water or water-based liquids, excluding non-human milk, while most DHS reports only present the proportion of breastfed infants receiving plain water in addition to breast milk.
- For the computation of WHO key indicators the denominator of rates is the total number of infants, including those who are not breastfed. Some tables of DHS reports do not give the total number of infants, i.e. including the non-breastfed infants. Thus, it is impossible to compute some of the key indicators from these reports, in particular, the bottle-feeding rate as defined by WHO (number of infants less than 12 months who receive any food or liquid from a bottle).

For many African countries, Macro International Inc. has published the Africa Nutrition Chartbooks which present some of the indicators, i.e. the exclusive breastfeeding and the timely complementary feeding rates, but unfortunately do not include the bottle-feeding rate as defined by WHO.

[1] Several national surveys were conducted in 1996–97. We did not include those for which a report was not yet available (Chad, Jordan, Madagascar, Mozambique, Niger, Senegal, Tanzania and Yemen). We did not take into account the 1995 Morocco survey because sample sizes for indicators of breastfeeding practices were small.

3. RESULTS

3.1. Current WHO indicators

Exclusive breastfeeding rates vary considerably. With the exception of Ethiopia, Rwanda and Burundi, all countries are very far from the goal of exclusive breastfeeding until 4 to 6 months of age. Many countries have extremely low exclusive breastfeeding rates (Figure 1).

Rates of breastfeeding exclusively or with plain water are much higher (Figure 2). Giving water to infants in addition to breast milk is still a widespread practice and explains, in large part, the very low rates of exclusive breastfeeding in many countries. Nevertheless, the proportion of infants breastfed neither exclusively nor with water remains high, ranging approximately between 25 and 75% in three-quarters of the countries.

Among 30 countries, only 7 have a timely complementary feeding rate over 80% (Figure 3); thus improvement is also necessary in this area.

The rate of continued breastfeeding at 1 year is much more satisfactory, with 17 of 30 countries having rates of 90% or more (Figure 4). However, the rate of continued breastfeeding at 2 years exceeds 75% in only three countries; moreover, it is below 50% in 16 out of 30 countries (Figure 5).

As mentioned above, data were not available to compute the recommended rate of bottle-feeding before the age of 12 months. Figure 6 shows the rate of bottle-feeding among breastfed infants less than 4 months of age: this rate is below 5% in 10 out of 26 countries, but 4 countries have a rate above 30%.

3.2. Other indicators

The indicators proposed by WHO measure the proportion of infants fed according to current recommendations. They can be used to assess the progress already made towards appropriate feeding and what remains to be accomplished. However, no information on young children not fed according to recommendations is provided, especially with regard to complementary foods: before the age of 4 months, is the problem a premature introduction of complementary foods or is it the cessation of breastfeeding? Between 6 and 9 months, is it a late introduction or, once again, the cessation of breastfeeding? After 12 months, are some children still not receiving solid foods? Several simple indicators, based on the same data, could provide answers to these questions. For example, it appears that before the age of 4 months, the major problem in all countries is not the cessation of breastfeeding but the early introduction of solid foods: the proportion of infants breastfed and with solid foods is higher than 10% in 11 out of 24 countries; it is above 20% in 8 countries, and above 30% in 3 countries (Figure 7).

Between 6 and 9 months, more than 10% of infants are breastfed but receive no complement of solid foods in 21 out of 24 countries; more than 20% in 16 countries and more than 1 out of 3 in 10 countries (Figure 8). In comparison, the rate of complete cessation of breastfeeding in this age group exceeds 5%, only in 5 countries.

Between 12 and 15 months, more than 10% of children still receive no solid foods to complement breast milk in 9 out of 15 countries where the information is available (Figure 9). In 3 countries, 25% or more young children are in this situation. In most countries the proportion of children not yet receiving complementary foods is higher than the proportion fully weaned in this age group.

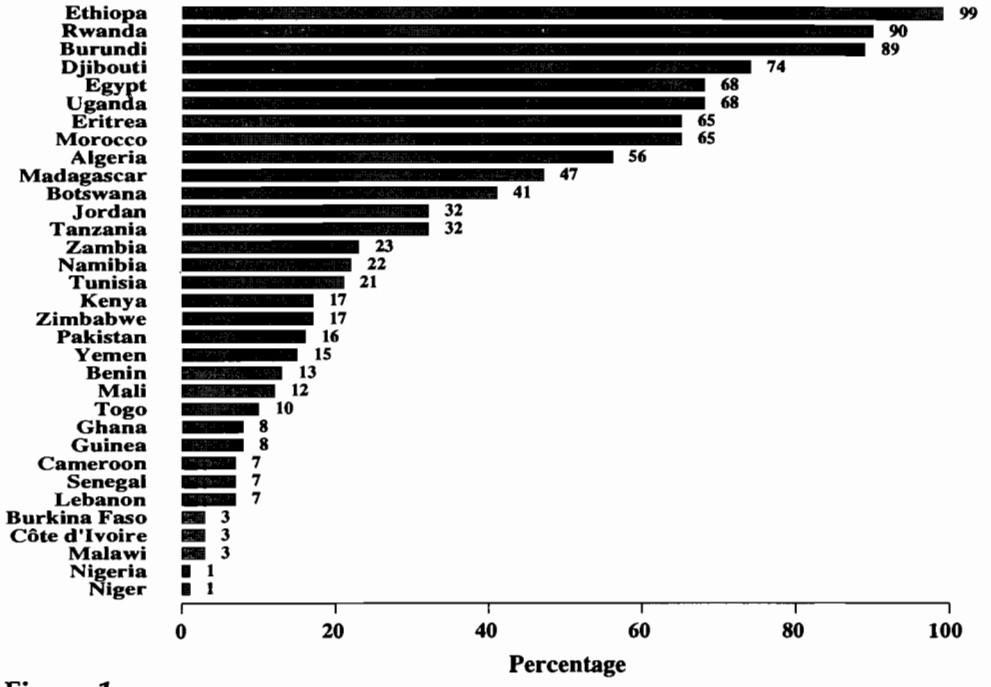

Figure 1
Exclusive breastfeeding rate (infants <4 months)

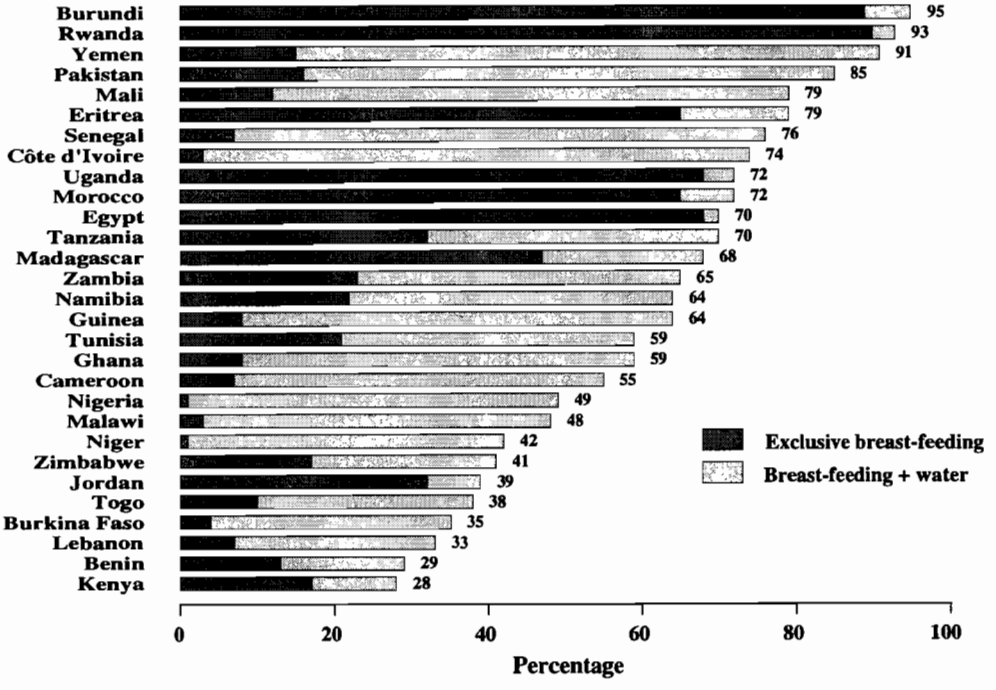

Figure 2
Rate of exclusive breastfeeding and breastfeeding with water (infants <4 months)

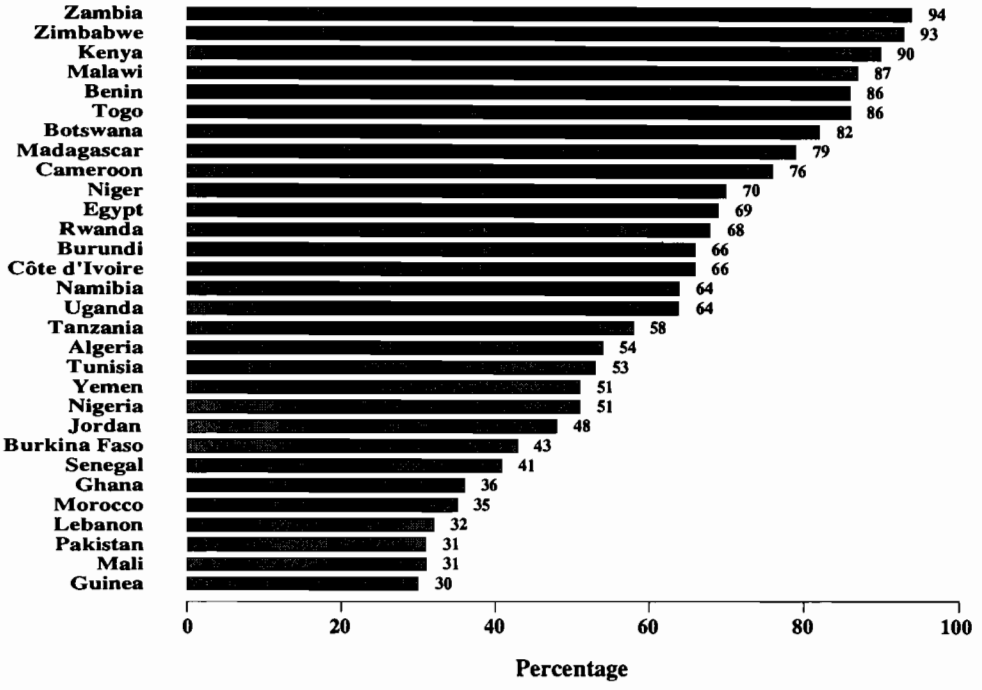

Figure 3
Timely complementary feeding rate (infants 6–9 months)

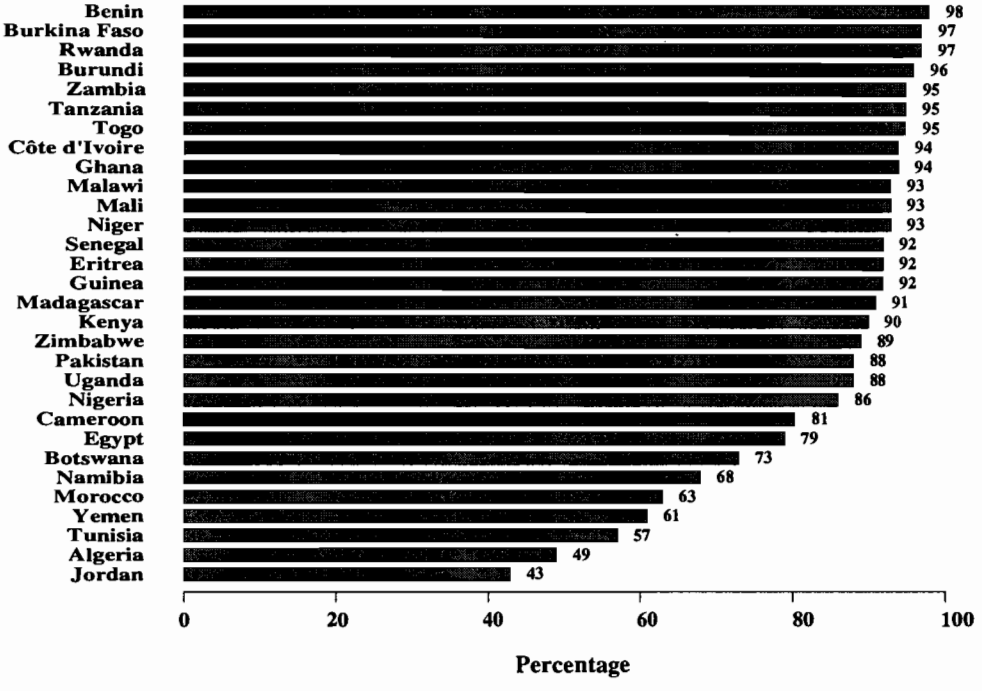

Figure 4
Continued breastfeeding rate at 1 year

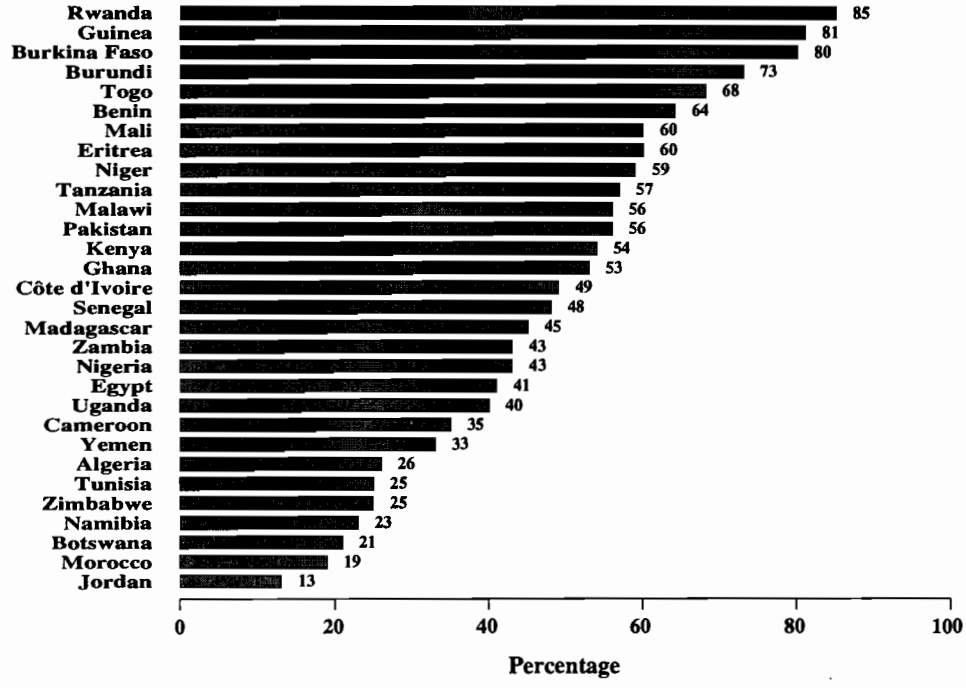

Figure 5
Continued breastfeeding rate at 2 years

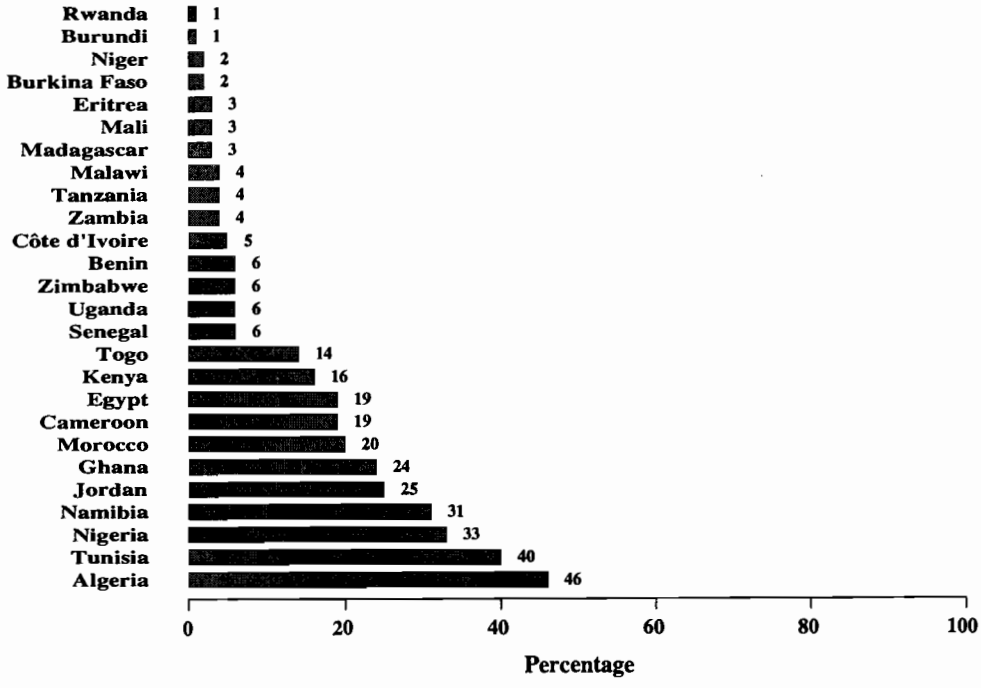

Figure 6
Bottle-feeding rate (among breastfed infants <4 months)

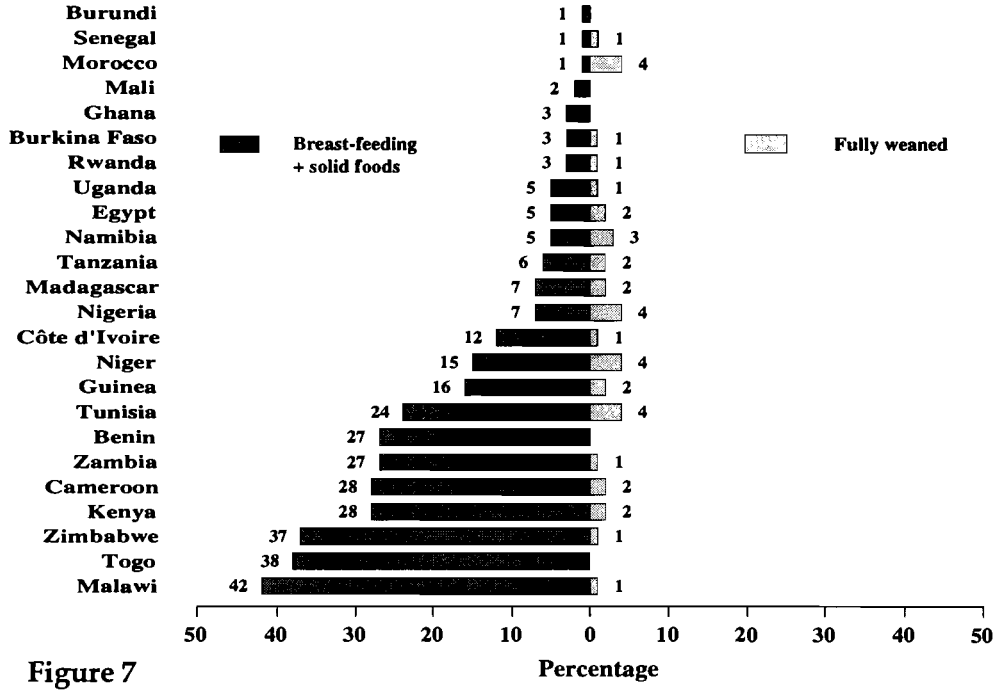

Figure 7
Rate of breastfeeding with solid foods and percentage of infants fully weaned (infants <4 months)

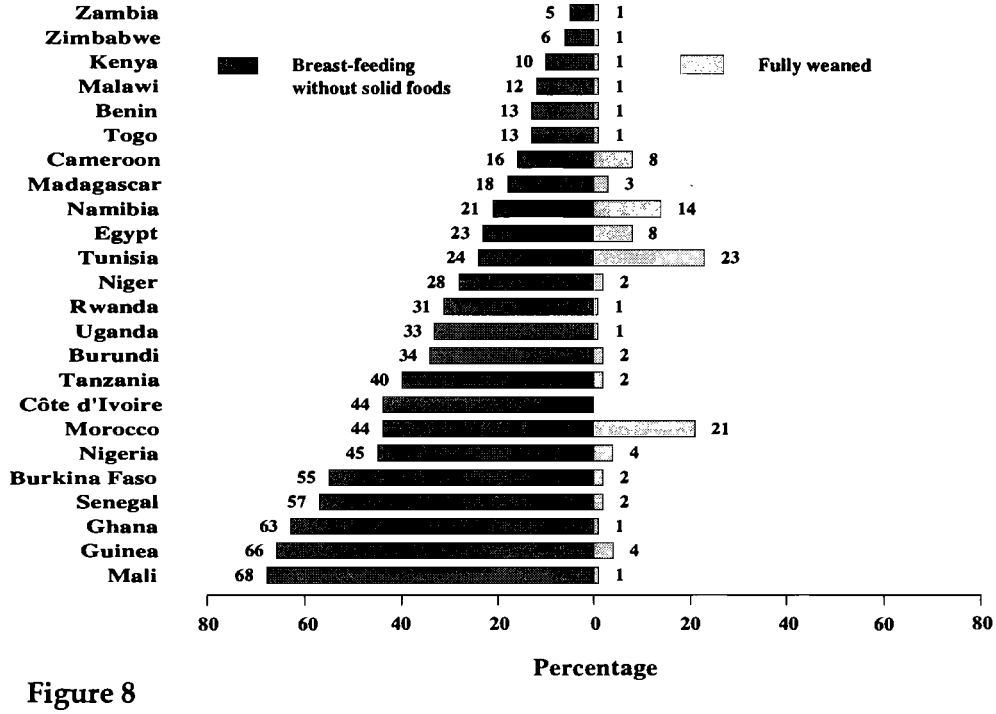

Figure 8
Rate of breastfeeding without solid foods and percentage of infants fully weaned (infants 6–9 months)

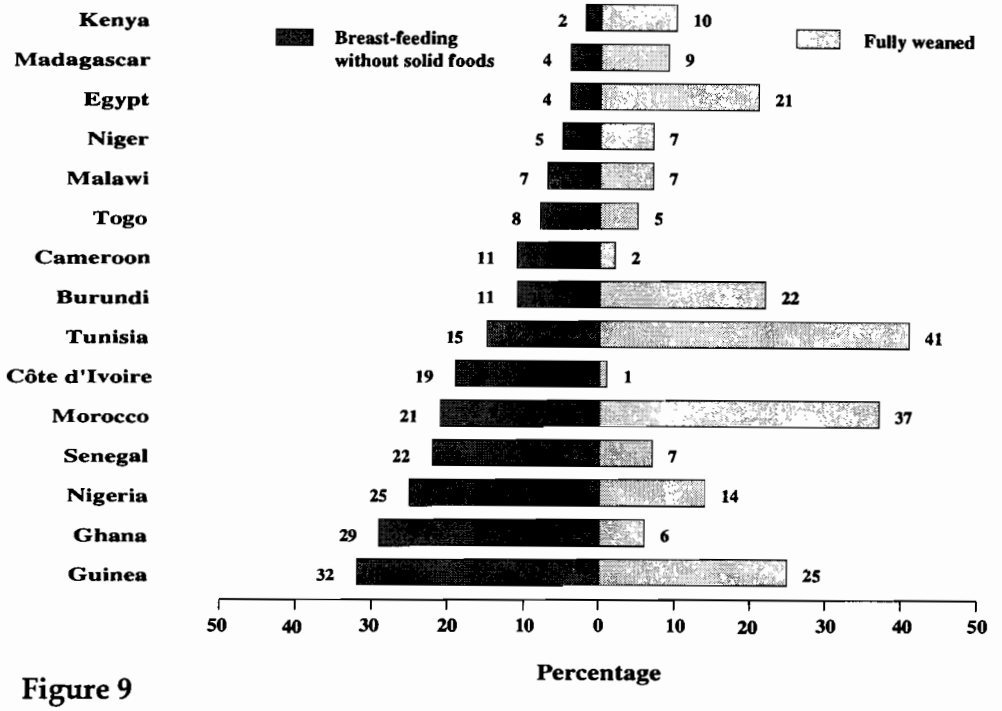

Figure 9
Rate of breastfeeding without solid foods and percentage of children fully weaned (12–15 months)

4. NEED FOR IMPROVEMENT

Africa remains one of the regions of the world where breastfeeding is the most widespread and lasts the longest (Perez-Escamilla, 1993). There is, however, a wide diversity in breastfeeding practices in particular and in complementary feeding practices in general, and a large number of children are fed in ways that deviate considerably from current recommendations.

Efforts are needed especially in the following areas:

- The proportion of exclusively breastfed infants at 4–6 months needs to be increased: giving water is a traditional practice — and also an accepted medical practice in many places. Consequently the exclusive breastfeeding rate is very low in many countries. Moreover, a large proportion of these infants already receive complementary foods.
- The proportion of children breastfed during the first 2 years should be increased.
- The proportion of children who receive healthy and nutritionally adequate foods to complement breast milk at the proper time, i.e. from 6 months, should be increased.

On the latter issue, we have shown that a large number of children over 6 months are still not receiving solid foods. Furthermore, the few data available show that the frequency and quality of meals are far from being adequate. Without infringing on the following presentations, the questionnaires received from the participant countries showed that:

- The mean frequency of meals is closer to 2–3 per day than the recommended 4 to 6 depending on the child's age.

- Traditional porridge, the first food given to infants, has an energy density lower — and sometimes much lower — than that of breast milk, i.e. 70 kcal/100 ml: 36 to 60 kcal for millet and sorghum porridge in Burkina, 44 to 64 kcal in Gabon, and 60 in Congo whether for cassava or maize-based porridge. The density of other nutrients and micronutrients is thus also predictably grossly inadequate.

Moreover, practically nothing is known about the amount of complementary foods that is given once complementary feeding has started: is it too large and thus disrupting breastfeeding, or too small and not meeting children's requirements? Can one depend on children's appetite regulation to avoid these two dangers?

In terms of programmes and particularly education messages, efforts made to date for the promotion of breastfeeding may not be sufficient to ensure adequate complementary feeding practices. In fact, countries with the highest rates of exclusive breastfeeding do not have the highest timely complementary feeding rates (Figure 10). Similarly, factors determining the cessation of breastfeeding or the use of bottle-feeding, which are presently better identified, are not necessarily those which also determine appropriate or inappropriate feeding practices. There is a negative correlation between the duration of breastfeeding and the level of urbanization (Figure 11) or economic development as measured by the GNP per capita. However, a similar relationship is less clear with the early (Figure 12) or the late introduction of solid foods (Figure 13).

Other cultural and social factors play a role. In Mali, Dettwyler (1986) identified fundamental beliefs pertaining to infant feeding: children do not need solid foods before the age of 8 months approximately; when children are hungry they will eat, but if they do not want to eat they must not be forced. Children know when they are hungry and when they have had enough to eat. On the contrary, in many countries most mothers consider that breast milk must be complemented very early in life. In Zinder (Niger) 40% of mothers believe that complementary foods must be given during the first 3 months, and 50% of infants in that age group have already received complementary foods (Oumarou et al., 1993).

5. CONCLUSION

When assessing feeding practices and when designing programmes, the focus, which is presently mainly on breastfeeding, should be shifted to encompass child feeding as a global issue. Regarding breastfeeding and complementary feeding, and as a conclusion to this tentative review, the following comments and questions are proposed for further discussion:

- The assessment of feeding practices of young children is generally inadequate; a better knowledge of mothers' current practices and their decision criteria is needed to help them improve the nutritional rationality of their decisions. In many cases, the existing information could be improved by more in-depth analyses of the available data without any additional survey or data collection effort: presenting data by types of food and age groups, bearing in mind the limitations imposed by sample sizes within age groups. In many cases, determinants and constraints to the timely introduction of complementary foods of adequate quality still need to be identified. These include: cultural beliefs, household food insecurity, availability of adequate foods, workload and allocation of time, shortcomings of the health system (lack of communication, inadequate or conflicting messages, etc.), and knowledge of hygiene.

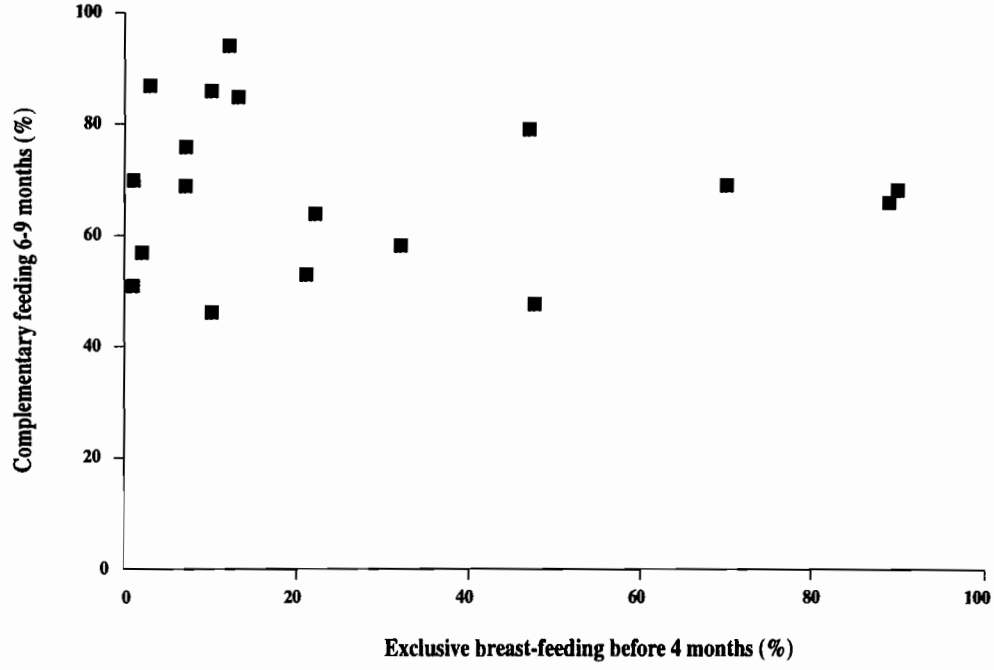

Figure 10
Relationship between rate of exclusive breast-feeding (<4 months) and rate of timely complementary feeding (6–9 months) in African countries

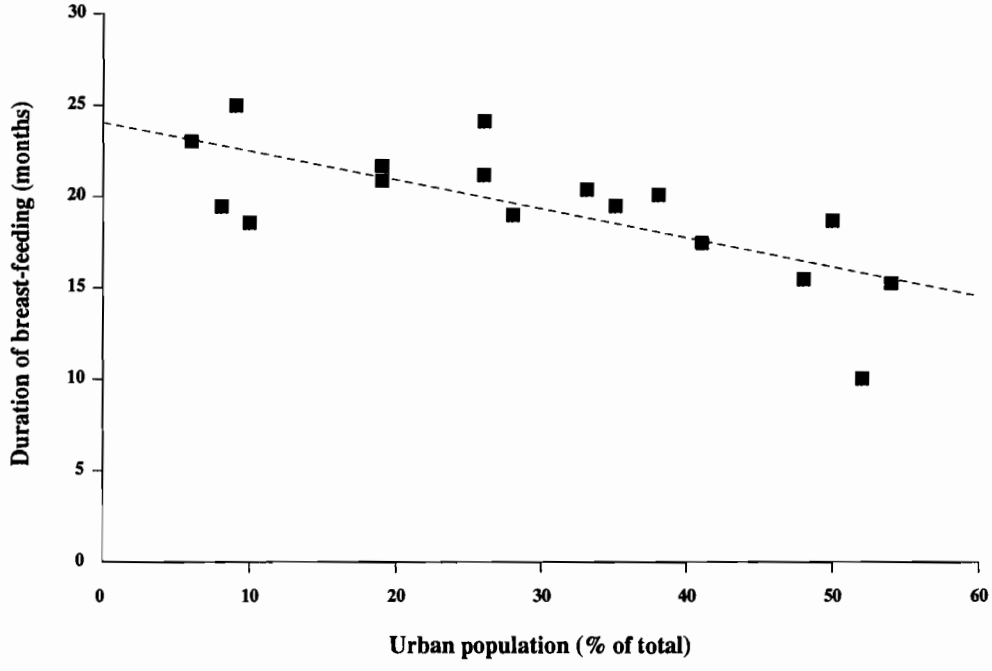

Figure 11
Relationship between duration of breast-feeding and percentage of urban population in African countries

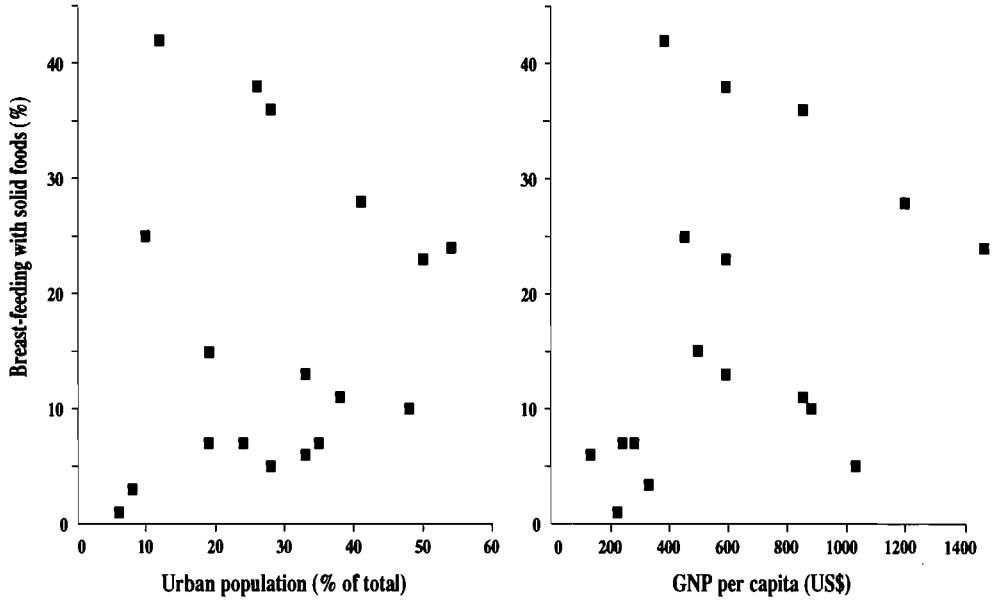

Figure 12
Relationship between rate of breast-feeding with solid foods before 4 months and (a) percentage of urban population, (b) GNP per capita

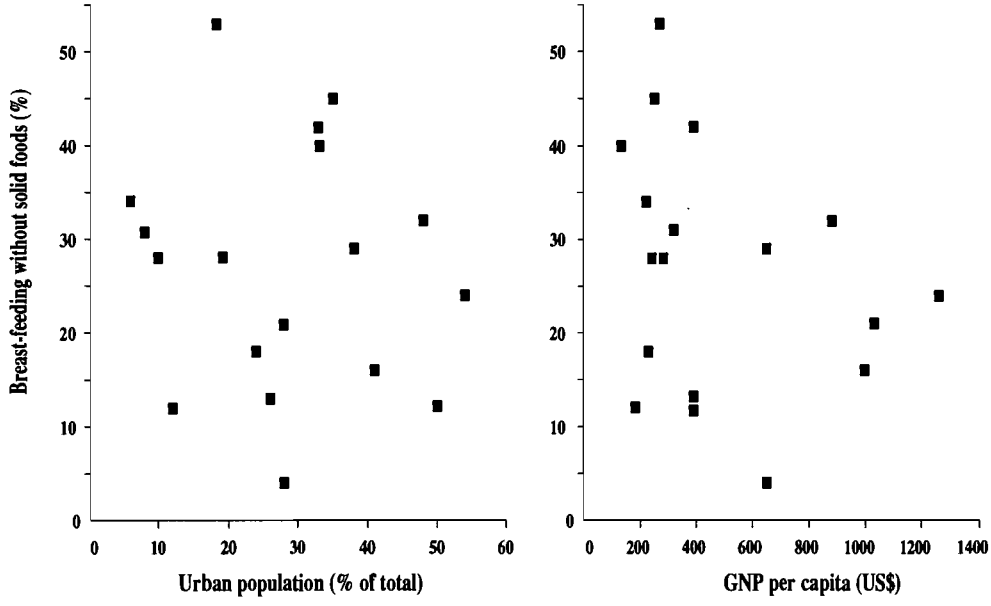

Figure 13
Relationship between rate of breast-feeding without solid foods (6–9 months) and (a) percentage of urban population, (b) GNP per capita

- Inappropriate practices do not affect all children; this raises the question of targeting programmes: should efforts be directed toward the general population of children or only toward target groups or individuals? Which criteria should be used for targeting? Should groups at risk of malnutrition, groups based on determinants of inappropriate practices or based on socioeconomic criteria be targeted?
- Should activities aimed at changing practices be linked to programmes for the dissemination of new foods based on innovative technologies (manufactured or made at household level)? This would provide an opportunity to take into account quality criteria, such as nutritional balance, micronutrient density, etc. When there are no processed complementary foods available, what are the alternatives for the improvement of complementary feeding of young children? Have they been tested sufficiently?
- Since the ultimate goal is to improve not only young child feeding practices, but also children's development, shouldn't programmes aimed at changing practices be integrated systematically with growth promotion activities?

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COMPLEMENTARY FEEDING OF YOUNG CHILDREN IN AFRICA AND THE MIDDLE EAST

MC Dop[1], D Benbouzid[2], S Trèche[1], B de Benoist[2], A Verster[3] and F Delpeuch[1]
Editors

[1] Laboratoire de Nutrition Tropicale, IRD
Institut de Recherche pour le Développement (formerly ORSTOM)
Montpellier, France
WHO Collaborating Centre for Nutrition

[2] Department of Nutrition for Health and Development
World Health Organization, Geneva, Switzerland

[3] WHO Regional Office for the Eastern Mediterranean
Alexandria, Egypt

World Health Organization
Geneva, 1999

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