Family Planning for Health in Africa

Abdel R. Omran, Editor
with Alan C. Johnston

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Preface

World experience provides unmistakable evidence that certain patterns of family formation are associated with specified risks to the health of mothers and children. If this can be proven to be true in Africa as well, a convincing case can then be made for family planning in African countries based on the health rationale. There is certainly a need to document this health rationale using data and literature from African communities. To date, no systematic assessment of the African experience in this regard has been made.

In this project, we have undertaken the task of collecting, sorting, and synthesizing the African experience. The first step (and the most difficult undertaking) was to locate relevant and scientifically valid African studies to develop an argument for or against the health rationale for family planning. For that purpose, we conducted a thorough literature search using all available international journals, African journals available in United States libraries, and files of such international agencies as the United Nations Fund for Population Activities (UNFPA), the World Health Organization (WHO), the U.S. Agency for International Development (AID), and the National Center for Health Statistics (NCHS) in Washington, D.C. We examined over 200 journals from at least a ten-year time span for articles relevant to the health risks of unplanned fertility in Africa. We asked a number of assistants and colleagues working in Africa to locate relevant material. In addition, three African scholars contributed regional syntheses of health and family formation. Each of over 1,000 articles was carefully examined for relevance, methodology, sampling, analytic efficiency, and validity of conclusions. A considerable number were excluded because of poor methodology or lack of relevance to our purpose. We were, nevertheless, pleasantly surprised to locate reasonably good studies for most facets of the project.

Organization of the Monograph

The monograph begins with an executive summary--or overview--of the whole study, depicting the salient themes and conclusions (Chapter 1). Chapter 2 is devoted entirely to examining the African evidence for the health risks associated with unplanned fertility, particularly parity and family size (Factor 1); maternal age and pregnancy timing (Factor 2); and birth interval and child spacing (Factor 3). A catalogue of studies summarizing African findings is given for each factor.

In order to supplement the general account of the African studies, three more chapters provide personal perspectives. Arkutu discusses the health risks of childbearing in East Africa (Chapter 3), El-Sherbini considers the health rationale for family planning in North Africa (Chapter 4), and Ojo provides a synthesis of fertility regulation in Africa (Chapter 5), including cultural and religious factors relevant to family formation. In Chapter 6, Johnston reviews the traditional African religions and the cultural attitudes toward family planning; Omran examines (Chapter 7) Islam and family planning in Africa; and Burgess gives an account in Chapter 8 of Christianity and family planning in Africa with special reference to Catholicism.

The closing chapter provides the demographic and health context for the population problems in Africa. Consideration of the demographic facts was reserved for the final chapter so as not to detract from the basic theme of the monograph, namely that family planning is universally indicated in Africa for health reasons regardless of the demographic pressures.

Cairo and Chapel Hill, 1984 *Abdel R. Omran*

1 Family Planning for Health in Africa: Executive Summary and Overview

Abdel R. Omran, M.D., Dr.P.H.

This monograph begins with the premise that the future of Africa will depend on the physical, intellectual, cultural, and technological preparation of the new generations of African children. It is for love of life that we explore the means, through family planning, to ensure the health of the African mother and child. A major factor affecting the health of the African child is the poor family-formation pattern in most of the continent. This includes poor pregnancy planning, poor timing and close spacing of children, large sibship size, and grand multiparity (parities exceeding four or five). Not only does such unplanned childbearing affect the health of African children (and mothers), the resulting large numbers of children reduce also the ability of the African family to provide the appropriate social, educational, and intellectual environment for the child. This is often compounded further by an unsanitary environment, poor nutrition, and inadequate medical care.

It follows that the health of African children and mothers will benefit significantly from family planning by eliminating the risks associated with excessive and unplanned childbearing. The most convincing documentation to date of the health risks associated with unplanned fertility comes from developed and non-African developing countries; therefore, the relevance to the African population can be justifiably questioned. This monograph provides a response to such questions. We have screened over 200 journals (African and international) for African studies in

the process. In addition, this work includes syntheses by colleagues with considerable experience in African culture and health.

Health Risks of Unplanned Fertility

Studies in Africa have documented increased health risks with certain patterns of childbearing and family formation. Three main factors have been identified to be the determinants of these health risks: Factor 1 is high parity, particularly grand multiparity, and large family size; Factor 2 relates to poor timing of pregnancies to occur at "risky" maternal ages--under 20 or over 35 years; Factor 3 relates to poor child spacing, particularly short birth interval.

To demonstrate the impact of these factors on health, specific health indicators were selected for both the mother and child. The indices for the mother included maternal mortality, diseases of pregnancy, and obstetric performance. The indices for the child included fetal loss, perinatal mortality, infant mortality, mortality under age five, malnutrition, physical development, intelligence quotient (I.Q.), and childhood diseases.

Effects of Parity and Family Size

Parity denotes the number of live births a woman has had, while *family size* is the number of living children in a nuclear family. Another related term used in the literature is the *birth order* of a child. The effect of parity and family size on child and mother health is outlined below.

Fetal loss and perinatal mortality in relation to parity. Several studies in various parts of the continent have demonstrated health risks among African children similar or close to those revealed by world experience. Thus, an African woman is at greater risk of losing her child during pregnancy or in the perinatal period if she is pregnant for the fourth or later time than if she is pregnant for the second or third time. The first pregnancy is usually associated with some risk of being lost according to world experience. Such a pattern is described as being J-shaped in relation to parity or pregnancy order, that is, the risk is somewhat high for the first pregnancy, it then declines for the second and third pregnancies, and increases again progressively with parity or pregnancy order. This pattern is also found in certain parts in Africa. In most African countries, particularly those in sub-Saharan regions, the risk associated with first pregnancy is much higher than world experience, resulting in what resembles a U-shaped relationship with parity or pregnancy order. The increased risk for the first pregnancy in Africa is probably because of the very young age at

pregnancy and relative immaturity of young girls becoming pregnant for the first time, as well as poor or lack of prenatal care.

Infant and child mortality in relation to parity. Like the world experience, infant and child mortality in Africa have a J-shaped relationship to parity. This means again a relatively high risk for the first born, better chances of survival for second and third born, and subsequent decline in survival chances for those born after the third child. This has been shown, not only in community or hospital studies, but also in national surveys. Some detailed African studies have indicated that family social status has a great influence on the risk of infant and child mortality. Children born to poor families have lower chances of survival than those born to rich families; but rich and poor alike, the relative increase of infant and child mortality with increasing parity persists within each social group.

Child development and malnutrition in relation to parity and family size. Several African studies confirm a detrimental effect of high parity and large family size on the physical development of the child. The effect may manifest itself even at the moment of birth in the form of prematurity, or critically low birth weight (under 2,500 grams). Compared to normal children, premature children are more prone to a variety of health problems and poor survival chances. Malnutrition in general increases with high birth order or large family size.

Intellectual development in relation to family size. There is a most disquieting observation that later born children, or children born after so many brothers and sisters, are at risk of having a lower I.Q. than those born in small families. This fact has been abundantly documented in various countries in the world and has been recently reported in a number of African studies. This situation is disquieting because the future of Africa depends on the proper intellectual (and physical) development of its children. There is no doubt that the leaders of Africa and the educated African parents are concerned about the intellectual development of their children.

Child diseases in relation to parity. Several disease conditions, such as diarrhea and parasitic infection, are more frequent in large than in small sibship sizes.

Maternal mortality in relation to parity. Pregnancy is a natural phenomenon, and no mother should die because of it. And, yet, thousands of African women die every year from causes related to pregnancy, labor, and puerperium (collectively, maternal deaths), all of which are related to high parity. African studies have documented a significant increase in maternal mortality with increasing parity.

Maternal morbidity and obstetric difficulties in relation to parity. When high parity does not result in maternal deaths, it frequently results in poor health, poor obstetric performance, and several gynecological problems. Epidemiologic and clinical studies in many African countries have revealed a relatively high prevalence of conditions known to be related to high parity. Examples include:

1. Ruptured uterus
2. Abnormality of placenta
3. Malpresentation of fetus
4. Need for blood transfusion
5. Anemia and prenatal hemorrhage
6. Difficult prolonged or obstructed labor
7. Prolapse of the uterus
8. Cardiovascular diseases and hypertension
9. Diabetes
10. Rheumatoid affliction
11. Cervical cancer

Ruptured uterus, to take one example, is a condition that has been rapidly disappearing in Europe and the United States, but is still encountered in many African maternity centers. This condition results from progressive thinning of the uterine wall because of repeated stretching in previous pregnancies, to an extent that it ruptures and may end in the loss of the child or mother, or both. Furthermore, milk yield in lactating mothers is negatively affected by high parity, and may lead to child malnutrition in certain situations. Kwashiorkor, unique to the tropics and subtropics and bearing a Ghanaian name which denotes it as the disease of the deposed child, is prevalent in Africa. Its victims are usually infants and young children recently weaned. Kwashiorkor is a form of protein/calorie malnutrition which occurs when a lactating mother becomes pregnant and stops breast feeding.

Effects of Maternal Age and Pregnancy Timing

To the general public, the definition of family planning is restricted to family size; however, it should include maternal age and child spacing as well. Fortunately, African investigators were ahead of others in this regard, and gave maternal age its due emphasis in their studies. Close to 50 studies have been reviewed for the section dealing with maternal age. A multitude of studies in Africa suggests an age band in the fertility span during which reproductive risks are low. This band extends from

age 18 to age 34 or, more conservatively from 20 to 30. On either side of this safe age range, the risk increases. The result is a J- or U-shaped relationship with age. Demographic studies in Africa indicate that live births to women below age 20 and above age 34 range from 14 percent (Zambia) to 40 percent (West Cameroon), with an average of 25 percent. This means that one of every four children in Africa is born to a mother whose age is outside the safe range. Japan, in contrast, offers convincing evidence that reproduction can be limited to the maternal ages of minimum risk (95 percent of all births are to women age 20 to 34).

Child mortality in relation to maternal age. Child mortality, whether during fetal life, the perinatal period, the neonatal period, infancy, or early childhood, is seriously influenced by maternal age. Mortality during these ages is typically high for offspring of teenage mothers, especially in Africa where the rates are the highest in the world; the rates decline to low levels for the age band 20 to 30, or 20 to 34, after which they increase again, progressively. Most African studies reveal this U-shaped or J-shaped relationship. This is quite evident not only in hospital studies, but also in community-based studies of national samples, such as those in Ghana, Sierra Leone, and Nigeria.

Child health and development in relation to maternal age. African studies confirm the world experience in regard to the serious risks associated with teenage pregnancies and pregnancies occurring at ages 35 or over. Prematurity and malnutrition describe J- or U-shaped relationships with maternal age. There are, in addition, specific serious conditions that prevail with ages older than 35.

Maternal mortality in relation to maternal age. The risk of maternal mortality in Africa describes again a parabolic or J-shaped curve with maternal age. Thus, the mother's health in Africa, as anywhere else, is seriously affected by poorly timed pregnancies--those occurring to teenage mothers or to premenopausal mothers. Most of the mortality is caused by hemorrhage, eclampsia, and anemia.

Maternal morbidity in relation to maternal age. Teenage pregnancies are particularly prone to an array of health problems of special interest in Africa where teenage pregnancy is common. These conditions, made more serious by lack of prenatal care and the mother's unpreparedness or ignorance, include anemia, toxemia of pregnancy, malpresentation of fetus, prolonged labor, Cesarean-section delivery, hemorrhage, and sepsis. Many of these conditions prevail also in older mothers who sustain, in addition, the risk of cardiovascular diseases according to several African studies. Pregnancy in older mothers seems also

to aggravate preexisting cancer by increasing the chance of matastasis.

Effects of Birth Interval or Spacing

It is surprising that the old African tradition of child spacing has not received more attention from medical investigators, as it should. Studies to evaluate scientifically the benefits (or risks) of spacing in relation to the health of mothers and children are few. This may be a reflection of the belief that spacing does not need investigation to prove its usefulness.

There is, however, a small but mounting number of African studies on the effects of spacing. Few as these studies may be, they are exceptionally good and unequivocally support the worldwide prevailing medical opinion that spacing would allow restoration of the mother's health and safeguard the health of offspring.

Spacing and child mortality. African studies, including the nationwide study of siblings in Ghana, confirm that the probability of dying during infancy or early childhood is greater for children born soon after a previous birth than for children separated by longer birth intervals. The risk is three to four times greater for children born at periods less than a year apart compared to those born at an interval of two to three years. One study examined and confirmed the notion that the birth of a second child after a short interval causes, indirectly, the death of the previous child. Fetal loss was also found to be inversely related to birth interval, being very high for a period of less than one year.

Spacing and child morbidity. Short birth interval is notoriously associated with poor child health, including low birth weight, prematurity, and poor resistance to infection. Of particular interest, as already noted, is kwashiorkor, common among African children who are deposed from breast feeding because their mothers became pregnant while nursing them.

Spacing and maternal health. During pregnancy, the biological resources of a mother are systematically depleted. To rebuild these resources again for another pregnancy requires sufficient time (from two to four years). If this factor is neglected and pregnancies occur at short birth intervals, the mother's health deteriorates progressively, leading to what Jelliffe (1966) called the maternal depletion syndrome. This syndrome is commonly seen in Africa.

Selected Regional Evidence

In addition to the continent-wide evidence described above, we provide additional syntheses for two African regions: East Africa and North Africa. These are supplemented further by a gynecologist's view of the overall situation, along with a consideration of the health aspects of fertility regulation.

Health Risks of Unplanned Childbearing: The Situation in East Africa

Arkutu gives a detailed account in Chapter 3 of the health risks associated with unplanned childbearing in East Africa based on his firsthand knowledge of that region. He surveys the demographic and health problems (which are numerous, especially among mothers and children) in the region with the underlying assumption that family planning can be a factor in mitigating some of these problems. He cites several research studies in East Africa on family formation patterns and health, and presents unpublished data from a recent large study in Dar-es-Salaam. These data demonstrate increased risks with parity that include antepartum and postpartum hemorrhage, retained placenta, preeclampsia, malpresentation, and anemia of pregnancy. Both maternal and perinatal mortality are related to parity. Arkutu cites research by others in East Africa to support his own findings. He also reviews family planning policy in East Africa and finds that new policies need to be developed in this area. His personal perspective is that:

- Family planning is a demographic and development tool.
- There is considerable lack of information about family planning which would improve acceptance of the concept.
- Health benefits of family planning will constitute a major challenge for the medical services in East Africa. Such a challenge should lead to a positive and more active family planning program.
- Family planning is a human right as declared by the countries in East Africa which allowed family planning on these grounds even before the Bucharest Conference in 1974.
- The synergistic effects of infection, malnutrition, and unregulated fertility are maintaining high maternal and infant morbidity and mortality; family planning should be seen as a part of the package to solve these problems.
- Family planning will help the practices of breast feeding and child spacing in Africa.

- Hazards of family planning methods to African women are relatively slight, especially if safeguards are taken to ensure that family planning is provided within the framework of national health care services. This should include medical backup facilities and personnel.

- Considerable research is needed and should be undertaken.

The Health Rationale for Family Planning: The Situation in North Africa

North Africa has two important features: (1) the countries in this region are all Arab and predominantly Muslim and (2) many of these countries have already adopted national population policies and family planning programs. El-Sherbini discusses these aspects in Chapter 4 and emphasizes once more the importance of understanding the health benefits of family planning. Such an understanding will give a considerable boost to the demographic rationale in countries with a population policy.

Additional evidence from North Africa documents further the health risks associated with unplanned and excessive fertility. Some new features are added.

- The health of the father is mentioned as a possible consideration. A few studies in Egypt found that fathers of three or more children scored higher on scales of psychosomatic reaction, phobia, obsessions, and anxiety than fathers with fewer children. The physical health of the father is not spared either. A non-African study is cited which found a positive correlation between peptic ulcer and number of children among employed men.

- The family as a whole is also affected by excessive, unplanned fertility, including marital adjustment.

- Crowding is found to affect the health of children adversely. Crowding, of course, results from a family of many members occupying a limited space.

- High fertility is shown to have negative demographic, social, and health consequences for the society at large.

Recommendations were made to promote family planning for health gains. The best approach in that regard is the family-oriented integrated health care system. This includes providing contraceptive guidance and methods supported by physical and health care.

Ojo, in Chapter 5, lends considerable support to the health rationale for family planning in Africa. He considers several themes. One is the attitude of African physicians, most of whom he believes are still influenced by their pronatalist cultural upbringing. As a gynecologist, he considers the problem of grand multiparity and advises against excessive fertility because of the increased health risks associated with it. He lists some of the health and social benefits of family planning, and then considers the health aspect of various contraceptive methods. He adds an African context to his discussion and considers the acceptability and experience of African countries with these methods. He considers some of the social and medical constraints to family planning, but feels that family planning in the form of spacing is not foreign to Africa. The Yorubas of Nigeria; the Kikuyus, the Luos, and Gandas in Kenya; the Chaga, Meru, Mbeere, Giriama, Lugbara, Lango, and Somalis in East Africa have built-in cultural birth-spacing systems.

Ojo concludes by recommending that family planning should be encouraged, not only for the purpose of population control, but also as a means of improving the quality of life. Such a program should be an integral part of a family health program. Finally, he calls on the developed countries to help the developing countries to reduce maternal, perinatal, and infant mortality, and to use their funds to fight world poverty and suffering.

Cultural and Religious Factors Related to Family Planning in Africa

To be effective, a family planning program must be grounded in an understanding of cultural traditions, as well as current social, economic, and political conditions. In Africa, traditional social structure and customs are changing rapidly as a result of modernization, yet many underlying beliefs, values, and practices continue as persistent influences on attitudes and patterns of behavior.

Johnston discusses these concepts in some detail; he surveys the various African cultures and religious traditions in relation to health and family planning in Chapter 6. He considers age at marriage, polygamy, marital stability, and traditional methods of family planning, such as contraceptive herbs, abortifacients, magic, and charms. Johnston looks into African traditional medicine and its relation to family planning. He considers also attitudes towards modern family planning and finds reasons to be optimistic, especially if education programs, which should be culturally sensitive, promote the social and health benefits of

family planning to the individual family rather than the whole society.

Islam and Family Planning in Africa

Almost half of Africa's population is Muslim and the Islamic way of life and thinking has permeated much of the African culture for several centuries. Omran documents the positive Islamic attitude toward family planning in Chapter 7. Quotations from the Qur'aan and the tradition of the Prophet Mohammad demonstrate those attitudes. Such attitudes, however, are not clearly understood by all Muslims in Africa, some of whom have the misconception that Islam is predominantly pronatalistic. In three conferences on Islam and family planning (one in Rabat [1971], one in Banjul [1979], and one in Dakar [1982]), attempts were made to dispel these misbeliefs and to reiterate the positive position of Islam on family planning.

The future of family planning among Muslims in Africa will depend to a great extent on the changes in the attitudes of local Imams who are still reluctant to promote family planning on the assumption that this would reduce the Muslim population. Considerable promotion and educational activities are needed to enhance further acceptance of family planning among African Muslims.

Christianity and Family Planning

Christianity is growing at a rapid rate in Africa. Although Roman Catholics represent only 25 percent of African Christians, the Catholic arguments regarding procreation strongly influence the attitudes against family planning. With this in mind, Burgess gives considerable attention and detail to the position of the Catholic Church in Chapter 8. He follows carefully the evolution of Catholic thought about procreation and family planning from the fourth century to the present. During this long period, an inflexible attitude against contraception evolved and does not seem to have softened in modern years. This was evident in the Humanae Vitae Pope Paul VI issued in 1968 which bans artificial methods of birth control. Pope John Paul II reaffirmed this attitude. Burgess indicates that the visit of Pope John Paul II to Africa did not sensitize him to the overpopulation problems in Africa.

The non-Catholic churches have, on the other hand, been more positive towards family planning. The statement of the National Council of the Churches of Christ in the United States of America (1961) clearly supports family planning, especially for health reasons.

The Demographic and Health Context

The demographic context of the health rationale for family planning in Africa appears in the final chapter of this monograph. The demographic picture should not take away from the seriousness and validity of the health rationale for family planning in that continent. It would be a disservice, however, to dismiss demographic pressure as a rationale for family planning and population policy in much of Africa. The population profile is one of a high growth rate, young and heterogeneous ethnic composition, maldistribution, and poor economic and health status.

The population size, growth, composition, distribution, and socioeconomic characteristics of African countries are outlined briefly in the text, and world regional comparative data are provided. The magnitude of the population problem in Africa points to the need for planned, regulated population growth, accompanied by equivalent increases in the capacity of the economic, social, educational, and health systems, and in the supplies of water, food, energy, and housing.

The fertility profile of Africa and the various indices used to measure fertility are reviewed. The fertility rate, by all measures, is quite high; the average African woman has six children in her lifetime. A special discussion of the problem of infertility follows. Mortality and health indices--covering life, death, and access to health facilities--are addressed. These health measures provide a population-based overlay for the health rationale for family planning in Africa.

Finally, the population policies of African nations are summarized, including the evolution and rationale for current policies and the availability of family planning services. A simple classification of population policies according to their implicit or explicit rationale rounds out the chapter.

Conclusions

While a few African leaders appreciate the demographic returns from slowing down the rate of population growth, it is the health rationale for family planning that will gain wide acceptance. It is expected that more political leaders, policy makers, health professionals, and the educated in Africa can be convinced to accept family planning on the ground of its health returns to mothers and children.

The African experience confirms the world experience that, in order to safeguard the health of mothers and children and to contribute to better physical and intellectual development of the

coming generations, the following guidelines should be followed:

1. Pregnancies at a very early age (under 20 and certainly under 18) should be discouraged; likewise, pregnancies at ages 35 and over should be avoided.

2. Pregnancies should be spaced properly with two to three years in between.

3. Grand multiparity of over four births should be advised against, and family sizes of two to three children should be encouraged.

4. Family planning methods should be made available as a human right to all who need them.

5. Family planning information should be disseminated throughout Africa through educational, cultural, and other channels.

6. Illegal abortion should be prevented through the use of contraception.

7. Breast feeding should be the rule for every child and a lactating mother should endeavor to prevent another pregnancy until her child is at least two years old.

8. Infertility pockets in Africa should be cared for with the same enthusiasm by health authorities as they exhibit for family planning.

9. Religious and cultural leaders should be attracted to the family planning movement based on the health rationale; certainly, they should not be antagonized or ridiculed.

10. The role of the father should be emphasized as far as his responsibility in collaborating with his wife in planning their family.

2 Family Formation Patterns and Health: A Review of the African Evidence

Abdel R. Omran, M.D., Dr.P.H.

World experience has most convincingly documented the health hazards associated with specific patterns of childbearing. The three most important factors involved in the safety of childbearing are (1) parity and family size, herein called Factor One; (2) maternal age, herein called Factor Two; and (3) birth interval, herein called Factor Three. Medical and epidemiological experience indicates that health hazards increase with parity and family size, as well as with pregnancies that are closely spaced or those occurring to teenagers or at later ages of 35+. There can be little doubt that poor family formation in Africa carries great risks to the African family, particularly the mother and child. It is also commonly recognized that the health of mothers and children in Africa is generally poor. As a significant component of a family health program, the African family should be planned along appropriate health guidelines. This will take a good deal of effort by the political, cultural, and medical communities in Africa, as well as by the African families themselves. In this monograph, we provide evidence based on genuine African experience, and gleaned from hundreds of African studies and reports, of the impact of family formation patterns and health in Africa.

To describe the African pattern of health risks associated with parity or family size, maternal age, and birth interval, propositions based on world experience are provided for the major sections. These propositions describe a wider scope of relationships between family formation and health risks than can be

expected from the literature available from Africa. However, the wider scope serves only as a guideline for African research where serious gaps exist.

The African experience is summarized in the three catalogues of studies which classify the African studies according to the different health risks they investigated. Because of the consistency in the results of most studies only a few studies are included in the text for illustrative purposes. The tables should, therefore, be consulted for a more complete account of the various studies.

FACTOR ONE: PARITY AND FAMILY SIZE

Fetal and Child Mortality in Relation to Parity/Birth Order

Experience Based on World Literature

The general pattern that emerges from studies in both industrialized and developing countries indicates that the risk of late fetal death (stillbirths) is relatively high for first births, decreases for second and third births, rises slightly for fourth and fifth births, and increases much more sharply for later order births. Such a pattern is frequently described as a J-shaped or parabolic curve. When the risk of late fetal death for first births is very high, the curve becomes U-shaped.

The relationship between neonatal mortality rates and birth order shows a similar U-shaped or J-shaped pattern. Postneonatal and total infant mortality rates either follow the same pattern or increase steadily with increasing birth order, as do the mortality rates for early childhood (1-4 years). If maternal age is considered simultaneously, infant mortality rates continue to show a steady increase with parity, or they may take the form of a U-shaped curve, especially for older mothers.

Some of the more detailed studies indicate that, although a strong inverse relationship exists between mortality and social class, the variations in mortality with birth order are maintained within each social class. These patterns also occur among all cultures and racial groups and persist over time despite considerable decline in mortality levels.

> Finally, the birth rank effects on health may be mediated through the size of the family or the total number of pregnancies (gravidity) in the biological family. (Omran, 1981:18)

The African Experience

Fetal loss and perinatal mortality. Several studies in various parts of the continent have demonstrated health risks among African children similar or close to those revealed by world experience. There is, however, a striking trend in the African experience (Catalogue 1), namely seemingly high risk associated with first pregnancies, probably because of the very young maternal ages at first pregnancy. Thus, the relationship of both fetal loss and perinatal mortality with parity is more like a U-shaped curve rather than the J-shaped curve described by world experience.

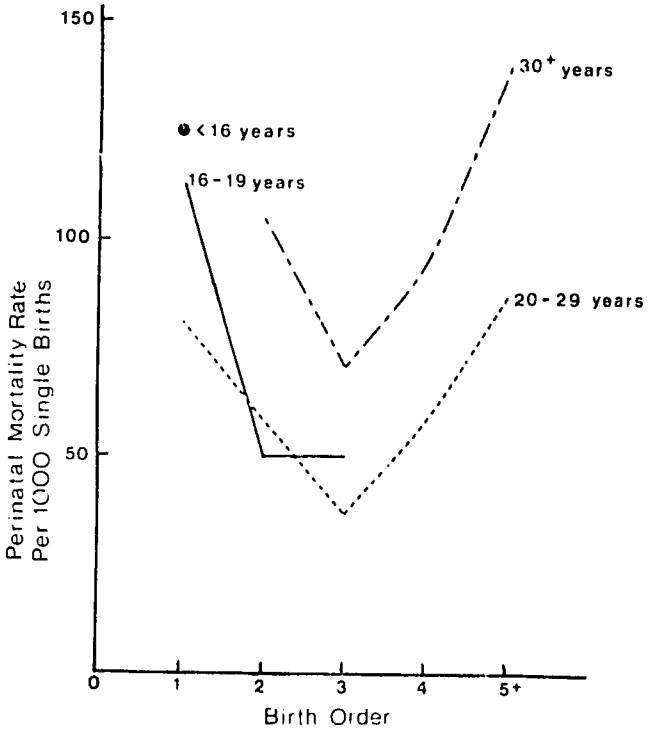
Harrison (1979) studied the 1976-77 records of 12,262 women who had their babies at Ahmadu Bello Hospital, where 40 percent of the births in Zaria (northern Nigeria) take place. The perinatal mortality rate was 86.4 per 1,000 total single births and 243.8 per 1,000 total multiple births. A U-shaped relationship between perinatal mortality and parity was evident for different age groups. In other words, for each maternal age group, the perinatal mortality rate was high for primiparas, decreased for second and third birth orders, then increased again for fourth and higher orders (Figure 2.1). Harrison concludes that most of the maternal causes of perinatal mortality could be prevented through improvements in health and living standards, more favorable maternal ages, and lower parities.

In a study by Rashwan (1979), 2,447 women were treated for incomplete abortion in three major hospitals in Khartoum, Sudan. Child loss per 1,000 live births was high for parities 1 and 2, decreased to its lowest points at parities 3 and 4, and increased for subsequent parities (Figure 2.2). In Khartoum North Hospital, where child loss was higher than the other two hospitals, the loss for first pregnancies was extremely high.

Infant mortality. Infant mortality among African children generally describes a J-shaped relationship with parity (Catalogue 1) parallel to world experience. For example, a 1972 sample survey covering urban and rural areas in all the regions in Ghana (except the northern region) included interviews with 9,392 women (6,028 urban and 3,364 rural). Known as the Sibling Survey in Ghana (Addo and Goody, 1975), it demonstrated that mortality under one year was high for first parity, decreased slightly for parities 2 through 4, and then increased steadily thereafter with increasing parity (Figure 2.3). A similar

relationship with parity was found for child mortality, between the ages of one and four years.

Figure 2.1. Perinatal Mortality by Maternal Age and Birth Order --Zaria, Nigeria, 1975-77

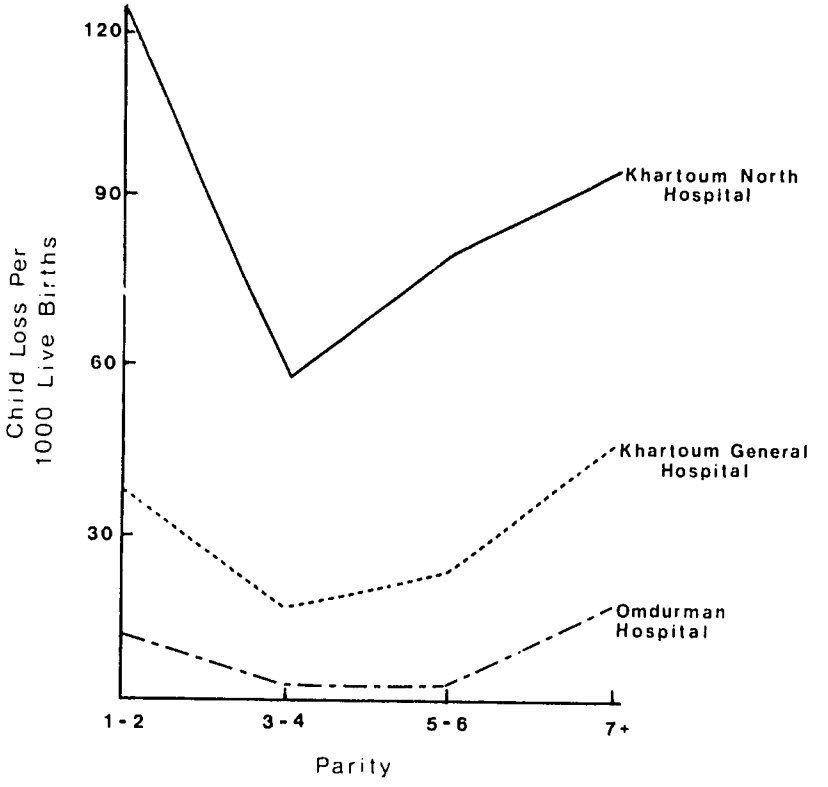


Source: Adapted from Harrison (1979), p. 1231

Another example of a national study comes from a recent comprehensive report by the Ministry of Health in Sierra Leone and the World Health Organization (1980). This study describes a community-based survey in Greater Freetown the western area, and Makeni in Northern Province, Sierra Leone, conducted in 1973-75. The survey contained both retrospective and prospective components and investigated 3,229 households to discern fertility, mortality, and health care levels. Infant mortality rates for the 1973 cohort describe a U-shaped relationship with parity (Figure 2.4).

Child mortality. Once more, because of the relatively high risk to the first born, child mortality rates in Africa describe a J-shaped curve in relation to parity or birth order (Catalogue

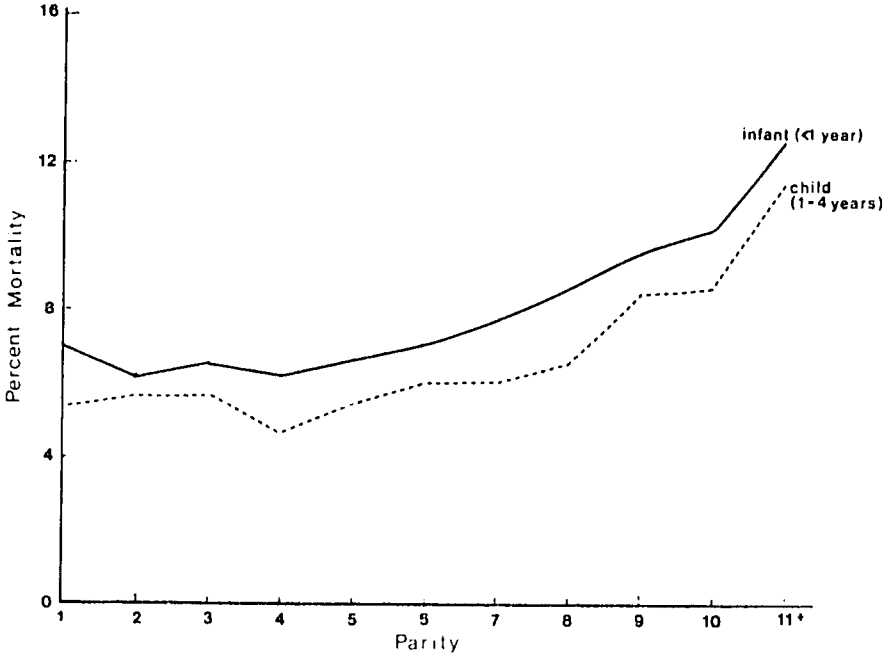
Figure 2.2. Fetal Loss by Parity--Khartoum, The Sudan, 1974-76



Source: Adapted from Rushwan (1979), p. 71

1). For example, Cantrelle and Leridon (1971) examined child mortality in a rural area of Senegal. A house-to-house survey was conducted of women having a live birth during the period 1962-68 (8,456 live births). Birth order was among the variables studied. The infant mortality rate was 210 per 1,000 for the first year of life, 202 per 1,000 for the second, and 355 per 1,000 for ages one to five years. The findings also indicate that the rate of infant and child mortality was at a minimum at intermediate parities. For infants less than one year, there was approximately a 24 percent probability of dying for parity 1; this probability decreased to 18 percent for parities 2 to 3, and increased consistently thereafter for parities 4 to 6 and 7+ (19 and 24 percent, respectively). A similar pattern by parity was present for the probability of dying at age one.

Figure 2.3. Infant and Child Mortality by Parity--Ghana, 1972



Source: Based on data from Addo and Goody (1975)

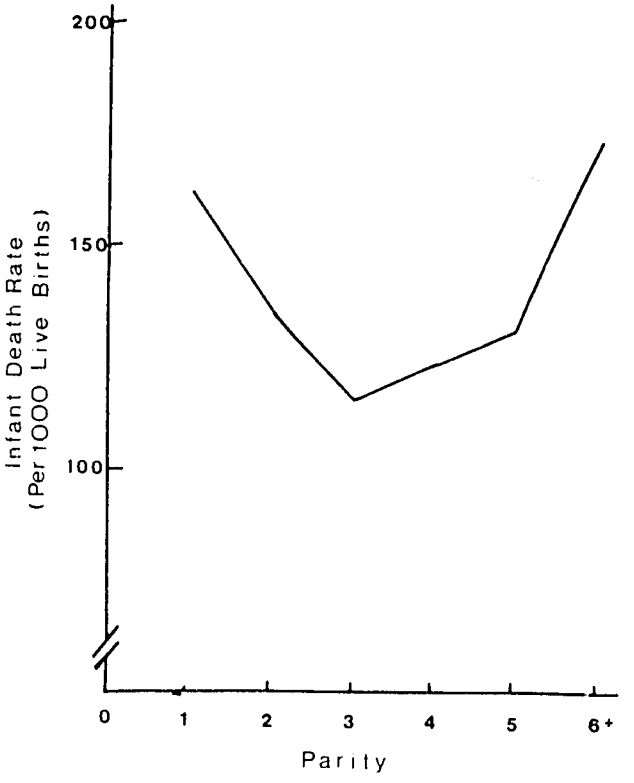
Child Health and Development in Relation to Birth Order and Family Size

Experience Based on World Literature

Several studies describe a detrimental effect of large family (or sibship) size and high birth order on physical and intellectual development. However, in view of the many competing variables (genetic and environmental) and the difficulties of assessing intellectual attainment in developing societies, these data must be interpreted cautiously.

Birthweight and prematurity provide measures of infant physical development. Controversy exists about the relationship of birthweight and prematurity to birth order. Mean birthweight seems to increase with birth order (although not consistently), while the rates for prematurity (defined as a birthweight of 2.5 kg or less) have either a linear or a J-shaped relationship to birth order.

Figure 2.4. Infant Mortality by Parity--Sierra Leone, 1973-74



Source: Adapted from Sierra Leone, Ministry of Health and World Health Organization (1980), p. 130

As measured by weight, height, and sexual maturity, the physical growth of children from large families compares unfavourably with that of children from small families. The difference, however, is small and is evident mainly in large studies.

In regard to intellectual development, increasing evidence shows that children from large families obtain relatively lower intelligence scores than those from small families. Mental retardation also is positively associated with family size. This area, however, will require further research, especially in the developing world.

A number of child health conditions have also been linked to family size and birth order (as well as

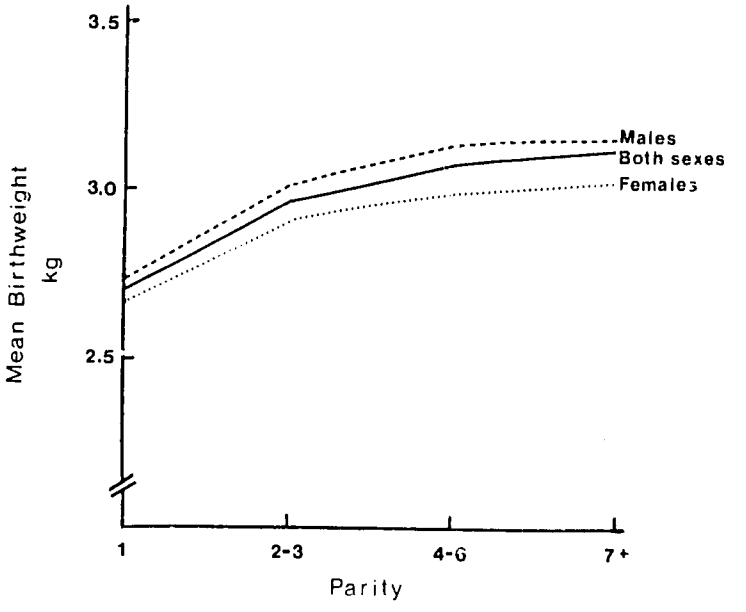
> '- maternal age). Included are congenital malformation, physical handicaps, malnutrition, dental problems, infectious diseases, emotional problems, and mental illness. Some conditions, like malnutrition, are probably directly related to increased strain on family and maternal resources with each additional child; in the case of common infections, larger family size may simply lead to more frequent exposure to infectious agents through other family members. (Omran, 1981:23)

The African Experience

Malnutrition. Studies of malnutrition in relation to parity among African children are very few and are based on small-sized samples. A few of these studies are given in Catalogue 1. While they suggest an increase of malnutrition in later-born children, this problem is in need of intensive and carefully designed research in several parts of Africa. In view of the prevalence of kwashiorkor in Africa, malnutrition should be investigated in relation to family planning.

Birth weight and prematurity. Birth weight has been widely studied because data are available for virtually all hospital births; furthermore, it gives some indication of an infant's health and maturity. Although a few African studies show no clear relationship between parity and birth weight (here, the lack of representativeness of hospital-based studies should be kept in mind), most studies in Africa have confirmed the positive relationship between parity and birth weight. The evidence from these studies indicates that later-born children may have an advantage of relatively higher birth weight over earlier-born children, although there is some indication that birth-weight may decrease again for very high birth orders. Two observations are in order, however. First, most African primiparas are teenagers and the low birth weight may be a reflection of young maternal age rather than parity. Second, studies in Europe and the United States have shown that while there is a tendency for the mean birth weight to increase with parity (a result of the ability of the uterus to stretch with successive pregnancies), prematurity or the crucial low birth weight of under 2.5 kilograms tend also to increase with parity or to have a J- or U-shape with it. This means that risks associated with low birth weight (prematurity) tend to increase with parity, at least after the second or third birth order. Increasing birth weight with increasing parity was found in several studies (Catalogue 1) and is specifically illustrated in Reinhardt and colleagues' study of deliveries at the Adjamé Maternity Hospital, Abidjan, Ivory Coast (Figure 2.5).

Figure 2.5. Mean Birth Weight of Child by Parity and Sex--Abidjan, Ivory Coast, 1974-75



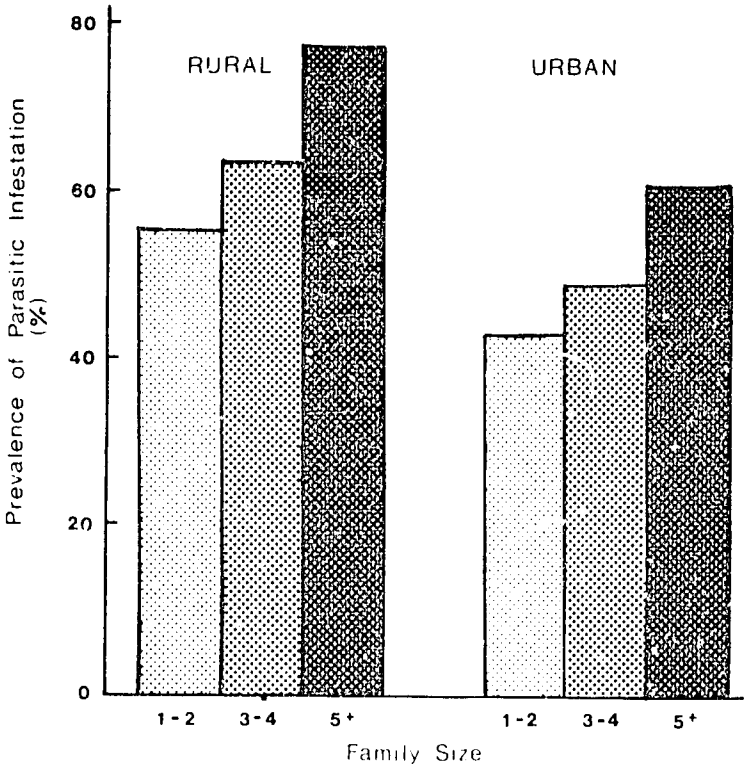
Source: Adapted from Reinhardt et al. (1978b), p. 13

Parasitic disease. In a WHO study in Assiut, Egypt, 3,787 rural and urban children under age five were examined for the presence of parasitic infestation. The rate of infestation increased with family size (Figure 2.6). In larger families, there were increased chances of infestation because of crowding at home and lack of supervision of children's outdoor activities (Eid et al., 1981).

Intellectual development. The future of Africa depends on the proper physical and intellectual development of its children. There is no doubt that the leaders of Africa and educated African parents are concerned about the intellectual development of their children. A negative association between family size and children's I.Q. scores has been repeatedly documented in Europe, North America, and in other more developed countries. More recently, two sets of WHO studies in developing countries confirmed a decline in mean I.Q. scores with increasing family size in Pakistan (Ajmal and Zaidi, 1981), the Philippines (Balderrama-Guzman, Tayag, and Eustaquio, 1976), and Turkey (Bertan, Sümbüloglu, and Fisek, 1976).

African studies of family formation and I.Q. are greatly lacking. However, two studies in Egypt by Hammam et al. (1981) and

Figure 2.6. Prevalence of Parasitic Infestation in Children under Age 5 by Family Size and Residence--Assiut, Egypt, 1972-76



Source: Adapted from Eid et al. (1981), p. 238

Guinena et al. (1982) have found a decline in the mean I.Q. scores as family size increases (see Chapter 4). While more intensive and extensive studies of I.Q. and family size among African children are needed, there is no reason to believe that the pattern will be significantly different from the Western experience. The correlation between family size and I.Q. scores is of great concern and African leaders and parents should take this into account in planning the African family.

Maternal Mortality in Relation to Parity

Experience Based on World Literature

Several studies, both early and recent, have found that multiparity, especially grand multiparity, carried increased risks of maternal mortality and morbidity. The

> classical triad of maternal mortality in industrialized countries used to be toxemia, hemorrhage, and sepsis. These conditions have been on the decline in recent years and are being displaced by complications of anaesthesia and amniotic fluid embolism, with toxemia continuing to be a problem. (Omran, 1981:28)

The African Experience

The African literature on maternal mortality is sizable. Most studies reviewed were clinical series which give details about the deceased women but do not provide information on the number of births by parity or age for proper calculation of rates. Most of these published works resort to numerator analysis in which the percentage distribution of deaths by age and parity is used, as opposed to the deaths per 1,000 births at each age or parity category. Some of these studies are, nevertheless, included in Catalogue 1.

An example of appropriately calculated risks can be found in Radovic's 1966 study of the adverse consequences of high parity in 569 maternal cases (with 569 births) during a ten-month period at Tema General Hospital, Ghana. In addition to looking at fetal mortality, Radovic also examined maternal mortality and morbidity and found a positive relationship between high parity and labor complications, Cesarean sections, and maternal mortality. Specifically, no primiparas died, while the rates were 0.46 percent for those with fewer than four deliveries, and 2.2 percent for those with more than four births (Table 2.1). This led Radovic to recommend that birth control should be started before it is too late to prevent the consequences of high parity.

Table 2.1. Maternal Mortality by Parity--Tema General Hospital, Ghana

Parity	No. of Births	Maternal Deaths	Maternal Mortality Rate (%)
Primiparas	220	0	0.00
Multiparas (4 births)	217	1	0.46
Grand multiparas	132	3	2.27
Total	569	4	0.70

Source: Radovic (1966). Reprinted with permission of the American Journal of Obstetrics and Gynecology.

Maternal Morbidity in Relation to Parity

Experience Based on World Literature

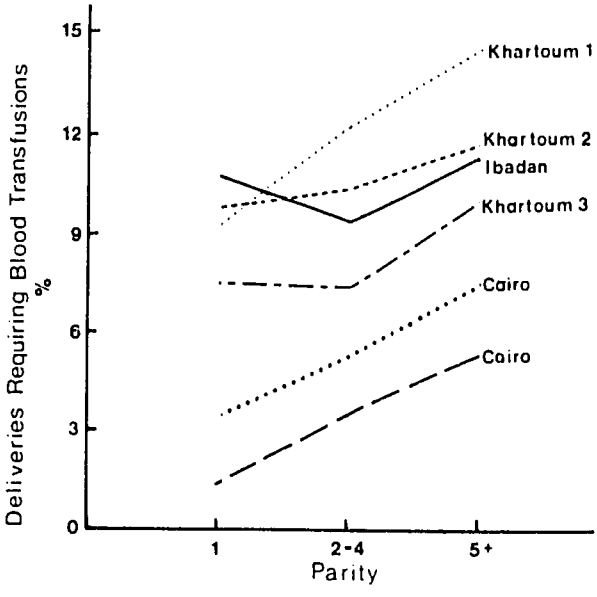
> In the developing countries, grand multiparity is still prevalent and is associated with high mortality and morbidity from hemorrhage, sepsis, toxemia, rupture of uterus, and anemia. Some evidence also links high parity with gynecological problems, such as prolapse, cervicitis, cervical erosion, cancer of the cervix, as well as nonobstetric problems, particularly diabetes and rheumatic conditions. The evidence for hypertension in relation to parity is still equivocal. Cervical cancer may increase with parity, while breast and ovarian cancer may be inversely related to parity. (Omran, 1981: 30)

The African Experience

Maternal morbidity. African studies of maternal morbidity, though chiefly hospital data, seem to parallel the world experience. In a cross-national study (Omran, 1978) coordinated by the International Fertility Research Program, data from maternity centers in Muslim countries of Africa and Asia were compared with similar data from non-Muslim countries of Africa, Asia, and Europe. The study included five African Muslim centers, two in Cairo and three in Khartoum, and a center in Ibadan, as an example of a non-Muslim African country.

The study found maternal morbidity was higher for women of high parity. The prevalence of antenatal health problems (e.g., eclampsia, hypertension, blood disorders, antepartum hemorrhage) increased with parity within the Muslim centers. Two indicators were used to guage the condition of women at labor or in the early puerperium: the need for Cesarean-section delivery and for blood transfusion. Within each center, both indicators are positively associated with parity. That is, grand multiparas are at higher risk of requiring Cesarean-section delivery and blood transfusions compared to women at lower parity. Occasionally, primiparas, especially teenagers, are also at high risk of surgical intervention and need for blood transfusion. This is most obvious in Ibadan (Figure 2.7).

Figure 2.7. Percentage of Deliveries Requiring Blood Transfusions by Parity--Selected African Centers, 1977-78



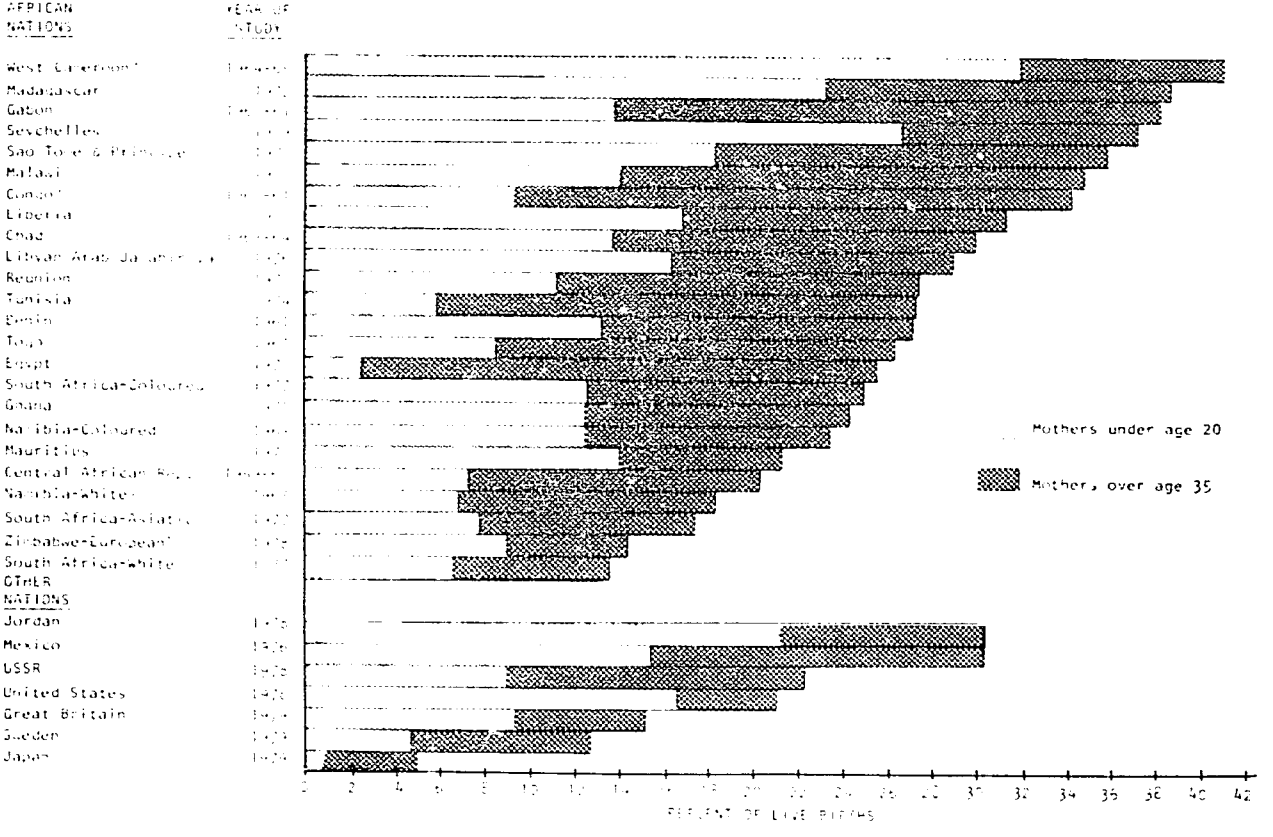
Source: Adapted from Omran (1978)

FACTOR TWO: MATERNAL AGE AND PREGNANCY TIMING

People usually perceive unplanned fertility as referring to parents having large numbers of children. This notion is not complete from a health viewpoint. Family planning goes beyond regulating the number of children a couple could have to include pregnancy *timing* (choosing the age where health risks are minimal) and pregnancy *spacing* (having children at an appropriate distance one from the other).

In this section, emphasis is given to the African research experience regarding the health risks associated with maternal age while child spacing is discussed in the following section. As indicated above, there seems to be an age range in the reproductive span associated with minimal risks to mothers and children. The societal health impact of fertility outside this optimal range depends on both the general level of reproductive risks in that particular society and on the proportion of births occurring to women in the young and old age groups. Figure 2.8 presents available data on births by age of mother for selected countries in Africa and for several developed and developing

Figure 2.8. Live Births Out of "Safe" Range by Maternal Age, for Selected Countries--1959-79



Sources: Based on data from (1) UNDIESA (1980); (2) UNDIESA (1981)

countries for comparison. The proportion of live births to women under 20 and over 35 for African countries ranges from 13.6 percent (South African whites) to 41.1 percent (West Cameroon). As I show later, these age bands are associated with higher reproductive risks than the 20-to-34 band. For 16 of the 24 African countries included in this graph, the proportion of births to women under 20 and over 35 is more than 25 percent. Cameroon, Seychelles, and Madagascar have the highest proportions (23-32 percent) of teenage births; the Congo, Gabon, Egypt, and Tunisia have the highest proportions (20-25 percent) of births to women 35 and older.

Patterns in Mexico and Jordan--non-African developing nations--reveal that Africa is not alone in this potential health risk to mothers; in both, 30 percent of live births are out of the safe age range. Sweden and the United Kingdom typify the pattern in developed countries, where about 85 percent of births occur in the safe age band. Most striking is Japan where 95 percent of births are concentrated in the safe age group of 20 to 34. Japan thus offers convincing evidence of a population's capacity to limit its reproduction to the maternal ages with minimal health risk. The United States and the Soviet Union are atypical of developed countries: teenage pregnancy is relatively frequent in the U.S. (16.6 percent), while older maternal age is relatively frequent in the USSR (13.2 percent).

Maternal Age and Child Mortality

Experience Based on World Literature

> A multitude of studies has revealed a consistent association between maternal age and both morbidity and mortality in mothers and children. These studies uniformly suggest that there is an age-band in the fertility span of a woman during which the reproductive risks are at a minimum; on either side of this relativly safe age-band, the risks progressively increase, describing a J-shaped, a U-shaped or, occasionally, a reversed J-shaped curve. These patterns are particularly typical of late fetal detahs, perinatal mortality and infant mortality. (Omran, 1981:33-34)

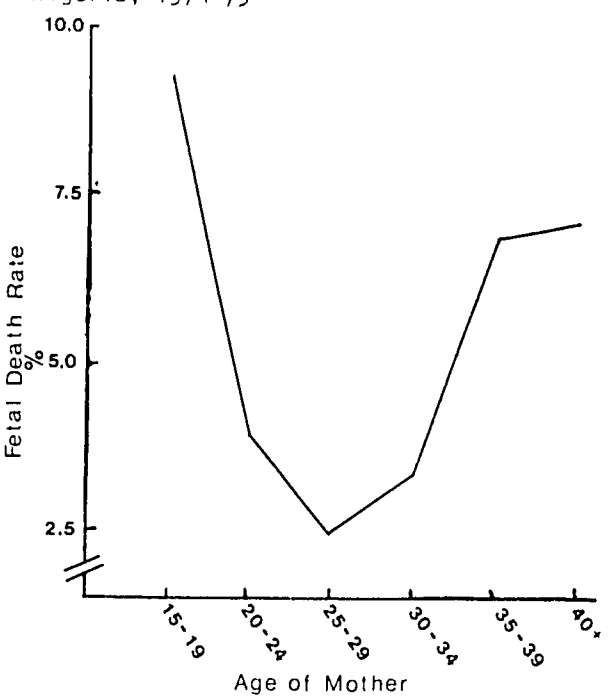
The African Experience

There is a growing body of evidence from the African continent on the relationship between maternal age and fetal and child mortality. The study of age-related health risks in Africa provides support for limiting reproduction to the age span be-

tween 20 and 30 or, at most, between ages 18 and 34, the periods of least relative risk to the health of mothers and children (Catalogue 2). Many of the published studies, however, are based mainly on hospital records and thus have serious limitations as to their representativeness, particularly in the African countries where only a small fraction of deliveries takes place in a health facility. It is encouraging that several detailed community-based studies have been published during the late 1970s.

Fetal loss and perinatal mortality. Several African authors have concluded that the risk of fetal wastage and perinatal mortality is lowest for the middle reproductive age band (ages 20 to 30), with increased mortality for both the younger (< age 20) and older women (age 30+). The relationship described by most studies is J-, reversed J-, or U-shaped. For example, Omene and Diejomaoh (1977) examined the obstetric and neonatal causes of fetal wastage and perinatal mortality at a referral hospital in Bendel State, Nigeria. The study population consisted of 1,310 consecutive births between 1974 and 1975. The late fetal death (or stillbirth) rate describes a U-shaped relationship with maternal age (Figure 2.9). The rate was greatest

Figure 2.9. Fetal Death Rate by Maternal Age--Bendel State, Nigeria, 1974-75



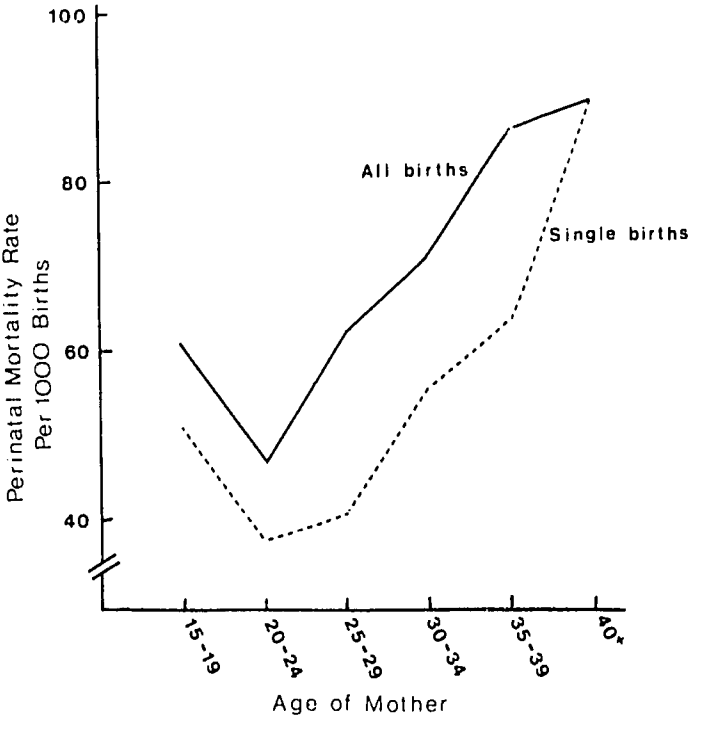
Source: Based on data from Omene and Diejomaoh (1977)

for young women between the ages of 15 to 19 (9.4 percent); 7.1 percent of fetal deaths occurred to women age 40 and over. The lowest stillbirth rate was in the 25 to 29 age group (2.5 percent).

Voorhoeve, Muller, and O'igo (1979) conducted an investigation of factors associated with maternal and child health (perinatal mortality, in particular) in Machakos, a rural area of Kenya. The study covered 3,700 households with 2,246 births. The perinatal and neonatal mortality rates were relatively low: 46.7 and 27.4 per 1,000 births, respectively; however, the rates were higher for maternal ages under 25 and over 34.

In another investigation at three hospitals in Ibadan, Nigeria, of 12,809 births Nylander (1971) found the familiar J-shaped relationship between maternal age and perinatal mortality (Figure 2.10). The rate was 61 per 1,000 births for mothers age 15 to 19, falling to 47 per 1,000 live births in the 20 to 24 group, and rising steeply to 89 per 1,000 total births at 40 and over.

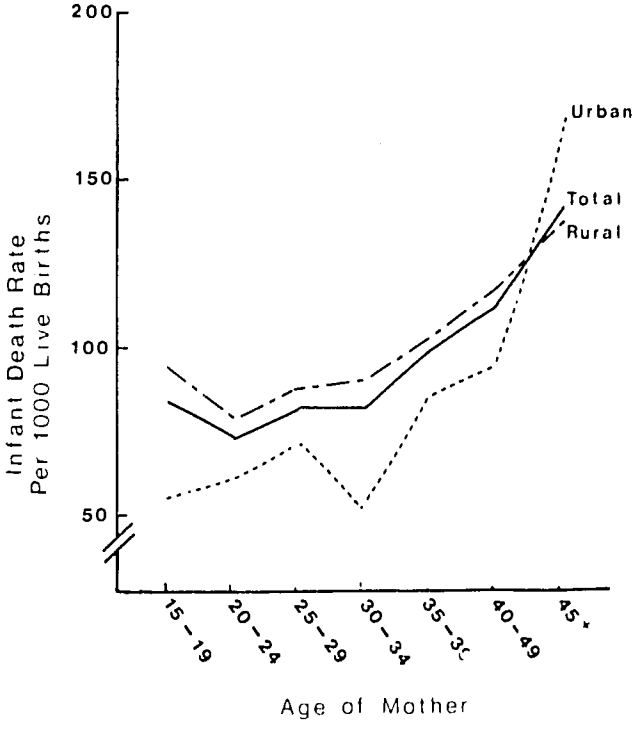
Figure 2.10. Perinatal Mortality Rates by Maternal Age and Number of Births--Ibadan, Nigeria, 1967-68



Source: Adapted from Nylander (1971), p. 176

Infant mortality. Several African studies demonstrate the J-shaped relationship of infant mortality with maternal age, with younger and older ages associated with higher child mortality. In a Ghanaian national study (Tawiah, 1979), the 1971 infant mortality rate for all maternal ages was 87 per 1,000 live births (67.8, urban; 93.6, rural). Intermediate maternal ages (20 to 34 years) were associated with lower infant mortality, while younger and older ages experienced higher risks in a J-shaped fashion. This was true for urban and rural areas (Figure 2.11) and both sexes (Figure 2.12), although the urban pattern was not consistent for the younger ages.

Figure 2.11. Infant Death Rates by Maternal Age and Residence--Ghana, 1971



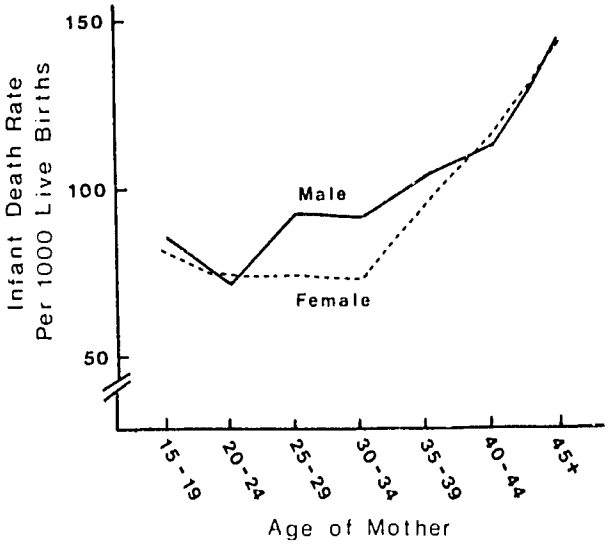
Source: Based on data from Tawiah (1979)

Maternal Age and Birth Weight

Experience Based on World Literature

Many studies have shown a consistent relationship between maternal age and child health and development.

Figure 2.12. Infant Death Rates by Maternal Age and Sex of Child--Ghana, 1971



Source: Based on data from Tawiah (1979)

> In regard to birthweight and prematurity, teenage girls and older mothers have been found to be more likely to bear a low weight baby.
>
> Maternal age has been found to be the family formation variable most strongly correlated with congenital malformation and handicapping conditions in children. These conditions, especially Down's syndrome, have been shown to increase in incidence with increasing maternal age, especially after age 30. (Omran, 1981:36)

The African Experience

Birth weight and prematurity. Birth weight and prematurity provide measures of infant physical development. Because birth weight data are available at virtually all hospitals, they are frequently used to give an indication of a newborn infant's health and maturity. While most studies support the general relationship of increasing birth weight as maternal age increases, prematurity of less than 2,500 grams (usually associated with high morbidity and mortality), is more frequent in teenage pregnancy. Some African studies of birth weight and prematurity are summarized in Catalogue 2.

Maternal Age and Maternal Health

Experience Based on World Literature

> The risk of maternal mortality describes a parabolic, or J-shaped, curve with maternal age. Minimal risk occurs for maternal ages in the early twenties, with high risk for teenage pregnancies, and higher risk for older mothers over 35. This relationship with maternal age is found for all major causes of mortality, including sepsis, toxemia, and hemorrhage, and in countries at all levels of maternal mortality
>
> A large number of maternal health conditions have been associated with maternal age. Antenatal complications, protraction disorders, diabetes, and hypertension have all been shown to increase at older maternal ages. Teenage pregnancies have increasingly become a major source of concern and have been shown to carry a high risk of toxemia, prolonged labor, Caesarian section, cervical laceration, and other obstetric complications and maternal health problems. (Omran, 1981:37-38)

The African Experience

Mothers' health in Africa, as anywhere else, is seriously affected by poorly timed pregnancies--those occurring very early (under age 20) or late (over age 35). At these ages, pregnancies carry higher than normal risk of maternal mortality and morbidity, as well as poor reproductive performance.

Maternal mortality. The risk of maternal mortality has a parabolic or J-shaped relationship with maternal age. Minimal risk occurs for maternal ages in the early 20s, with high risk for teenage pregnancies, and higher risk for mothers over 35. In a study of 2,791 Tanzanian primiparas, Arkutu (1978a) found incidence rates of maternal mortality were 3.5 per 1,000 for those under 20 and 1.3 for those aged 20-25. There were no maternal deaths at ages more than 26; however, the number of older primiparas in this study (typical of African norms) was small.

Obstetric performance and maternal morbidity. Omran and Omran (1977) compared the reproductive performance of teenagers and of women aged 20 to 24 in seven African and Asian maternity centers. Twenty-five percent of the teenagers had more than one pregnancy and 5 percent had a history of abortion. For those aged 20 to 24, 54 percent had more than one pregnancy and 12.4 percent had a history of abortion. The teenagers and their offspring fared worse than the older women (Table 2.2): teenage

mothers had higher risks of preterm deliveries, prolonged labor, hemorrhage, and puerperal complications. Babies born to teenage mothers had higher risks of perinatal or neonatal death. The purpose of this study was to convince teenage wives in Africa and Asia of the health benefits of postponing their pregnancies until they are 20 years or older.

Similar results were found in a study by Arkutu (1978b) in Tanzania in which 259 primigravida aged 15 or under had higher

Table 2.2. Reproductive Performance and Pregnancy Complications by Maternal Age--Seven Maternity Centers, Africa and Asia, 1976-77

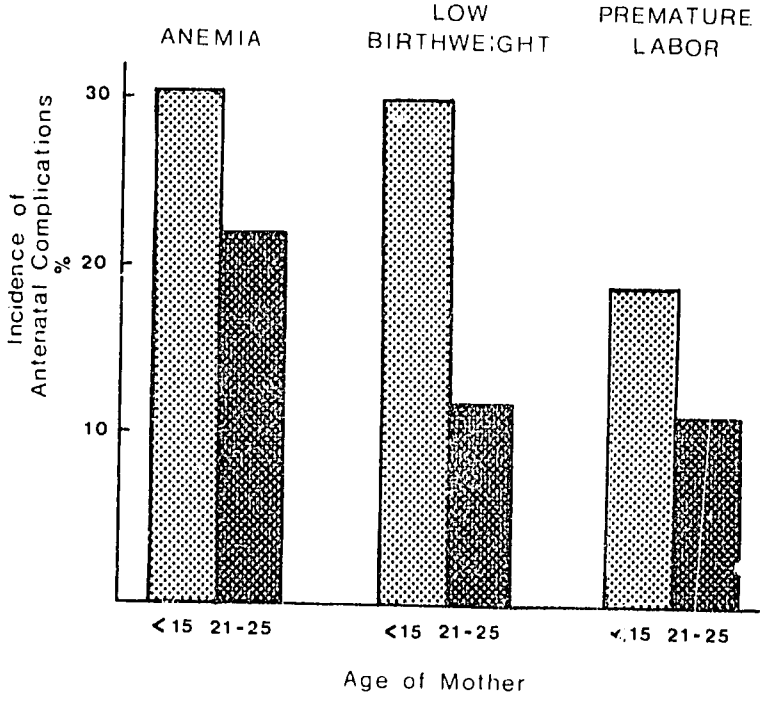
Condition	Maternal Age	
	% of Teenage Mothers (N = 624)	% of Mothers Aged 20-24 (N = 2273)
Multipara	25.3	53.9
History of abortion	5.8	12.4
Antenatal conditions		
Anemia	2.9	2.7
Preeclampsia & hypertension	6.8	7.9
Preterm (≤ 37 weeks) deliveries	17.9	13.2
Labor conditions		
Spontaneous deliveries	78.4	71.9
Prolonged labor	19.3	18.8
Cesarian section	12.6	10.3
Hemorrhage	3.5	2.5
Puerperal complication	6.5	4.2
Premature births	19.6	12.2
Mortality		
Neonatal deaths	4.5	3.5
Perinatal mortality among first deliveries		
Without antenatal care	6.1	5.7
With antenatal care	7.4	3.3

Source: Omran and Omran (1977)

incidence of anemia, premature labor, and low birth weight compared with 377 primigrande aged 21 to 29 (Figure 2.13). In another study, Arkutu (1978a) found that among 2,791 Tanzanian primiparas, those under age 20 and those age 30 and over had higher than average risks of premature labor. Primipara women over 30 also had the highest rate of vacuum extraction, Cesarian section, and prolonged labor. In fact, only 35 percent of the primiparas over 30 had their babies in less than two hours compared to 60 percent of the women under age 20. Seven of eight maternal deaths occurred at ages under 20; 50 percent of the deaths were from eclampsia. Perinatal mortality in this study rose steadily with age.

The J-shaped relationship with maternal age was also found in other studies for obstetric conditions such as anemia (Corrêa et al, 1975), pulmonary edema (Batambuze et al., 1976), peripartum myocardial failure (Seftel and Susser, 1961), uterine rupture (Hasan and Drouin, 1978), and genital prolapse (Cox and Webster, 1975).

Figure 2.13. Incidence of Antenatal Complications by Age of Mother--Dar-es-Salaam, Tanzania, 1976-77



Source: Based on data from Arkutu (1978b)

FACTOR THREE: BIRTH INTERVAL AND CHILD SPACING

A woman needs two to three years between pregnancies to recover fully from one and prepare for another. With a shorter birth interval, there is a greater risk of mortality for both the mother and her baby. The term *birth interval* is often used in the literature without a clear definition. Described below are five different types of birth intervals.

Interbirth interval. The interval between two successive births, including live or stillbirths, is termed the *interbirth interval.* It will miss an intervening pregnancy ending in abortion or fetal loss; if the second child is born prematurely, the interval is automatically shortened by a couple of weeks. There is also a possibility of bias because of underreporting of stillbirths.

Interlive birth interval. The interval between two successive live births is called the *interlive birth interval.* Its one advantage over the interbirth interval is that the measure only includes live births, usually reported more frequently than stillbirths in surveys. It still disregards intervening pregnancies, however, which do not end in a live birth, and the interval is also shortened if the second child is born prematurely.

Interconception interval or onset-to-onset interpregnancy interval. The *interconception interval* is the interval between the onset of one pregnancy and the onset of a subsequent one. It has a disadvantage because the exact onset of pregnancy cannot usually be accurately identified in interview surveys. If one or both pregnancies end in abortion, fetal loss, or preterm birth, the interval is automatically shortened.

End-to-onset interpregnancy interval. The *end-to-onset interpregnancy interval* is between the end of a pregnancy (whether the outcome was a live birth, stillbirth, or fetal loss) and the onset of a subsequent pregnancy, usually measured as the date of the last menstrual period. This interval, also termed *pregnancy spacing*, suffers from a possibility of bias because of underreporting of unsuccessful outcomes and difficulty in accurate identification of the onset of the next pregnancy.

Pregnancy interval or end-to-end interpregnancy interval. The *pregnancy interval* comes between the end of one pregnancy (regardless of the outcome) and the end of the subsequent pregnancy (again, regardless of the outcome). A source of bias is the underreporting of unsuccessful outcomes.

Birth Interval and Child Health

Experience Based on World Literature

> Prevailing medical opinions favor spacing of pregnancies in order to allow restoration of health of mothers, to safeguard the health of the offspring and to enable mothers to breastfeed their children without the added burden of a new pregnancy.
>
> Studies from developed countries and recently from developing countries have shown an association of short birth intervals and higher risks of poor outcome of subsequent pregnancy, child mortality and malnutrition, poor physical and intellectual development, as well as high maternal risks. The effects are not only associated with the preceding, but also with the succeeding intervals. It follows that both the displaced child and the displacing child are affected. Birth interval effects are by no means entirely independent of those of age and parity.
>
> Research concerning the influence of birth interval on family health is relatively scanty and fraught with methodological problems. This is an area for further investigation, especially in developing countries where the factors of lactation and nutrition play an important part in these interactions. (Omran, 1981:40)

The African Experience

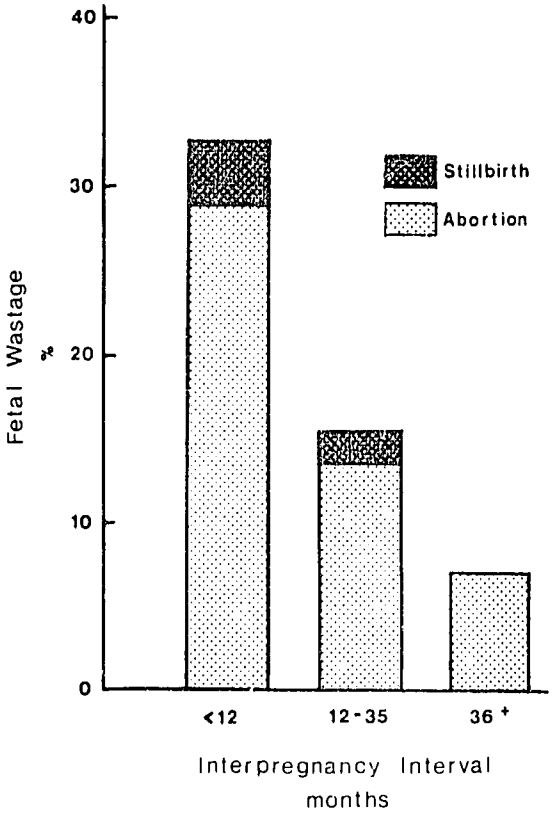
The African experience documents the increased hazards associated with short pregnancy intervals, particularly those less than two years (Catalogue 3).

Fetal loss. Kamel et al. (1974) found an inverse relationship between fetal wastage (for both stillbirths and abortions) and interpregnancy interval among 350 currently married women 15 to 45 years of age in rural Kome El-Birkah, Egypt (Figure 2.14). Fetal wastage was lowest for interpregnancy intervals of more than 36 months; indeed, there were no stillbirths among women in this group.

Using a more refined measure of pregnancy interval, El-Sherbini et al. (1981) found an additional increase in pregnancy wastage at more prolonged pregnancy intervals (more than six years), resulting in a reverse J-shaped relationship with pregnancy interval (see Chapter 4 for details of El Sherbini's study).

Infant and child mortality. Addo and Goody (1975) examined the impact of birth interval on infant or child mortality in the nationwide study of siblings in Ghana based on interview of

Figure 2.14. Type of Pregnancy Wastage by Duration of Interpregnancy Interval--Kome El-Birkah, Egypt, 1969-70



Source: Based on data from Kamel et al. (1974)

9,392 women (6,028 urban and 3,364 rural). Table 2.3 shows that mortality levels were higher in rural than urban areas and higher in infancy than at ages one to four years. Within each residential category, children born soon after a previous birth had a greater probability of dying during infancy or early childhood than children separated by longer birth intervals. This pattern was observed at each parity indicating an influence independent of parity. For example, there were as many as three to four times the proportion of infant mortality among the children born at periods less than a year apart than among children spread between three to four years apart.

Nutritional value of breast milk. Kader et al. (1972) studied the effects of age, parity, and interdelivery interval on the composition of breast milk. The sample consisted of 238 women

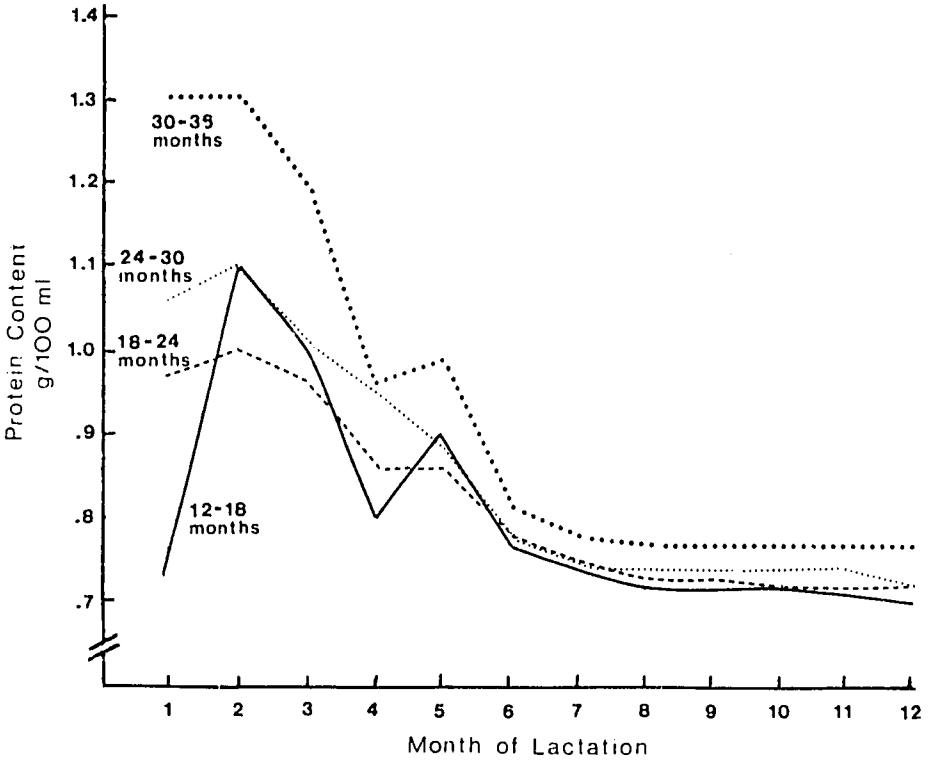
Table 2.3. Proportion of Child Deaths by Birth Interval, Age at Death, and Residence--Ghana, 1972

Birth Interval (years)	% of Child Deaths by Age						No. of Children	
	0		1-4		5+			
	U	R	U	R	U	R	U	R
0	16.5	23.0	12.1	7.9	5.1	2.1	389	191
1	10.4	10.5	9.6	10.2	3.7	3.5	1534	1191
2	5.0	6.7	4.1	6.4	2.1	1.7	7923	4539
3	2.7	6.7	2.7	5.0	2.2	1.5	4304	2640
4	1.7	4.5	3.1	4.8	1.8	1.8	1495	1197
5+	2.4	5.2	2.2	3.7	2.2	1.9	1395	980
All intervals	4.7	7.0	4.2	6.1	2.3	1.9	17030	10666

Source: Adapted from Addo and Goody (1975), p. 59
Note: U = urban; R = rural

who had normal deliveries at Al-Azhar University Hospital, Cairo. The women were chosen at random from patients with low socioeconomic status and their ages ranged from 18 to 36 years. The milk was analyzed for protein, lipid, and lactose content at one-month intervals during the first year of lactation. The authors found that the quality of breast milk declined markedly after six months of lactation. Within that six-month period, the level of protein content of the milk was found to be related to interdelivery interval (Figure 2.15). This study indicates that long birth intervals improve the nutritional status of the index child, although supplements are necessary after six months, no matter how long the interval.

Figure 2.15. Protein Content of Milk by Month of Lactation and Interdelivery Interval--Egypt



Source: Adapted from Kader et al. (1972), p. 404

CATALOGUE 1. PARITY/BIRTH ORDER CORRELATES

Author(s)	Study period	Region	Population	Findings
Fetal Mortality				
El-Sherbini et al. (1981)	1975-76	Alexandria & Assiut, Egypt	24,975 pregnancies reported by 4,861 women	Total pregnancy wastage increased with pregnancy order
Reinhardt et al. (1978b)	1974-75	Adjamé Maternity Hospital, Abidjan, Ivory Coast	7,433 deliveries	Incidence of spontaneous abortion 2.8/100 deliveries; U-shaped relationship between spontaneous abortion & parity
Rushwan (1979)	1974-76	3 major hospitals, Khartoum, Sudan	2,447 patients treated for incomplete abortion	U-shaped relationship between incomplete abortion & parity
Radovic (1966)	Not stated	Tema General Hospital, Ghana	569 maternity cases	Fetal mortality rate for multipara (4+) = 6 times primipara's
Roberts & Tanner (1963)	1952-57	Murgwanza Maternity Clinic, Tanzania	1,624 pregnant Hangaza women	Mean no. unsuccessful pregnancies increased with parity
Neonatal and Perinatal Mortality				
Harrison (1979)	1976-77	Ahmadu Bello Hospital, Zaria, Nigeria	12,262 hospital maternity cases	U-shaped relationship between perinatal mortality & parity for all age groups

Author(s)	Study Period	Region	Population	Findings
Armon & Alwani (1978)	1973-78	Kilimanjaro Christian Medical Center, Moshi, Tanzania	580 singleton breech deliveries of 20,275 hospital deliveries	Breech delivery incidence 2.9%; multigravidas almost twice fetal loss of primigravidas (6.2% mortality vs. 3.6%)
Meme (1978)	1975	Kenyatta National Hospital, Nairobi, Kenya	276 cases analyzed out of 1,595 live births	Neonatal mortality rate 53.3/1,000 live births; U-shaped relationship between neonatal mortality & birth order
Omran (1978)	1977-78	12 maternity centers in Africa, Asia & Europe	50,779 maternity cases	Increase in perinatal mortality for higher birth-order children; higher risk for first-born in some centers
Nylander (1971)	1967, 1968	3 hospitals, Ibadan, Nigeria	12,809 hospital births	J-shaped relationship between perinatal mortality & parity
Infant Mortality				
Sierra Leone, MOH & WHO (1980)	1973-75	Greater Freetown, the Western Area & Makeni, Sierra Leone	3,229 households	Flattened J-shaped relationship between infant mortality rate & parity
Blacker (1979)	1977-78	Kenya	Birth histories from Kenya Fertility Survey (number not stated)	First-order births subject to infant mortality rate 35% higher than 2nd-, 3rd-, 4th-order births

Author(s)	Study Period	Region	Population	Findings
Ayeni & Oduntan (1978)	1971-75	Igbo-Ora, Nigeria	6,576 corrected registration returns	5-year infant mortality rate 68.2/1,000 live births; positive relationship between IMR & birth order
Addo & Goody (1975)	1972	Ghana (national data)	9,392 women interviewed (6,028 urban, 3,364 rural)	J-shaped relationship between infant & child mortality & parity
Child Mortality				
Cantrelle & Leridon (1971)	1962-68	Sine (Niakhar) area, rural Senegal	House-to-house survey of women having births (8,456)	Probability of mortality at minimum for intermediate parities; mortality higher in 1st year for grand multiparity (7+)
Hauck (1963)	1960	Awo Omamma Maternity Home, Ibo, Nigeria	493 women with 2,174 previous pregnancies registered at antenatal clinic	Fetal deaths in 11 of pregnancies; trend toward higher child mortality with increasing parity
Nutrition				
Khan & Gupta (1979)	1976	Children's (University Teaching) Hospital, Lusaka, Zambia	200 malnourished children admitted to hospital	Relationship between malnutrition & large family size (coupled with poor socioeconomic status)

Author(s)	Study Period	Region	Population	Findings
El-Behairy et al. (1976)	Not stated	Al-Hussein Hospital, Cairo, Egypt	208 children under pediatric care	Statistically higher case fatality among malnourished children (27.4%) than normal (16.8%); malnutrition more frequent from 3rd birth order on
Morley et al. (1968)	1957-62	Imesi, Nigeria	104 children selected from records of 405 children < 5 in Imesi	Underweight children more frequently above birth order 7, especially if mother underweight
Hefnawi et al. (1972)	Not stated	Al-Azhar University Cairo, Egypt	238 women aged 18-36 with normal deliveries randomly selected from lower socioeconomic classes	Milk yields increased significantly from 2nd month to maximum at 7th month, then gradually decreased; milk yields better in womem aged 21-30 with parities 2-4 than in younger primipara and older multipara (4+) women
Preterm Delivery				
Omran (1978)	1977-78	12 maternity centers in Africa, Asia, & Europe	50,779 maternity cases	U-curve relationship between prematurity rate & parity

Author(s)	Study Period	Region	Population	Findings
			Birth Weight	
Rehan & Tafida (1979)	Not stated	Northern Nigeria	1,460 Hausa infants	Increasing birth order associated with higher birth weight irrespective of maternal age
Reinhardt et al. (1978a)	1975	Adjamé Maternity Hospital, Abidjan, Ivory Coast	204 consecutive deliveries	U-curve relationship between rate of prematurity & parity, with lowest rates at parities 2 & 3; birth weight increases with parity
Reinhardt et al. (1978b)	1974-75	Adjamé Maternity Hospital, Abidjan, Ivory Coast	Records of 7,433 deliveries	Significantly lower mean birth weight in primiparas than multiparas
Gebre-Medhin et al. (1976)	1964-68	Ghandi Memorial Hospital, Addis Ababa, Ethiopia	9,070 deliveries	Tendency for birth weight to increase systematically with maternal age & parity
Oduntan & Ayeni (1976)	Not stated	Maternal & Child Health Units, Ibadan & Igbo-Oro, Nigeria	541 urban & 570 rural singleton deliveries to low socioeconomic status mothers	Reverse J-curve relationship between parity & incidence of low birth weight, with lowest rates at parities 2 & 3
Lewis (1974)	1953-55 1962-64 1971-73	3 hospitals & 6 health centers, rural Cameroon	8,071 singleton deliveries	Mean birth weight increases for multiparas

Author(s)	Study Period	Region	Population	Findings
Cavelier & Le Berre (1973)	1968	Yaounde, Cameroon	1,609 birth weights recorded at maternity clinic	Birth weight increased with increasing birth order
Courtney (1973)	1970-71	General Hospital, Benin City, Nigeria	5,000 deliveries	Mean birth weight for primiparas
Roberts & Tanner (1963)	1952-57	Murgwanza, Tanzania	1,624 pregnant Hangaza women	Birth weight increases with parity
Parasitic Disease				
Eid et al. (1981)	1972-76	Rural & urban areas, Assiut, Egypt	3,767 children < 5 years of age	Prevalence of parasitic infestation decreased with family size
Intellectual Development				
Hammam et al. (1981)	1972-76	Industrial area, Alexandria, Egypt	1,330 children ages 6-15 years	Standardized I.Q. scores decreased gradually with increase in family size; higher I.Q. scores associated with lower birth orders (< 7)
Maternal Mortality				
Hickey & Kasonde (1977)	1974-76	University Teaching Hospital, Lusaka, Zambia	80 maternal deaths in 51,386 deliveries	Maternal mortality rate 1.5/1,000 live births; risk of mortality higher among grand multiparas (numerator analysis)

Author(s)	Study Period	Region	Population	Findings
Ojo & Savage (1974)	1962-71	University College Hospital, Ibadan, Nigeria	183 maternal deaths in 22,280 deliveries	Maternal mortality rate 8.2/ 1,000 live births; risk of mortality higher at high parities (numerator analysis)
Oram (1974)	1970-73	Mpilo Maternity Hospital, Zimbabwe	500 consecutive grand multipara (8+) patients admitted to maternity hospital in 22,000 cases	Maternal mortality rate 2.0/ 1,000 live births to grand multiparas
Radovic (1966)	Not stated	Tema General Hospital, Ghana	569 maternity cases	Positive relationship between high parity & labor complications, Cesarian section, maternal mortality
Maternal Morbidity				
Omran (1978)	1977-78	12 maternity centers in Africa, Asia, & Europe	50,779 maternity cases	Positive association between parity & anemia, Cesarean section, need for blood transfusion, prevalence of antenatal conditions

CATALOGUE 2. MATERNAL AGE CORRELATES

Author(s)	Study Period	Region	Population	Findings
			Fetal Mortality	
Omene & Diejomaoh (1977)	1974-75	University of Benin Teaching Hospital, Nigeria	1,310 consecutive births	Fetal death rate has reverse J-curve relationship with maternal age
Oronsaye (1979)	1974-77	University of Benin Teaching Hospital, Nigeria	8,982 women admitted for delivery	Rate of previous abortions increased with maternal age
Sierra Leone, MOH & WHO (1980)	1973-75	Freetown, Sierra Leone	3,229 households	Stillbirth ratio has J-curve relationship with maternal age
Kamel et al. (1974)	Not stated	Kome El-Birkah, Egypt	305 married women	High rates of spontaneous abortion in women age 20 or less
Gebre-Medhin et al. (1976)	1964-68	Ghandi Memorial Hospital, Addis Ababa, Ethiopia	9,070 maternity hospital deliveries	Stillbirth rate increased steadily with maternal age
El-Sherbini et al. (1981)	1972-76	Alexandria & Assiut, Egypt	4,861 married women < age 45	U-curve relationship between maternal age & stillbirths for urban women; U-shape less uniform for rural & industrial women; J-curve relationship between maternal age & total pregnancy wastage

Author(s)	Study Period	Region	Population	Findings
Neonatal and Perinatal Mortality				
Meme (1978)	1975	Kenyatta National Hospital, Nairobi, Kenya	1,595 total hospital births	J-curve relationship between neonatal deaths & maternal age
Voorhoeve et al. (1979)	1975-76	Rural area, Machokos, Kenya	3,700 households with 2,246 births	Maternal age 25 & 34+, breech delivery, history of previous perinatal deaths associated with high perinatal mortality
Arkutu (1978a)	1976-77	Dar-es-Salaam, Tanzania	2,791 primiparas delivered	Perinatal mortality risk increased with maternal age
Nylander (1971)	1967-68	3 hospitals, Ibadan, Nigeria	12,809 hospital births	J-curve relationship between maternal age & perinatal mortality
Harrison (1979)	1976, 1977	Ahmadu Bello University Hospital, Zaria, Nigeria	12,262 hospital maternal cases	Maternal age & parity associated with perinatal mortality
Infant Mortality				
Tawiah (1979)	Not stated	Ghana (national data)	18,982 births	J-curve relationship between maternal age & infant death rates
Ayeni & Oduntan (1978)	1971-75	Ibgo-Ora, Nigeria	6,576 registered births, 580 registered infant deaths	J-curve relationship between maternal age & infant mortality

Author(s)	Study Period	Region	Population	Findings
Sierra Leone, MOH & WHO (1980)	1973-75	Sierra Leone	3,229 households	U-curve relationship between maternal age & infant mortality rates
Child Health/Low Birth Weight				
Arkutu (1978b)	1976-77	Dar-es-Salaam, Tanzania	259 primigravidas aged < 15, 377 primigravidas age 21-25	< age 15 had statistically higher proportion low birth weight babies (30% vs. 12.7%)
Eifong & Banjoko (1975)	1967 1973 1972-73	Lagos University Teaching Hospital, Nigeria	200 primigravidas < age 16, 100 controls age 22	< age 16 had 14% low birth weight babies; controls had 8%
Gebre-Medhin et al. (1976)	1964-68	Addis Ababa, Ethiopia	9,070 maternity hospital deliveries	Birth weight positively related to maternal age; low birth weight prevalence 13.4% in ages 15-19; 5.9% in ages 40-44
Oduntan & Ayeni (1976) Oduntan et al. (1977)	Not stated	Ibadan & Ibgo-Ora, Nigeria	540 urban, 571 rural Nigerian babies	Low birth weight incidence, ages 15-19 = 16.9%, 10.2%, ages 20-24; in primiparas, incidence = 21.5% (ages 15-19); 19.6% (ages 20-24); 8.7% (ages 25-29); 10.2% (ages 30-34)

Author(s)	Study Period	Region	Population	Findings
Rehan & Tafida (1979)	1975-76	Katsina, Nigeria	1,460 singleton Hausa babies	Highest incidence of low birth weight babies among ages 18 years or less; even greater association between low birth weight and parity
Adelusi & Ladipo (1976)	1973-74	University College Hospital, Ibadan, Nigeria	1,193 Nigerian women, 1,290 deliveries	No relationship between maternal age & fetal birth weight
Simpkiss (1968)	1956-57	Mulago Hospital, Kampala, Uganda	2,068 consecutive deliveries	At constant parity, maternal age has no effect on birth weight except in very young mothers
Omran (1978)	1977-78	12 maternity centers, Africa, Asia, & Europe	50,779 maternity cases	U-curve relationship of prematurity rate with maternal age
Maternal Health				
Omran & Omran (1977)	1976-77	7 African & Asian maternity centers	624 teenagers, 2,273 women age 20-24	Higher prevalence of preterm deliveries, prolonged labor, hemorrhage & puerperal complication in teenage mothers; their babies had higher risks of perinatal & neonatal death
Arkutu (1978a)	1976-77	Dar-es-Salaam, Tanzania	2,791 primiparous deliveries	Preeclampsia incidence increased with maternal age

Author(s)	Study Period	Region	Population	Findings
Arkutu (1978b)	1976-77	Dar-es-Salaam, Tanzania	Maternity hospital cases: 259 primigravidas < age 15, 377 primigravidas age 21-29	< age 15 had higher incidence of anemia (30.5% vs. 22.0%), premature labor (18.9% vs. 10.9%), low birth weight (30.1% vs. 12.7%); lower incidence of mild preeclampsia (8.1% vs. 13.3%)
Osinusi (1976)	1968-69	University College Hospital, Ibadan, Nigeria	Case reports: 496 primigravidas	Positive relationship between maternal age & labor duration
Efiong & Banjoko (1975)	1967-73	Lagos University Teaching Hospital, Nigeria	200 primigravidas < age 16 (95 with adequate antenatal care, 105 without), 100 controls age 22	Higher incidence of preeclampsia & low birth weight among teenage mothers, especially those with inadequate antenatal care
Corréa et al. (1975)	Not stated	Dakar, Senegal	412 pregnant women	Anemia more prevalent in women age 15-19 than in older women
Onifade et al. (1970)	1966-69	University College Hospital, Ibadan, Nigeria	6,590 deliveries	Higher incidence of eclampsia in young mothers

Author(s)	Study Period	Region	Population	Findings
Akinkugbe (1976)	1967-71	Urban residents, Ile-Ife, Nigeria	4,590 deliveries	Highest incidence of severe preeclampsia in young primigravida; incidence rates rising in relation to increasing parity after 3rd pregnancy
Nhonoli (1974)	1971-72	Dar-es-Salaam, Nigeria	170 pregnant women	No variation in mean hemoglobin levels between age groups
Fathalla & Kamal (1964)	1962	Cairo, Egypt	300 pregnant women	Anemia more prevalent among high parity women
Batambuze et al. (1976)	1962-72	Mulago Hospital, Kampala, Uganda	137 case records of cardiovascular disease	Correlation between maternal age & incidence of pulmonary edema: ages 15-20 (24.2%), 21-30 (20.2%), 30+ (36.4%)
Nasah & Dreuin (1978)	1973-76	University of Yaounde Hospital, Cameroon	70 ruptured uterus cases in 36,977 deliveries	Grand multiparity & maternal age 35+ most important risk factors associated with uterine rupture

CATALOGUE 3. BIRTH INTERVAL CORRELATES

Author(s)	Study Period	Region	Population	Findings
			Infant/Child Mortality	
Kamel et al. (1974)	1969-70	Kome El-Birkah, Egypt	350 currently married women aged 15-45	Short interpregnancy intervals associated with high fetal wastage, in stillbirths & abortions
El-Sherbini et al. (1981)	1972-76	Alexandria & Assiut, Egypt	24,979 pregnancies reported by 4,861 women	Reverse J-curve relationship between pregnancy wastage and pregnancy interval: highest proportion when interval < 2 years
Addo & Goody (1975)	1972	Ghana (national data)	9,392 interviewed women (6,028 urban and 3,364 rural)	Within each residential category & at each parity level, children born soon after previous birth had greater probability of dying during infancy/early childhood than those separated by longer birth interval; 3-4 times more infant deaths among children of intervals < 1 year than at 3-4 year intervals

Author(s)	Study Period	Region	Population	Findings
Doyle et al. (1978)	1962-69	Imesi, Western Nigeria	537 Imesi mothers interviewed	Short birth intervals did not adversely affect child survival/growth. N.B.: authors used years between births as interval, so missed abortions & hence intervals are artificially long
Child Health and Development				
El-Behairy et al. (1976)	Not stated	Al-Hussein Hospital, Cairo, Egypt	298 children attending outpatient clinic	Mean birth interval between study child & previous sibling slightly longer in normal children than interval for malnourished children; other factors: age of child, birth order, history of previous child deaths
Kader et al. (1972)	Not stated	Al-Azhar University Hospital, Cairo, Egypt	238 low socioeconomic status women age 18-36 years, who had normal hospital deliveries	Breast milk quality (protein, lipid, lactose content) declined markedly after 6 months' lactation; long birth intervals improve nutritional status of index child, though supplements necessary after 6 months, regardless of birth interval

Author(s)	Study Period	Region	Population	Findings
Omran (1978)	1977-78	7 maternity centers, Africa, Asia, & Europe	13,844 maternity cases	Relative risk of prematurity: 1.5-2.0 for short (21 months) vs. long (30+ months) birth intervals in 5 of 7 centers

3 Health Risks of Childbearing in East Africa

Andrew R. Arkutu, M.B.Ch.B., M.R.C.O.G.

Anyone attempting to write about the health situation in Africa is immediately confronted by two facts: (1) the basic similarity of the health problems throughout the continent and (2) the lack of relevant and reliable data on which to base firm and valid conclusions.

In this chapter, I discuss patterns of health risks of childbearing against the background of existing health services and practices in four East African countries: Ethiopia, Kenya, Tanzania, and Uganda. In 1982, these four countries had a combined population of over 80 million people (Ethiopia, 30.5 million; Kenya, 17.9 million; Tanzania, 19.[illegible] million; and Uganda, 13.7 million) spread over an area of some 2,986,000 square kilometers. With the exception of Kenya, these countries are among the 25 poorest in the world.

In common with other African and developing countries, they share certain demographic characteristics:

- A relatively young population
- More than 70 percent of the population comprised of women in the reproductive age group (15 to 44) and children under 15 years
- Uneven population distribution

- A predominantly rural population with the majority of people living in small scattered villages

- High rates of population increase attributed to relatively high fertility rates which are, in turn, associated with declining mortality rates

Mortality and Morbidity Levels in East Africa

No one knows for sure how many women in East Africa die every year from the complications of pregnancy or childbirth, nor is there an accurate account of how many children die from birth complications, infections, or malnutrition before their fifth birthday. Certainly no records are kept of morbidity, chronic ill health, physical and mental injury, or pain and suffering resulting from pregnancy or childbirth.

None of the East African countries has a system of vital registration enforceable throughout the country. Even where the law prescribes it, as for example in Kenya and Tanzania, there is serious underreporting of marriages, births, and deaths even in the major cities and towns. In the rural areas, reports of such events are the exception rather than the rule. Official mortality and morbidity rates are only estimates based on incomplete returns, mostly from urban hospitals and clinics. At best, these estimates reflect the experience of the reporting institutions and provide no reliable indication of what may be happening in the country as a whole, especially in the rural areas.

Mortality rates differ widely from region to region and district to district (Armon, 1979; Grech, Galea, and Trusell, 1969); rural death rates are generally several times higher than urban rates (Gaisie, 1976); urban-rural and regional differences can often be explained on the basis of the proportion of inhabitants who have access to and use health care facilities (Grech, Galea, and Trusell, 1969).

Maternal Mortality and Morbidity

Maternal mortality rates in East Africa, as in other parts of the continent, are appallingly high and are, in general, 10 to 20 times higher than in the more developed countries (Table 3.1). A comparison of data from various institutions in East Africa (Table 3.2) reveals six clinical entities as constituting the major causes of maternal mortality and morbidity. Bantu pelvis (Sibthorpe and Allbrook, 1958), so common in East Africa, predisposes a woman to prolonged and obstructed labor. Especially with repeated pregnancies, this condition leads to a high incidence of ruptured uterus, intrauterine infection, perinatal

fetal loss, maternal death, and morbidity. Death may be due to a combination of shock and exhaustion in many of these cases.

Table 3.1. A comparison of Maternal Mortality Rates (MMR)--East Africa and Selected Countries 1970-78

Year	Country	MMR Per 100,000
1974	Uganda	295
1978	Tanzania	270
1978	Ethiopia	200
1970	Kenya	188
1977	England & Wales	11.9
1976	United States	11.8
1978	Sweden	6.4

Source: UNDIESA (1980) and estimations by author

Sepsis often complicates premature rupture of membranes, prolonged labor, operative delivery, or abortion, and, in women with lowered resistance, shock soon supervenes, leading rapidly to death. The risk of sepsis is increased by overcrowding in the wards, poor sterilization of instruments and equipment, and inadequate standards of asepsis.

Hemorrhage (antepartum, postpartum, and hemorrhage associated with abortion or ruptured ectopic gestation) ranks as the most important preventable cause of maternal deaths in these countries. Hemorrhage is often a major contributory factor in deaths attributed to other causes such as ruptured uterus or Cesarian section. Its prominence as a cause of death is related to two unfortunate situations: the high incidence of severe preexisting maternal anemia which aggravates even relatively minor losses of blood, and the scarcity of banked blood in most obstetric units.

Preeclampsia and eclampsia are the second and third ranking causes of maternal deaths in East Africa, but there are wide regional variations in incidence and severity. For example, the condition is uncommon in the northeast and northwest (Mwanza and Moshi) of Tanzania compared with the coastal regions and the area around Dar-es-Salaam. A combination of several factors, notably poor host resistance and a shortage of trained and experienced personnel, contributes to a high case fatality.

Another cause of maternal mortality in Africa is abortion

Table 3.2 Comparative Statistics for Maternal Deaths--East Africa and the United Kingdom

% of total deaths from:	United Kingdom 1967-69 (confidential enquiries HMSO)[1] N = 698	Kampala, Uganda (departmental report)[1] N = 69	Muhimbili Med-Centre 1978 (departmental report) Dar-es-Salaam, Tanzania[2] N = 50	KCMC Tanzania 1971-77 (present report)[1] N = 80
Ruptured uterus	2.6	21.7	12.0	12.5
Hemorrhage	5.9	13.0	18.0	13.8
Sepsis	3.7	15.9	18.0	7.5
EPH gestosis	7.6	5.8	18.0	8.7
Abortion	17.5	11.6	20.0	7.5
Pulmonary embolism	10.7	1.0	2.0	1.3
Miscellaneous obstetric causes	17.2	3.4	2.0	5.0
Associated disease	34.8	27.6	10.0	43.7
Total	100	100	100	100

Sources: (1) Armon (1979); (2) Muhimbili Med-Centre (1978).

complications. Although it is difficult to compute reliable figures of induced abortion, estimates from the urban centers such as Addis Ababa, Dar-es-Salaam, Kampala, Nairobi, and others indicate that this condition is not uncommon. Death, in these cases, is frequently caused by hemorrhage, sepsis, or perforation of the uterus with injury to internal organs.

A large number of pregnant women die from diseases associated with pregnancy (Armon, 1979). In East Africa, the major associated diseases show regional variations and include anemia, sickle cell disease, enterocolitis, infectious hepatitis, and malaria. Although morbidity statistics are not kept, even by major institutions, every practicing obstetrician in East Africa knows from experience the magnitude of the problem of maternal morbidity and the terrible suffering many women endure as a result of pregnancy or childbirth complications. Chronic poor health and susceptibility to minor illnesses caused by lowered resistance, anemia, and subclinical malnutrition, are the common lot of the African grand multipara. Pelvic inflammatory disease and secondary infertility resulting from previous pregnancies prevail. Cervical cancer is occasionally encountered.

Infant Mortality and Morbidity

Hard data on perinatal, infant, and early childhood deaths and morbidity are even more scarce than statistics on maternal mortality, because of serious underreporting. Perinatal and neonatal death rates are high, averaging over 50 per 100,000 births. Furthermore, reported figures only relate to deaths occurring within the maternity ward or clinic. Since mothers and their newborn babies are commonly discharged from the hospital within 24 hours of delivery, unless there is a good reason for detaining them, neonatal deaths may be even higher because deaths occurring thereafter at home may not be reported. By far the most common causes of perinatal deaths are prematurity, low birth weight, infection, and asphyxia due to inadequate intrapartum care and birth trauma.

In East Africa, as in other developing regions with poor environmental sanitation, four groups of diseases account for the majority of infant and early childhood deaths:

1. Diseases transmitted by human feces, for example, the intestinal parasitic and diarrheal diseases: typhoid, cholera, and poliomyelitis

2. Airborne diseases, such as measles, tuberculosis, whooping cough, bronchitis, and pneumonia

3. Protein malnutrition and avitaminosis

4. Malaria, meningitis, and tetanus contribute to early childhood deaths; in parts of Uganda and northwest Tanzania, sickle cell disease is an important cause of death.

Determinants of Family Formation Patterns

In traditional African society, family formation patterns are influenced by cultural and social values which place a high premium on fertility. Marriage is universal. Early marriage is the rule and, in most ethnic groups, girls are often betrothed by the time of menarche. In rural areas of Ethiopia, Tanzania, and Kenya the legal age to marry is 15 years for girls and 18 years for boys. Pregnancy and the birth of the first child often occur within two years of marriage.

Polygamy is universally practiced and acceptable, even among the educated. Divorce is comparatively easy to obtain, with infertility and childlessness accepted grounds for divorce. On the other hand, fecundity and high parity are regarded as great attributes and blessings.

A large family confers social prestige, and children are regarded as an economic asset: in the short run, they provide a ready and cheap labor force; in the long run, they provide social and economic security in old age. Traditional practices and taboos such as prolonged breast feeding and coital abstinence during lactation were designed to protect the health of children and not to limit family size.

The high rates of infant and childhood mortality cause parents to overinsure against anticipated child losses, especially when such losses occur early in reproductive life. As a consequence, for millions of women in East Africa, as in other parts of Africa, early marriage is followed by three decades of an unregulated succession of pregnancies, childbirth, and lactation. But each pregnancy entails a risk of injury to the life or health of the mother and offspring. Every successive pregnancy is a drain on the mother's physical, nutritional, and emotional resources.

Maternal Age

Most Africans do not know their exact age and few reliable studies involve the age of mothers. In Tanzania, 70 percent of primiparas are below the age of 20 and most first births occur between ages 16 and 17. In a study of 2,791 Tanzanian primiparas, Arkutu (1978a) found a refersed J-shaped correlation between maternal age and the risk of death. The risk of fetal death displays the familiar U-shaped correlation with maternal age found in studies elsewhere. Clinical experience also suggests that the risk of postneonatal or infant death is greatest

among very young mothers and those over age 40.

Parity

The influence of parity on the health of the mother and the outcome of pregnancy has been extensively studied since James Matthews Duncan first drew attention to the hazards of increasing parity (Duncan, 1866). The first birth carries a slightly higher risk of maternal and fetal death than the second or third. However, the risk of complications, maternal death, stillbirth, infant and childhood mortality begins ro rise steeply with the fourth and every successive child. This has been shown to be true in all societies and at all socioeconomic levels. In Africa, however, the association of maternal mortality with increasing parity awaits further research. Results from an unpublished study of mine in Tanzania involving 25,000 deliveries confirm the curvilinear relationship with various obstetric complications, but fail to demonstrate a positive correlation between maternal death and parity.

Family Size

The large family undoubtedly has an adverse effect on the survival chances of the offspring. Children from a large family are more likely to suffer from undernourishment and to be exposed to more infections to which they readily succumb, particularly in the poorest families.

Birth Order

Birth order significantly influences the risk of morbidity and mortality, a fact well known in many African societies. The first-born is at greater risk than the second, third, or fourth child, but the magnitude of the risk to the fifth-born equals that of the first-born. Speed (1970) reported that in Rwanda, 20 percent of fifth-born and 40 percent of ninth-born infants died before their first birthday.

Birth Interval

The relationship of birth interval to maternal and infant morbidity and mortality has long been recognized in the traditional African society which frowns on closely spaced pregnancies. The practice of wives returning to their parents' home for up to two years after giving birth and the taboo on coitus by nursing mothers were invoked to prevent kwashiorkor and to safeguard the good health and nutritional status of the baby. It is a source of social embarrassment for a woman to conceive before the last baby has been weaned, or is able to walk. Jelliffe (1966) describes the effects of too many pregnancies too close together on the health of the mother as the maternal depletion syndrome.

Research on Family Formation Patterns and Health in East Africa

There has been surprisingly little recent research in East Africa in the substantive area of maternal and child health and family planning. The scarcity of research results is compounded by a number of factors:

1. Most studies have focused on the clinical rather than the epidemiological aspects of disease. This reflects the professional orientation and interest of the researchers and the bias of the African health services towards curative, hospital-based practice.

2. Studies designed to identify health issues of community or national concern, to examine approaches to health care delivery, or to establish a rational basis for health-sector planning and resource allocation have, in general, received little attention from physicians and health planners.

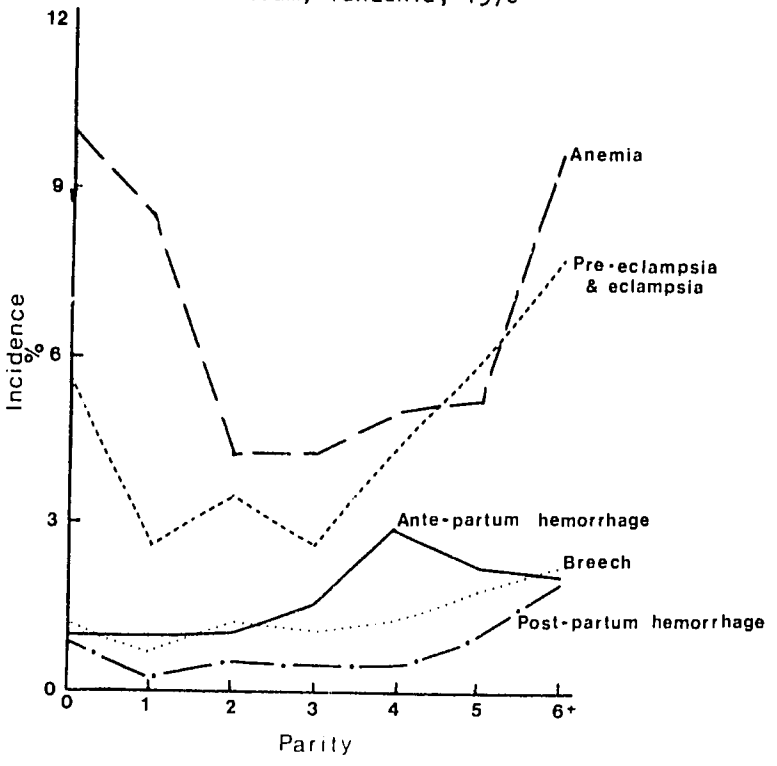
3. Most studies have been too poorly designed from the epidemiological point of view to provide valid answers to health-sector problems in developing countries, mainly because of the lack of relevant research experience and resources.

4. Often, research findings have either not been published at all or have been published outside the countries involved. As a result, important information is not readily available to national planners. Consequently, the research has not had the direct impact on health policies or programs as might have been expected. Fortunately, there exist a few relevant studies in East Africa of which the following one, carried out in Dar-es-Salaam, is an example.

Arkutu (1978a) studied the influence of age at first birth on the outcome of pregnancy in Tanzanian women. The most prevalent age to begin childbearing was between 16 and 17 years, and fewer than 5 percent of primiparas were 26 or older. While the risks of preeclampsia, difficult delivery, and perinatal deaths rose with advancing maternal age, maternal death was confined to patients 20 years or younger.

In my unpublished study of 25,696 women who delivered in the maternity unit at Muhimbili Medical Centre, Dar-es-Salaam, there was a high incidence (340 per 1,000) of complications during pregnancy and/or labor. Anemia was the most common complication. Anemia exhibited a U-shaped relationship with parity, as did both preeclampsia and eclampsia. Antepartum and postpartum hemorrhage and breech were positively associated with parity (Figure 3.1). Most complications showed a peak incidence after parity 7 (Table 3.3). A higher incidence of multiple complica-

Figure 3.1. Incidence of Pregnancy Complications by Parity--Dar-es-Salaam, Tanzania, 1978



tions at both low and high parities demonstrated the U-shape again (Figure 3.2). There was no consistent correlation between maternal death and parity; perinatal mortality was, however, high for primiparas and grand multiparas (Figure 3.3).

In Tanzania, the National Food and Nutrition Centre (TFNC) has carried out a number of valuable studies on the incidence and distribution of malnutrition and has been concerned with nutrition education and the design of suitable weaning foods from locally available sources. However, much of the work of the TFNC remains unpublished.

In 1961, Moller described the traditions, religious beliefs, attitudes, and practices of some of the major tribes in Tanganyika (now Tanzania) with regard to marriage, pregnancy, and childbearing. The study is important in detailing the age of marriage, the age of first pregnancy and childbirth, food taboos which may influence the nutritional status of the pregnant woman, the place of birth, and the practice of traditional midwifery, including the use of indigenous drugs.

Table 3.3. Incidence of Pregnancy Complications, Perinatal and Maternal Deaths by Parity--Muhimbili Medical Centre, Dar-es-Salaam, Tanzania, 1978

Complication		Parity											
		0	1	2	3	4	5	6	7	8	9	10	TOTAL
Total with one or more complications	N	1762	987	746	577	589	381	316	189	85	54	58	8744
	%	28.8	19.0	18.0	16.8	24.5	22.0	30.9	28.3	17.7	21.4	23.7	34.0
Anemia	N	621	294	180	147	123	92	71	64	60	39	24	1715
	%	10.1	5.7	4.3	4.3	5.1	5.3	6.9	9.6	12.5	15.5	9.8	6.7
Preeclampsia	N	300	124	141	90	104	101	68	49	29	28	25	1059
	%	4.9	2.4	3.4	2.6	4.3	5.8	6.6	7.3	6.0	11.1	10.2	4.1
Eclampsia	N	46	9	9	2	5	2	3	2	1	0	2	81
	%	0.7	0.2	0.2	0.06	0.2	0.1	0.3	0.3	0.2	0.0	0.8	0.3
Preeclampsia & eclampsia	N	346	133	150	92	109	103	71	51	30	28	27	1140
	%	5.7	2.6	3.6	2.7	4.5	6.0	6.9	7.6	6.3	11.1	11.0	4.4
Antepartum hemorrhage	N	60	59	47	56	73	39	24	17	6	4	7	384
	%	1.0	1.0	1.1	1.6	3.0	2.3	2.3	2.5	1.3	1.6	2.9	1.5
Twins	N	43	76	70	65	51	38	35	19	17	11	5	430
	%	0.7	1.5	1.7	1.9	2.1	2.2	3.4	2.8	3.5	4.4	2.0	1.7

Table 3.3--Continued

Complication		Parity 0	1	2	3	4	5	6	7	8	9	10	TOTAL
Preterm delivery	N	379	136	97	81	93	46	42	27	29	9	9	948
	%	6.2	2.6	2.3	2.4	3.9	2.7	4.1	4.0	6.0	3.6	3.7	3.7
Postpartum hemorrhage	N	53	17	23	16	16	17	15	8	10	11	9	195
	%	0.9	0.3	0.6	0.5	0.7	1.0	0.5	1.2	2.1	4.4	3.7	0.8
Retained placenta	N	10	2	4	2	1	2	1	1	1	0	0	24
	%	0.2	0.04	0.1	0.06	0.04	0.1	0.1	0.2	0.2	0.0	0.0	0.1
Ruptured uterus	N	2	8	4	1	4	3	1	0	2	0	0	25
	%	0.03	0.2	0.1	0.03	0.2	0.2	0.1	0.0	0.4	0.0	0.0	0.1
Vacuum extraction	N	164	43	31	34	20	15	10	5	3	9	3	337
	%	2.7	0.8	0.8	1.0	0.8	0.9	1.0	0.7	0.6	3.6	1.2	1.3
Cesarian section delivery	N	342	187	158	71	65	38	34	17	20	9	5	946
	%	5.6	3.6	3.8	2.1	2.7	2.2	3.3	2.5	4.2	3.6	2.0	3.7
Breech delivery	N	74	35	51	38	33	33	15	20	12	7	8	326
	%	1.2	0.7	1.2	1.1	1.4	1.9	1.5	3.0	2.5	2.8	3.3	1.3

Table 3.3--Continued

Complication		Parity 0	1	2	3	4	5	6	7	8	9	10	TOTAL
Malpre-sentation	N	21	17	12	13	6	2	4	3	5	2	5	90
	%	0.3	0.3	0.3	0.4	0.3	0.1	0.4	0.5	1.0	0.8	2.0	0.3
Perinatal deaths	N	380	237	173	122	102	65	53	33	39	9	21	1234
	%	6.2	4.6	4.2	3.6	4.2	3.8	5.2	4.9	8.1	3.6	8.6	4.8
Maternal deaths	N	12	7	4	7	6	3	5	1	3	0	2	50
	%	0.2	0.1	0.1	0.2	0.3	0.2	0.5	0.2	0.6	0.0	0.8	0.2
Total each parity		6119	5200	4141	3436	2403	1731	1022	667	480	252	245	25696

Figure 3.2. Incidence of Multiple Pregnancy Complications by Parity--Dar-es-Salaam, Tanzania, 1978

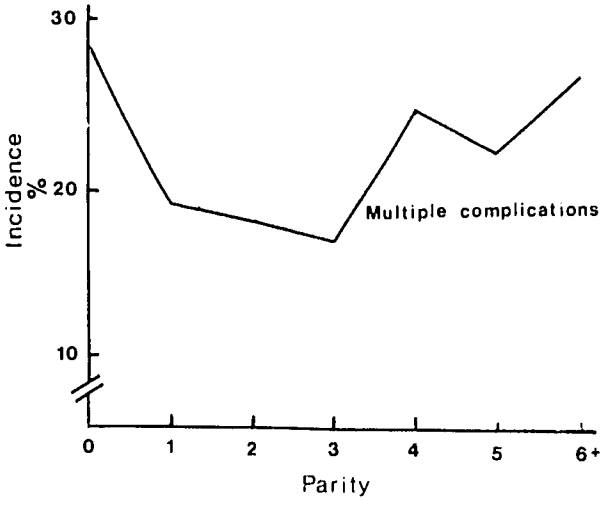
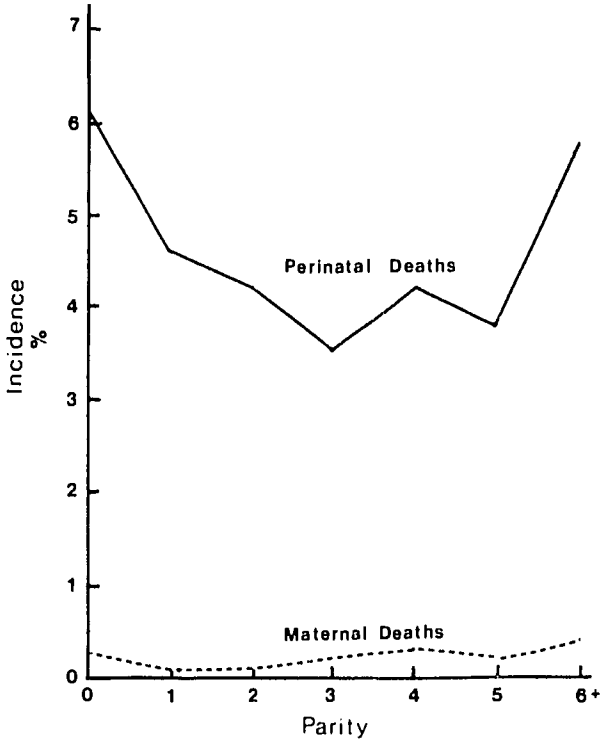


Figure 3.3. Incidence of Perinatal and Maternal Deaths by Parity--Dar-es-Salaam, Tanzania, 1978



Masters (1970) also examines the use of local herbs and traditional medicine during pregnancy and labor to expedite delivery or control postpartum hemorrhage. He found a high incidence of various obstetric complications (ruptured uterus, stillbirths and neonatal deaths, and maternal death) to be associated with the use of local herbs and traditional medicines. He found the use of a wide variety of traditional medicines to be fairly common, thus confirming the clinical experience of many physicians. Masters also confirms the traditional desire for large families, but found that nearly 60 percent of the women interviewed favored child spacing if they knew how.

Remarkably little research has been done on the health impact of traditional patterns of family formation or the psycho-social determinants of reproductive behavior in African society. There is now a wealth of information on the effects of various contraceptives on women in the developed countries and in a few developing countries. To date, however, there have been no detailed or epidemiologically sound studies on the health problems associated with contraceptive use among African women. The fact that family planning programs have been launched in many African countries without any meaningful attempts to assess the impact of contraceptives on the health of acceptors has led to criticism and charges that family planning advocates lack real concern for the health and well-being of African women. This is a serious issue which African physicians, researchers, and advocates of family planning must address.

Research along the lines indicated is not only essential in itself, it must be seen as an integral part of family planning programming. The capacity to collect and analyze basic relevant data on family planning acceptors should be built into every family planning program. Opportunities should also be created for national family planning program managers and coordinators to study epidemiological research design and methodology.

Family Planning in East Africa: A Personal Perspective

Family planning in East Africa has had a precarious existence since the early 1950s and still faces an uncertain future. There is little popular support for family planning programs even when endorsed by the government and when services are provided free or at little cost. This is paradoxical because there is clear need for family planning and a desire on the part of many women to use modern contraceptive methods for spacing their pregnancies (Masters, 1970). There are several reasons for the lack of enthusiasm and patronage of family planning services.

Poor Image of Family Planning

Family planning is often seen as a foreign import, out of tune with African cultural values, of doubtful relevance to the immediate needs and aspirations of Africans, and possibly injurious to the health of the individual, as well as society in general. Certainly, the use of contraception as a demographic tool to reduce fertility and control population growth contradicts the traditional high values placed on large family size, and the view that fertility is a virtue and a blessing. It is regrettable that the antidevelopment impact of population growth has been the major initial justification for pushing family planning in the developing countries. While most African leaders see a link between population and socioeconomic development, many are skeptical of claims that their poor socioeconomic development is mainly or solely caused by high rates of population growth or that family planning will reverse their economic trends and usher in an era of progress and rapid development. Most African leaders see their population as a valuable and readily available development resource. Besides, it is doubtful if couples see their sexuality or the fulfillment of their emotional and psychological needs in terms of national five-year development plans.

Safety of Family Planning Methods

Leaders in African countries such as Tanzania are naturally and rightly concerned about possible harmful effects of contraceptives on the health of women. Family planning advocates tend to play down reports of side effects of contraceptives while their opponents dramatize them. It is hoped that family planning can use the benefits of modern technology to reinforce traditional practices by the use of safe and effective methods of contraception. In fact, for the majority of African women, the risks of pregnancy and childbirth are greater than the risks associated with contraceptive use. There are, however, real and potential health hazards associated with contraception.

Delivery Systems

In advocating family planning for health reasons, one must emphasize the need for family planning services to be provided within the framework of national health care services. The health of family planning acceptors in Africa must be safeguarded by the provision of adequate medical back-up facilities and personnel. Existing facilities within the national health care system should be used for the referral and medical supervision of contraceptive users. Extreme vigilance must be maintained in order to detect and treat complications early and effectively.

Great care should be taken in selecting approaches and strategies for delivering family planning services which do not conflict with traditional codes of behavior. For example, the use of young people for counselling or providing family planning services may be unacceptable to Africans. On the other hand, the use of trained traditional birth attendants who enjoy the full confidence, trust, and respect of their community will enhance the popularity of family planning services and make them more acceptable.

Lack of Information

Even governments which have endorsed family planning for one reason or another have lacked the courage or will to promote family planning information and education actively. Possible reasons for this include their own skepticism because of widespread criticism of family planning as a development tool and, perhaps, fears of possible political repercussions. In Tanzania, child spacing is part of an integrated and comprehensive government program of maternal and child health and services are provided in all health facilities. However, family planning education, information, and communication is undertaken by a voluntary agency with little government participation. In Kenya, the first African country openly to advocate family planning and population control for demographic and development reasons, educational and motivational work is still carried out largely by a voluntary agency and there is no strong, centrally coordinated family planning education program. In Ethiopia, there is a legal ban on the display or advertising of contraceptives which, on the other hand, can be purchased without a prescription.

Not surprisingly, ignorance about family planning is widespread in East Africa. Suspicion about family planning methods thrives on rumors, misinformation, and misunderstanding, and in turn fires criticism. Consequently, family planning programs have failed to penetrate beyond the level of a few educated urban dwellers. The majority of women in the rural areas have no notion of, let alone access to, family planning services.

Resources

A drastic restructuring of budgetary priorities involving the transfer of resources from urban/central hospitals to local primary health care programs, and from curative to preventive and promotive activities, will be needed to meet the objectives of bringing health care services within the reach of the majority of the population.

Given the reality of prevailing economic conditions in all four countries and the experience of past investments in the health

sector, it is unlikely, even with national and government commitment, that significant improvements in the health status of women and children will occur without some attempt to reduce the negative health impact of unregulated fertility. The reduction of maternal and infant morbidity and mortality rates to acceptable levels within a reasonable time can only be achieved through a comprehensive and integrated health program, of which family planning is an essential component. Family planning should, in this context, be seen as part of a package of services designed to reduce the high toll on human lives caused by the triad of infectious diseases, malnutrition, and high fertility and not just as a means of limiting births.

Family Planning Health Benefits: Some Comments in Closing

By far the most compelling reason and the most important justification for family planning is its positive influence on maternal, child, and family health and welfare. Health in this context encompasses the physical, mental, and social well-being of the individual and not just the absence of disease.

Certain factors relating to fertility are definitely known to have an influence on the health and well-being of women and children: maternal age, parity, length of birth intervals, and family size. In addition, the existence of other medical conditions, for example, hypertension, heart disease, nutritional anemia, and sickle cell disease, may all influence the risks of pregnancy and childbirth. Family planning provides a woman with the means to influence directly her own health status by controlling or modifying her fertility. Through family planning, a woman is able to control the number and timing of her pregnancies in the interest of her own health, as well as that of her family. This ability to influence the health impact of her fertility is of very great importance since the mother's health status directly and closely influences that of the rest of the family.

The need for couples to regulate their fertility in the interest of the welfare and upbringing of their children was clearly expressed by Mwalimu Julius Nyerere, the president of Tanzania, in a speech introducing the second five-year national development plan in 1969. "Giving birth," the president said:

> is something in which mankind and animals are equal. But rearing the young, and especially educating them for many years, is something which is a unique gift and responsibility of men. It is for this reason that it is important for human beings to put emphasis on caring for children and the ability to look after them

> properly rather than thinking only about the number of children and the ability to give birth. For it often happens that men's ability to give birth is greater than their ability to bring up the children in a proper manner. (Nyerere, 1974:88)

Nyerere reiterated his interest in population and child spacing when opening a two-day General Council Conference of the Tanzania Parents' Organization (Wazazi), held in Zanzibar, August 27-28, 1982. The president noted that child spacing is "the best method of ensuring the health of both the mother and her child. Annual child birth was bound to impair [the mother's] health." He observed that:

> the challenge lay in fulfilling the requisite child care to a point where a person would be well equipped to stand on one's own; that one should not think of reproducing without reflecting on one's capacity to care for the new arrival.

Mwalimu added, "Although all were aware of the problem, 'we apparently feel ashamed of discussing it'." He concluded: "'It is important to note that one is not born with a hoe in his hands.' If the hardworking Tanzanian woman depended on the hoe to feed herself and the family--including the child--then it was high time the people addressed themselves seriously to child spacing." (Nyerere, 1982:1)

By protecting women from unwanted pregnancies, family planning promotes their physical health, enhances their sense of social and psychological well-being, and enables them to make even greater contributions towards the welfare of their families and communities.

4 The Health Rationale for Family Planning in North Africa with Special Reference to Egypt

Ahmed Fuaad El-Sherbini, M.D., M.P.H.

North Africa is generally characterized as those Arabic-speaking countries north of the Great Sahara whose major religion is Islam. The socio-anthropological features of this region have a great impact on the behavior of North Africans and distinguish these countries from other African nations. The countries included in North Africa are Morocco, Algeria, Tunisia, Libya, Egypt, and Sudan. Mauritania, Djibouti, and Somalia have the same cultural denominators--Islam and Arabic origin and language--and are usually considered part of North Africa although they are not north of the Sahara.

All North African countries were under some degree of European colonization during the first half of the present century and achieved independence between 1920 and 1975. The occupying powers were the British, French, Italians, and Spanish. According to Caldwell (1966) and Cassel (1971), the colonization process had a negative effect on family planning practices. Nevertheless, this region of Africa shares with the rest of the continent many demographic and health features. These include rapid population growth, early age at marriage, high fertility, high infant and child mortality, and intermediate life expectancy.

The Effect of Fertility on Health

In North Africa, there is an increasing concern about the health

repercussions of uncontrolled, unplanned, or excessive fertility. The demographic argument for family planning may be appreciated in selected countries of this region (particularly Egypt, Morocco, and Tunisia), but the health rationale for family planning is much more acceptable in all countries. It is particularly unacceptable to religious leaders and conservative couples. Therefore, discussions about the health risks associated with excessive fertility are of particular interest to North Africa.

In this chapter I examine the health effects of high fertility on the mother, the father, the children, the family unit, and on pregnancy outcome, with special reference to North Africa. I also look at the health effects of overcrowded housing because of large families. Finally, I examine the health effects of high fertility on society as a whole.

Documentation based on North African studies of these very important interactions between fertility and health is not an easy task, and it becomes more difficult when evidence is sought from several of the countries in the region. It is fortunate, however, to find good studies reported in the last decade or so, although most of them come from a select few countries. Fragmentary as the evidence may be, it indicates most clearly that excessive and unplanned fertility is associated with unnecessary risks to the family in North Africa. The evidence points out the need for family planning throughout the region to safeguard family health.

Effects of Excessive Pregnancies on the Health of the Mother

During any pregnancy, the mother is depleting her own biological resources for the survival of the growing fetus in utero. Time is needed to rebuild these resources after delivery; some have estimated that this takes at least two years. Islamic religion and culture also adheres to the practice of child spacing as evidenced in the Qur'aanic statement: "pregnancy and weaning is thirty months." The maternal depletion syndrome mentioned by Jelliffe (1966) and Wray (1971) results from short birth intervals that do not permit the woman's body to rebuild the store of nutrients necessary for it to function well. Repeated pregnancies and deliveries without an adequate period for recovery predisposes the mother to obstetrical complications such as preeclampsia, eclampsia, placental disorders, uterine rupture, malpresentation, and hemorrhage (Omran, 1974).

The number of pregnancies also has a negative impact on maternal health. Mothers who have many pregnancies (grand multiparas) have been found to have less efficient labor (Ragheb, 1975). Fathalla and Kamal (1964) studied the prevalence of anemia in Egyptian women and found that as parity increased, so did

anemia (Table 4.1).

Table 4.1. Hemoglobin Levels by Parity in 300 Pregnant Women at Term--Egypt

	Parity (excluding present pregnancy)				
	0	1	2	3	4+
% of total	20.5	14.5	19.0	31.0	15.0
Average gm/100 ml.	12.4	11.9	12.1	10.2	8.5

Source: Fathalla and Kamal (1964)

The effects on the mother of frequent pregnancies are not limited to physical changes, but also include emotional changes that may occur during pregnancy. S. Eid (1977) found that pregnant women in Alexandria, Egypt, who had large families had high scores on scales of obsession, depression, anxiety, and phobia.

Effects of Excessive Fertility on the Health of the Father

The effect of frequent pregnancies and large families is not limited to the mother; the father is also affected. S. Eid (1977) found that Alexandrian fathers with three or more children scored higher on scale of psychosomatic reaction, phobia, obsessions, and anxiety than fathers with fewer than three children. In addition, fathers married fewer than six years scored higher on measures of psychosomatic reactions and anxiety than those married more than six years. The physical health of the father is not spared, either. In a non-African study, Chen and Cobb (1960) found a positive relationship between the frequency of peptic ulcer and the number of children among a group of employed men. Peptic ulcer, however, has psychosomatic factors in its etiology, which offers some support to Eid's findings.

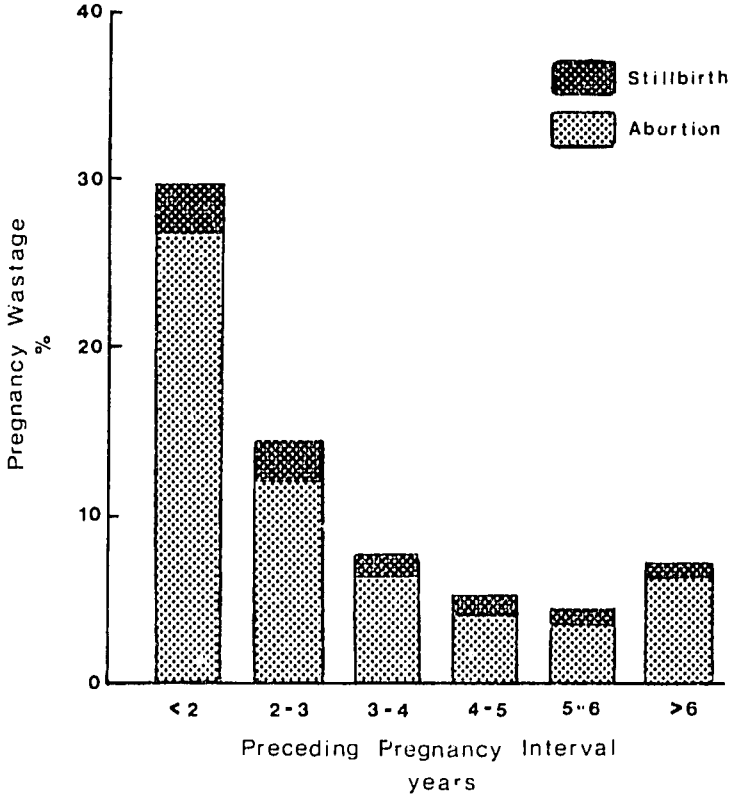
The Psychological Effect of Excessive Fertility on the Family

Studies suggest that the increased emotional problems of growing families may not have time to subside if pregnancies closely follow one another. Therefore, repeated pregnancies at short intervals may result in a constant high level of neurotic symptoms which could strain family ties and family relations. S. Eid (1977) found that the relationship between spouses who have small families is often better than between spouses with larger families. This was true both before and during pregnancy.

Effects of Excessive Fertility on the Outcome of the Pregnancy

Pregnancy outcome is related to the length of the preceding pregnancy interval. Pregnancy wastage is greatest for the shortest intervals and lowest for intervals of intermediate length. As part of a WHO International Collaborative Study, El-Sherbini et al. (1981) have shown that the risk of poor pregnancy outcome among Egyptian women is highest when the interval is under two years (Figure 4.1 and Table 4.2).

Figure 4.1. Type of Pregnancy Wastage by Duration of Preceding Pregnancy Interval--Assuit, Egypt, 1972-76



Source: Adapted from El-Sherbini et al. (1981), p. 163

Maternal age plays an important part in determining pregnancy outcome as Gouda (1975) shows in Alexandria (Table 4.3). The

Table 4.2. Percentage of Pregnancy Wastage by Duration of Preceding Interval--Egypt

Preceding Pregnancy Interval	Stillbirth	Abortion	Total Wastage	Total Pregnancies Other than 1st
< 2 years	3.2	26.6	29.8	1054
2-3 years	2.4	11.9	14.3	6210
3-4 years	1.4	6.2	7.6	7176
4-5 years	1.3	3.9	5.2	2742
5-6 years	0.8	3.4	4.2	952
6+	0.7	6.3	7.0	396

Source: El-Sherbini et al. (1981)

Table 4.3. Progress of Pregnancy and Delivery by Mother's Age--Alexandria, Egypt

Progress of Pregnancy & Delivery	Mother's Age						
	20-24		25-29		30-35		
	No.	%	No.	%	No.	%	Total
Hypertension during pregnancy							
No	185	93.9	103	80.5	23	76.7	311
Yes	12	6.1	25	19.5	7	23.3	44
Total	197	100.0	128	100.0	30	100.0	355
Delivery							
Spontaneous	359	93.5	140	87.5	24	66.7	523
Complicated	25	6.5	20	12.5	12	33.3	57
Total	384	100.0	160	100.0	36	100.0	580
Abortion							
No	352	91.7	139	86.9	29	80.6	520
Yes	32	8.3	21	13.1	7	19.4	60
Total	384	100.0	160	100.0	36	100.0	580

Source: Gouda (1975)

proportion of women with hypertension during pregnancy increased from 6.1 percent at ages 20 to 24, to 19.5 percent at ages 25 to 29, up to 23.3 percent at ages 30 to 35. The proportion of women suffering from complicated delivery and abortion also showed a similar increase with increasing maternal age.

Table 4.4 demonstrates the relationship between pregnancy wastage and pregnancy order as found by the WHO-sponsored study in Egypt (El-Sherbini, et al. 1981). Clearly, pregnancy wastage increased as pregnancy order increased in the rural and urban areas.

Table 4.4. Percentage of Pregnancy Wastage by Pregnancy Order and Residence--Egypt

Pregnancy Order	Pregnancy Wastage		
	Rural	Urban	Industrial
1	7.4	7.9	5.8
2	6.7	8.7	5.7
3	8.1	9.5	4.8
4	7.9	9.6	7.4
5	7.1	10.4	6.2
6	10.5	12.5	11.4
7	10.8	10.7	12.6
8	10.9	13.6	9.3
9	18.3	10.4	8.2
10+	16.5	17.7	15.4

Source: El-Sherbini et al. (1981)

Effects of Excessive Fertility on Children's Health in the Family

As early as 1944, Eastman found a relationship between prematurity and short interpregnancy intervals. El-Sherbini and Attallah (1960) describe the relationship between birth weight and the period that elapsed between the previous and present pregnancy. When the interval was less than 12 months, mean birth weight was less than three kilograms. The highest mean birth weight was found with an interval of 24 to 30 months (Table 4.5). Similar results were shown by El-Geneidy (1974). The negative effect of the interpregnancy interval could continue with the child into adulthood. Azab (1977) supports this finding. He studied the physical fitness of physical education female students in Alexandria. He found that those born at intervals of two to three years from their siblings fared better than those born at very short or very long periods. The poorest results were associated with intervals of one year or less (Table 4.6).

Table 4.5. Relationship between Birth Interval and Birth Weight--Egypt

Interpregnancy Period	Mean Birth Weight (kg)
< 12 months	2.920
12-17 months	3.350
18-23 months	3.060
24-29 months	3.540
30-35 months	3.360
36+	3.440

Source: El-Sherbini and Attallah (1960)

Table 4.6. Physical Fitness in Relation to Interpregnancy Interval--Egypt

Interpregnancy Interval		Physical Fitness Rating					
		Very Low	Low	Average	Above Average	High	Total
1 year	N	10	76	701	30	4	227
	%	4.4	33.5	47.1	13.2	1.8	100
2-3 years	N	9	150	231	87	25	502
	%	1.8	29.9	46.0	17.3	5.0	100
4+ years	N	3	38	48	16	1	106
	%	2.8	35.8	45.3	15.1	1.0	100
Total	N	22	264	386	133	30	835
	%	2.6	31.6	46.2	15.9	3.6	99.9

Source: Based on data from Azab (1977)

Studies in many countries have shown that neonatal, infant, and child mortality rates were highest in the group with the shortest birth interval (Omran, 1974). The International Planned Parenthood Federation (1970) showed that chances of survival increase during the postneonatal period and early childhood as the birth interval increases.

The arrival of a new child in the family has an influence on the preceding siblings. An example of this is the effect on a nursing child when a new baby is born. Grant (1964) has shown that the addition of a new child to the family may have a negative effect on the physical growth and development of older siblings.

The effect of large family size is not limited to the physical aspects but includes the intellectual development of the child. Zaghloul and Eid (1979) have shown that the larger the family, the lower the I.Q. score among primary school children (Table 4.7). This result may also be related to the effect of the mother's age on the intrauterine environment in which the fetus develops. The aging of the mother may have led to changes in the uterus that could influence subsequent intellectual development of the child.

Table 4.7. The Relation between I.Q. and Family Size--Beida Deyers School, Egypt

Family Size	No. of Children	Mean I.Q.	Standard Deviation
3-5	82	103.5	± 16.7
6-7	451	101.3	± 16.2
8	330	100.4	± 17.2
9+	467	100.0	± 15.6

Source: Zaghloul and Eid (1979)

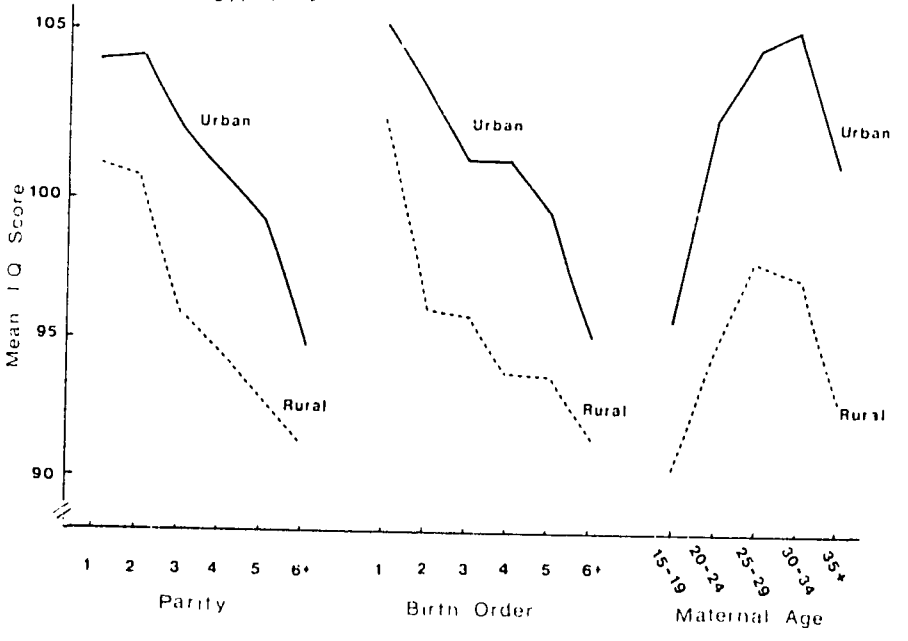
In a recent study of I.Q. in the Assiut area of Egypt, Guinena et al. (1982) examined 1,092 primary school children using the Pictorial Intelligence Test of A. Z. Saleh, a group test designed to suit the Egyptian culture. When measured against the Stanford-Binet Intelligence Test, the reliability coefficient of Saleh's test was 0.82 or 82 percent. On the average, urban children had significantly higher scores than rural children. For each group, and for the total sample, the mean I.Q. score (standardized according to the test tables) declined progressively with increasing sibship size. In the urban sample ($N = 640$), the mean score declined from 105.1 for only children to 94.8 for sibships of 6+ ($p < .01$). The corresponding I.Q. scores for the rural areas were 100.7 and 91.4, respectively ($p < .01$). Likewise, the I.Q. scores declined consistently with birth order. In relation to maternal age, the I.Q. scores were very low for children born to teenage mothers; they rose for maternal ages between 20-34 only to fall again for children born to older mothers (Figure 4.2).

Effects of Family Size on Parental Responsibility

The parents have the responsibility of maintaining the family as a socio-biological unit of the human society. In the Islamic culture, the mother is the stabilizing factor of the family; she is responsible for its intrinsic activities and functions. Her role includes helping family members handle external stress. The father acts as a channel of communication between society

and the family. He also has the important job of protecting the family as a whole against environmental stressors. The presence of many children who are dependent on parents may exhaust their abilities to perform their roles. Consequently, psycho-social or psychosomatic reactions may develop as demonstrated by S. Eid (1977) and discussed earlier in this chapter.

Figure 4.2. Mean I.Q. Scores of Urban and Rural School Children by Parity, Birth Order, and Maternal Age--Assiut, Egypt, 1980-81



Source: Adapted from Guinena et al. (1982)

Generally, the larger the family, the older the parents. This creates an added load for the family because as parents age they may be less energetic and less able to tolerate stress. Wray (1971) quotes studies showing a positive association between rheumatoid arthritis and being parents of a large family, and that both physical and mental health problems are common among parents of large families. In the Sudan, Halim (1979) found incidence of diabetes among men aged 30 to 60 and women aged 30 to 49 increased with family size.

Effects of Crowding on Children

A large number of children in a family may cause overcrowding in the household as measured by a crowding index (the number of

persons per room of the house). Three studies have found a relationship between crowding and childhood diseases. Wasfy (1976) showed that the prevalence of anemia among Egyptian school children increased as the crowding index rose.

Similarly, Aly (1979) showed that among 238 asthmatic school children in Alexandria, the majority came from crowded households, as did Sherif (1980) for 176 cases of acute poliomyelitis. Crowding may increase the probability of infections spreading within the family. The pathophysiological reactions of children living in severe crowding may minimize their immunity, causing them to be more vulnerable to infectious and parasitic diseases. Anemia is more common among children in crowded households because of undernutrition. In addition, the stress of crowding itself and its endocrinal and metabolic effects cannot be ignored. Wray (1971) showed that children from large families are more liable to be malnourished than those from smaller families. This situation might be attributable to ignorance or poverty, or both; such problems become more acute as family size increases.

The effects of increased family size on children shows itself in less satisfactory growth and development, the occurrence of diseases, lowered physical and mental abilities, and high mortality. Family size plays its role through interacting mechanisms such as overcrowding and can produce children of lower health quality. This, in turn, invites morbidity and mortality.

Effects of High Fertility on Society

The effects of high fertility may not be limited to the family itself; it may also influence contacts outside its borders, especially in regard to the spread of infection. Young children are the most susceptible to infectious and parasitic diseases because of their limited resistance. In a large family, a number of older children will have acquired immunity; however, they are likely to be carriers of disease since they are more mobile. When there are large numbers of families in a society with many children, the problem of disease is magnified.

The production and availability of food in a society is greatly influenced by the type and number of consumers. The higher the fertility, the more likely the child population will dominate as a major consumer in the society. Consequently, if the demand is not met with production of food fit for children's nutritional requirements, deficiency will ensue. Malnutrition, coupled with overcrowding, makes children more susceptible to infectious and parasitic diseases (Scrimshaw, Taylor, and Gordon, 1968).

The stressing caused by overcrowding may have an effect on the

mental health of the members of a society which can contribute to an increase in crime, accidents, and drug abuse. High fertility leads to a high proportion of the population under age 15, high levels of reproductive activities among mothers, and high tension levels under which fathers must function. Such a situation increases health service needs for all members of the society. If availability of medical care is unsufficient, more health problems will develop. The quality and quantity of medical care will, therefore, be poor and will throw the burden on curative and rehabilitative care. This type of care is expensive and has a negative impact on the health status of the society.

Children are most likely to suffer from a low level of health in the society. The younger the children, the more susceptible they are to morbidity and mortality which leads to high rates of infant and early childhood mortality. Wyon and Gordon (1971) have shown that high rates of child loss are paired with high birth rates.

Intervention for Fertility Regulation

The philosophy behind any intervention for fertility regulation is to induce a qualitative improvement in the human health level through quantitative change. The objective is to control fertility in order to prevent the physical, mental, and social health consequences reviewed here.

The Strategy for Fertility Regulation

Methods of fertility regulation should have the following goals:

1. To enable the mother to maintain optimal reproductive fitness biologically, mentally, and socially.

2. To enable parents to provide a stable environment and proper care for their growing and developing children. This goal can be achieved by educating both parents about their role and providing them an opportunity to develop and practice their skills as parents.

3. To make medical care for the children and parents highly accessible, thereby giving them the opportunity to prevent health problems and to regulate their physiological, psychological, and sociological health functions. Outreach projects can bring health and medical services to the home rather than waiting for the needy to seek out such services. This is especially important in the area of prevention.

4. To control those factors that lead to high childhood

mortality, especially in infancy and early childhood.

5. To develop a social security mechanism that will give the family confidence in their society and environment. State and community measures can increase family stability, functioning, and health through fertility regulation.

Fertility regulation is a sectoral plan that must be integrated in the overall plan for family health. Fertility regulation is a behavioral process. It is not simply distributing contraceptive tools; both spouses must participate in practicing fertility regulation. The plan has to include education of spouses and assistance in making decisions, as well as the means to regulate their fertility. This service should be made available in a culturally acceptable way to assure its impact.

The most effective method of fertility regulation is the family-oriented integrated health care system which includes providing contraceptive guidance and methods. In addition, supportive physical and mental health care is essential for the whole family. These services should be delivered primarily at home. Other more sophisticated services must be made available in health clinics and hospitals, and must be in operation for a number of consecutive generations until they become a fixed cultural norm.

Summary

This discussion has demonstrated the health risks associated with excessive fertility in regard to the family as a unit, each family member, and society as a whole. These health risks include pregnancy complications, anemia, and psychological effects in mothers; psychosomatic reactions and poor physical health in fathers; poor pregnancy outcome; and poor health and development of children. Such health hazards can be prevented by proper planning of family size and pregnancy interval and by choosing the time in a woman's reproductive span where risks are minimal, namely between the ages of 20 and 34.

5

Family Formation, Fertility Regulation, and Health in Africa: The View of an African Gynecologist

Olusola A. Ojo, M.D., M.R.C.O.G.

In the past, when the ravages of intertribal wars, floods, great fires, plague, and pestilence were rampant in Africa, discussions of fertility regulation would have been unthinkable. A web of reasons explains the changing attitude towards fertility regulation in Africa: the decreasing frequency of intertribal wars, increasing socioeconomic pressures (Castle and Sapire, 1976), declines in maternal and perinatal mortality, and an awareness of the need to improve the quality of life. Compared with figures from the developed countries, maternal, perinatal, and infant mortality in Africa are phenomenally high (Ojo and Savage, 1974); however, the trend now is a downward one. The decline in maternal and perinatal mortality and the improvement in the infant survival rate in Africa has been brought about by the gradual, albeit slow, control of communicable diseases, general improvement in sanitation, and technological advances in medicine. The control of major infections, resulting from the discovery of chemotherapeutic and antibiotic agents, and the improvement in maternal and child health services have been responsible for the decline in mortality rates in some African countries (Minkler, 1972).

Not least among the reasons for a change in attitude toward fertility regulation in many parts of Africa is the emancipation of women and the gradual shift from an agrarian economy to an industrial one. One other important reason for this change in attitude is the gradual decay of those religious beliefs and taboos which deemed it necessary to sustain childbirth

throughout the years from puberty to menopause (Caldwell and Caldwell, 1976a). Added to this is the rising cost of living resulting from inflation and rapid urbanization (Castle and Sapire, 1976), including the cost of educating children (Ware, 1976). All these factors have provided the impetus for the need to regulate fertility.

My intention is to review existing practices of family formation in Africa, identify the problems involved with them, and develop strategies for solving those problems.

Health Risks of Unplanned Fertility

The mortality risk for a mother and her first baby is usually high. Thereafter, mortality decreases with subsequent births until the fourth birth when it rises steadily with higher parity (Omran, 1971). Morbidity and mortality increase fivefold after the fifth pregnancy (Belcher et al., 1975). It is generally accepted that a woman requires an interval of two to three years between births to recover physiologically from the effects of the previous delivery (Yerushalmy, 1945). Frequent births at short intervals have deleterious effects on the mother and her infant (Omran, 1976).

The African Grand Multipara

The hazards of grand multiparity (the state of having had five or more deliveries) are well documented. The fetal wastage in the grand multipara is five times higher than in a woman having her second, third, or fourth delivery and about three times as high as in a woman having her first delivery. The shorter the birth intervals, the higher the incidence of perinatal, infant, and even child mortality (Omran, 1976). A woman who gives birth to babies at short intervals is ill-equipped to look after her newborn infant. The risk of a preceding child dying from kwashiorkor and marasmus is high because of lack of necessary care and poor nutrition (Belcher et al., 1975; Morley and Cutting, 1974).

Another serious effect of high parity on a woman of advancing age is the increased incidence of congenital fetal abnormalities. With increasing parity and age, there is a tendency to develop hypertension. Other complications in pregnancy, such as anemia, early abortion (spontaneous or induced), hypertensive vascular disease, preeclampsia, eclampsia, and profuse antepartum hemorrhage, adversely affect the prognosis for the mother and baby alike (Palliez et al., 1971).

The effects of high parity and short birth intervals are not confined to the mother and her newborn baby (Radovic, 1966). If

the infants from previous deliveries survive, there may be overcrowding in the house, especially if the family is in the low socioeconomic stratum of society. Overcrowding and inadequate nutrition prepare the ground for ill health. The ease with which communicable diseases spread among the children is great. Such an atmosphere in any home is hardly conducive to favorable infant or child development; consequently, physical growth is often retarded. The relationship between high parity in the mother and diminished intelligence quotient in the infant is not quite so clear.

In general, adequate birth intervals (two to three years) and low parity ensure a reasonably good prognosis for the mother and her infant, especially if the mother is between 20 and 30 years of age. In addition, it enhances the quality of life of the siblings and makes for a happier home.

Our studies (Ojo, Ladipo, and Adelowo, 1981), based on maternity care monitoring and a review of cases of rupture of the uterus, confirmed unequivocally the need for regulation of fertility in highly parous women. In 1977-78 at the University College Hospital, Ibadan, the incidence of preeclamptic toxemia in grand multiparas was nearly twice the incidence in other multiparas: 4.1 percent versus 2.5 percent. Breech presentation occurred in 7.3 percent of grand multiparas as compared to 4.9 percent in other multiparas.

The highest incidence of perinatal deaths among cases of breech presentation occurred in the grand multiparas. Prolonged obstructed labor occurred in 16 percent of the grand multiparas and 6.9 percent of other multiparas. In our study of rupture of the uterus and postpartum hemorrhage, grand multiparas fared worse than other multiparas, and mortality from rupture of the uterus and postpartum hemorrhage was higher in the grand multiparas than in other multiparas. Excluding the primigravidas who have very severe folic acid deficiency anemia resulting from malaria, the grand multipara was more susceptible to the development of severe anemia in pregnancy than other multiparas. It was also among grand multiparas that we found the highest incidence of congenital fetal abnormalities.

The Health Consequences of Unwanted Pregnancy

The consequences of unwanted pregnancies, especially in countries where abortion is not legally allowed, are as severe for the older multiparous woman as for the young adolescent girl. The tendency is for women in both categories to want to terminate the unwanted pregnancy at all costs. Consequently, they resort to measures which are detrimental to their health (Chi et al., 1977). If the abortion is clandestinely performed, usually by an unskilled attendant and in squalid surroundings, the risks

from complications such as uterine perforation, hemorrhage, and sepsis are high (Chi et al., 1977; Lwanga, 1977). The death toll from tetanus infection is usually high (Akinla, 1970). If the victim of an illegally procured abortion is lucky enough to survive, she is likely to be sentenced to a state of permanent sterility (Lwanga, 1977; Ojo, 1966).

In summary, the consequences of high parity and short birth intervals are grave for the mother and her infant, and indeed for the entire family and the community at large. The sequelae of illegal abortions are serious in the grand multipara and certainly more serious in the young adolescent girl whose prospects of motherhood and furthering her education after abortion may be bleak.

Fertility-Regulating Methods: Present Knowledge in Africa

Traditional Birth Spacing

Family planning in the form of spacing births is not foreign to Africa (Molnos, 1968; Mumford and Coles, 1975; Ware, 1976; Williams, 1973). For many years the Yorubas, and other ethnic groups in Nigeria, as well as the Kikuyus, the Luos, and Gandas in Kenya (Molnos, 1968) have had in their culture a built-in system for spacing births. Birth spacing is also practiced among the Chaga, Giriama, Lango, Lugbara, Mbeere, Meru, and Somalis in East Africa (Bleek, 1976). For example, in many African cultures, intercourse is prohibited during lactation (Molnos, 1968), which in African women by tradition usually lasts two to three years (Bleek, 1976; Molnos, 1968). In addition, over the years, the Yorubas have developed amulets, pessaries, and potions designed to prevent conception when and if the need arises. While the idea of *spacing* births is not foreign to Africans, the idea of *limiting* births is foreign to the African culture. The use of modern contraceptive methods is even more alien (King, 1973; Minkler, 1972), although there has been a change in the attitude of some African countries regarding fertility regulation. A brief description of the methods used to achieve fertility regulation and their relevance to the African setting follows.

Nonappliance Methods of Birth Control

Abstinence. Abstinence has been in use since the beginning of mankind. It is culturally acceptable in Africa, and indeed practiced, for sexual intercourse is often prohibited during lactation (Van Balen and Ntabomvura, 1976). Modern African women unfortunately do not breast feed their infants for longer than six months on the average. Some women, because of their need to resume work, cannot breast feed their infants at all.

In Nigeria and Kenya, for example, the parturient woman is sent to her parents-in-law where she stays until the infant is weaned, usually three years or so after birth. However, this method of birth control, involving prolonged abstinence, is not suitable for the modern African couple.

Postpartum abstinence. In many traditional African communities, postpartum abstinence ensures adequate recovery of the parturient mother from the physical and mental trauma of one delivery before embarking on another pregnancy. The belief is held that if a mother conceives and delivers before her breast fed infant is weaned, the child will have kwashiorkor and ultimately die of starvation or deprivation. Consequently, intercourse which might result in pregnancy is prohibited during the prolonged period of lactation. Abstinence is, therefore, a practical, albeit emotionally unsuitable, method of birth spacing (Molnos, 1968; Ware, 1975).

Periodic abstinence. The methods of periodic abstinence, including the calendar and thermal rhythm, cervical mucus and sympto-thermal methods, are dependent on accurate prediction of the time of ovulation and absolute abstinence during fertile periods. Periodic abstinence is of doubtful applicability to the majority of African women because of the inherent difficulties in identifying the fertile period and in maintaining high motivation.

Coitus interruptus. Coitus interruptus has a high failure rate and may be unacceptable to many Africans of the present generation. Withdrawal can lead to psychological and emotional problems and requires a high degree of motivation. To be effective, it requires the complete cooperation of husband and wife.

Appliance Methods of Birth Control

Condoms. Condoms have the merit of offering protection against venereal disease, in addition to their efficacy as a birth control method. When used with spermicides, the efficacy of the condom is increased, but this increased protection requires high motivation on the part of both partners for effective protection. In order for the condom to be widely used in Africa, the stigma of its association with prostitution would have to be reduced.

Barriers. Barrier methods, such as diaphragms, vimules, and cervical caps, must be initially fitted by trained medical personnel. The need for a high degree of sustained motivation militates against the contraceptive effectiveness of diaphragms and other barrier methods for many African women.

Intravaginal spermicidal agents. Spermicides have the advantage of being easily purchased in a pharmacy without consulting a physician. Generally, only sophisticated African women use modern intravaginal spermicides for contraception. The illiterate African woman may unwittingly use a corrosive intravaginal pessary to effect contraception or to treat infertility or secondary amenorrhea. Often these pessaries cause severe chemical vaginitis which, after healing by fibrosis, results in secondary synatresia with its ugly sequelae.

Steroids. Steroid hormonal contraceptive use is increasing in Africa. They may be administered orally, parenterally, as subfiscial implants, intrauterinely, or intravaginally.

Oral contraceptives. The use of oral contraceptives in many family planning clinics in Africa shows a high rate of defaulters (Crocker et al., 1971); consequently, it is not easy to evaluate the effectiveness of oral contraceptives in such clinic populations. It is however, well known that oral contraceptives offer almost 100 percent protection against pregnancy in women who attend the clinic regularly and take their tablets religiously. Though independent of coitus, oral contraceptives must be taken daily; hence, motivation is still an issue.

A great deal of research has been done on the adverse effects of oral contraceptives, mainly in Caucasians in Western cultures. By far the most important side effects of oral contraceptives documented are those on the cardiovascular system, including thromboembolism and elevation of blood pressure. The possible negative effects of oral contraceptives on the reproductive system are prolonged amenorrhea, break-through bleeding, and an increased susceptibility to Candida albicans infection. Other possible effects on the reproductive system are increase in size of preexisting fibroids and doubtful carcinogenic effects on the uterus and cervix.*

Injectable contraceptives. Two long-acting, or three-month injectable contraceptives, Depot medroexprogesterone acetate (Depo-Provera) and Norethisterone enanthate (Depo Gestagen, Noristerat, Norigest), are being used in clinics in Africa (Davey and Robertson, 1973; Hornsby, 1972), and in the WHO Collaborating Centers for Clinical Research in Human Reproduction

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**Editor's note:* Recent epidemiological evidence indicates that oral contraceptives significantly reduce ovarian cancer, benign breast tumors, menstrual irregularities, and iron-deficiency anemia. These advantages have to be weighed against the possible risks found in Caucasian women. Further epidemiologic studies are needed to assess these risks in African women.

in Africa. The rate of defaulters among clients on injectable contraceptives is much lower than among oral contraceptive clients. Injectables are independent of coitus and do not require continued motivation. The prolonged amenorrhea that follows injectable contraceptive therapy after discontinuation of the injections militates against ready acceptance of the method. Nevertheless, the continuation rate in some clinics in East Africa is very high for women on Depo-Provera. One major advantage of injectables is that they do not inferfere with lactation; on the contrary, they may increase the quality and quantity of mother's milk.

Anemia, abnormal hemoglobin, helminthic infestation, and malnutrition are common in many African countries. A thorough preliminary assessment of the woman for contraindications seems mandatory before steroid hormonal contraceptives are prescribed. However, the lack of physicians and nurses has led some to argue for distribution of oral contraceptives by nonmedical personnel, since a woman at high risk would not necessarily be identified through clinical examination (Huber and Huber, 1976). The risks of oral and injectable contraceptives need to be seriously weighed against the risks of grand multiparity and induced abortion.

Intrauterine devices (IUDs). IUDs have been introduced into many family planning programs in Africa because they have been found to be relatively safe, very inexpensive, and independent of coitus; hence, they do not require continued motivation on the part of the woman once they have been inserted. Intrauterine devices are highly effective in preventing pregnancy. The pregnancy rate in many clinics in Africa is of the order of 1.4 to 4.9 per 100 women-years of use depending on the type of device and whether it has been in place for 12 months or more (Akinla, 1968; Ojo, 1973a, 1973b). The expulsion rate in the first year is 1.2 to 12.4 per 100 users (Neumann et al., 1976; Ojo, 1973a). Some T-shaped devices and the M-211 devices have a low expulsion rate.

The greatest drawback of the intrauterine device is the high rate of removal for pain or bleeding, which varies with the device used and the clinic population. In the African experience, rates of removal for pain or bleeding range between 2.9 and 14.0 percent (Ojo, 1973a, 1973b). In Ibadan, the rate for removal for the Lippes loop is 2.9 percent and for the M-211 device, 4.3 percent (Ojo, 1973a, 1973b). The bleeding may prevent Muslim women from performing their prayers if they equate the bleeding episodes with the menstrual loss (during menstruation, Muslim women are forbidden to perform their prayers). Thus, it is extremely important to explain the possible complications of the intrauterine device to women in Africa before inserting a device (Pradervand, 1973).

Anemia is very common in women in Africa. The grand multipara, a prime candidate for intrauterine contraception, is particularly at risk because previous frequent conceptions may have rendered her anemic (Palliez et al., 1971). Women with abnormal hemoglobin, particularly sicklers, are in a chronic state of anemia. This category of women has a low tolerance for blood loss; therefore it is important to exclude anemia before inserting intrauterine devices, unless the progesterone IUD is used, in which case menstrual blood loss is reduced.

Other complications associated with the device are pelvic inflammatory disease, cervicitis, mucopurulent vaginal discharge, and a doubtful increase in the incidence of ectopic (tubal) pregnancies. Migration of the device into the fallopian tubes or peritoneal cavity and embedding of the device in the myometrium (Ojo, 1975) have also been reported. Fragmentation of the device and loss of the nylon thread at the end of the device are other possible complications.

Intrauterine contraceptive clinics require trained and skilled medical or paramedical personnel, a scarce commodity in Africa. Even in places with acute shortages of medical personnel, nurses and other paramedical personnel could be trained to insert the intrauterine device and carry out routine follow-up of patients (Hartfield, 1968).

Cycloprovera vaginal rings. Vaginal rings are not yet widely used in sub-Saharan black Africa. Experience in the use of intracervical and intravaginal rings is limited to research departments.

Postcoital Contraception

Many African women routinely carry on vaginal douching in the morning on waking up and last thing at night before retiring to bed. This procedure is purely for perceived hygienic reasons. Postcoital douching, a well-known method of contraception all over the world, is of questionable efficacy, however.

Both steroidal and nonsteroidal estrogens have been used postcoitally to prevent pregnancy. To be effective they must be taken soon after intercourse. Few African women take tablets postcoitally to prevent conception.

The insertion of a copper intrauterine device has also been used as a method of postcoital contraception. For effective prevention of pregnancy, the device has to be inserted not more than 72 to 96 hours after intercourse.

Sterilization

Sterilization, male or female, is viewed with disfavor in many African countries. Male sterilization is almost totally unacceptable in the great majority of countries in Africa (Minkler, 1972). This may well be for reasons of male chauvinism and the common belief that vasectomy causes impotence. Female sterilization, on the other hand, is gradually being accepted in a number of African countries, notably Nigeria and Uganda (Minkler, 1972). Reasons for nonsterilization, even in multiparous women, may include an imbalance of the sexes of children, lack of consent of husband, and fear of infidelity. Attitudes are changing, and in many cases, consent is more readily given if the woman has had five or more living children or has had several Cesarean sections.

Pregnancy Termination

In many African countries, the law prohibits induced abortion other than on strict health grounds; therefore, pregnancy termination in hospitals has been done only for health reasons and in women in whom various contraceptive methods have failed to prevent pregnancy. This is particularly the case in Ibadan. Notwithstanding this situation, it is fruitful to anticipate a change in attitude towards pregnancy termination and examine its implications for present-day Africa. Given these restrictive abortion laws, illegal abortions are procured clandestinely with calamitous consequences in a number of cases. If the laws on abortion were relaxed and abortion on demand permitted, the flood gates would be opened. The already inadequately staffed hospitals and health centers would not be able to cope with the deluge of cases.

The solution would seem to lie in the use of effective contraceptives, reserving pregnancy termination for cases of failed contraception or for those with medical indications. With such a program, it follows that adequate health and sex education should be given at all levels, and the provision of family planning services should not be restricted to the urban centers.

Constraints of Fertility Regulation in Africa

Sociocultural Constraints

Fertility regulation in the form of limiting births does not conform to the social norms in most African societies. In African culture, children are regarded as gifts from God and it is, therefore, sinful to practice birth control. Some Christians quote extensively from the book of Genesis and some Muslims invoke Qur'aanic laws to support this contention. They

fulfill the traditional commandment to multiply and fill the earth with their offspring, and consider it a Divine edict (Adler, Katz, and Yehzkiel, 1975).

In addition, children are a sign of a man's virility and proof of a woman's fertility. They guarantee the security of the woman in her matrimonial home. Children are also seen in the African context as symbols of prosperity and prestige (Davey and Robertson, 1973). Barrenness is a social stigma in Africa, and in many cultures associated with witchcraft. The position of a childless woman in a typical African marriage system is precarious. If she is loved and favored by her husband, her childlessness is tolerated for a short time. The husband may even seek various means of ensuring that she becomes pregnant. If these measures fail, the woman is usually ostracized and sometimes regarded as possessing evil spirits. Apart from the above, many African husbands see fertility-regulating methods as a way of promoting promiscuity and encouraging their wives to be unfaithful (Geraty, 1975; Okojie and Montague, 1975).

In an agrarian economy, children are seen as a means of augmenting the labor force on the farms. To aging parents, they are an insurance against old age. For instance, the acceptable limit of family size among the Yorubas and Ibos is six or seven surviving children (Lucas and Ukaegbu, 1977; Ware, 1975). Such views of children are among the problems that beset fertility regulation in the African sociocultural milieu.

Political Constraints

In African countries with democratic parliamentary systems, politicians recognize the advantages of a large constituency and are therefore suspicious of any measure to promote birth control in their ethnic group. Since the ruling ethnic group wants to remain dominant, the other ethnic groups struggle to maintain a political equilibrium which will ensure an equitable sharing of power and distribution of amenities. An attempt to introduce any form of fertility control is viewed with suspicion and dismay.

Medical Constraints

Although mortality rates are declining in a number of African countries, they are still very high when compared to figures from developed countries. Maternal mortality in many parts of Africa is of the order of 8 per 1,000, about 40 times higher than the rate in the United States or Great Britain (Ojo and Savage, 1974). Perinatal mortality rates vary from 60 to 100 per 1,000 as compared to about 11 or less per 1,000 in Sweden. Infant mortality rates are also phenomenally high (Huber and Huber, 1976; Okojie and Montague, 1975). Against the background

of these high mortality rates, there are some parts of Africa in which about 40 percent of the women remain childless all their lives (Belsey, 1976). The population will not be receptive to any form of birth limitation until there is a guarantee of continued infant survival (Crocker et al., 1971). Lost infants must be replaced at all costs, and the infertile woman will go to any length to ensure her fertility even at great risk to her personal health.

Economic Constraints

Family planning clinics are usually concentrated in urban centers. Eighty to 90 percent of the population in many African countries is rural. The women at risk of unplanned pregnancy in rural areas are usually neglected. Even in urban areas, clinics are often located several kilometers from the indigenous population. Women have to travel long distances (at great cost and personal inconvenience) to the clinics. Unless the motivation is high, the attendance rate is bound to be low (Castle, 1976). Many clinics are inadequately staffed. Patients already exhausted by the long journey to the hospital are put off by long hours of waiting in the clinic; consequently, the clinic continuation rate is low. In clinics also used for research, the waiting time is compounded by additional tests often required.

Other Constraints

There are other constraints to the acceptance of birth control in Africa, including inadequate information and education on the availability and safety of fertility regulating methods (Ravenholt and Chao, 1974). Ignorance and cultural beliefs further complicate the picture. Some African women believe that the use of birth control pills or intrauterine devices will cause sterility not only in this life, but in the next. In addition, some reports have exaggerated the complications of various birth control methods. The excessive bleeding resulting from the use of the intrauterine device, the prolonged amenorrhea caused by the long-acting steroid hormonal injectable contraceptives, and the episodes of break-through bleeding with some oral contraceptives deter many women from using these methods.

Strategies for Solution

It is generally believed that lower mortality rates coupled with ready availability of contraceptives will increase the acceptance of fertility regulating methods in Africa (Ravenholt and Chao, 1974). However, solutions to the problem lie not only in lower mortality rates and wide distribution of contraceptives,

but also in improving the socioeconomic status (Castle and Sapire, 1976; Geraty, 1975) of the men and women in Africa, many of whom live on the brink of poverty. Before any fertility regulation program can be successfully launched, there has to be a real structural change in the socioeconomic status of the people in the developing countries (Hautvast and De Jonge, 1972). It is only when the social and political climate is ripe that a solid foundation can be laid for the acceptance of fertility regulation in Africa. The right climate can be established by providing adequate information and education on fertility regulation methods to opinion leaders in the community, and by providing adequate health facilities. The chiefs, the heads of families and the politicians must first be convinced of the necessity of birth control.

Factors Conducive to Ready Acceptance

The provision of adequate health facilities, instrumental to a marked lowering of maternal and perinatal mortality rates, and to higher infant and child survival rates, would be conducive to ready acceptance of fertility regulation. To achieve this, it is imperative that health facilities are available, not only in urban but in rural areas. An integrated approach to health care delivery is of paramount importance. It is not enough to have family planning clinics; these clinics should be integrated with a program of maternal and child health. The importance of health education at all levels cannot be underestimated. The maternal and child health-family planning program should be part of a family health program (Neumann et al., 1976; Williams, 1973; Wright, 1973). The concept of health as an individual's problem should give way to that concept in which the health of the total family is the concern of health practitioners. At the primary health care level, there should be opportunities not only for health and sex education, but also for immunization against communicable diseases, advice on nutrition, provision of food supplements where necessary, the identification of high-risk patients, facilities for referral of such patients to a district or urban hospital center, and the treatment of common ailments, such as malaria and diarrheal diseases.

Adequate Information and Education

Information and education programs should develop at an equal pace with the medical program outlined above. Health educators should try to teach within the context of the cultural environment and should not be seen as being iconoclastic. Symbols used in information and education materials should be noncontroversial and relevant to the local setting. Market places, churches, and mosques are useful places for disseminating information. The use of radios, newspapers, and where possible, television,

should be encouraged. Adequate sex education is of paramount importance. The provision of the above facilities requires money, materials, and personnel. The lack of trained health personnel is a prominent feature of health programs in developing countries. Money and materials are not readily available (Ravenholt and Chao, 1974); thus, assistance from international and intercountry organizations is mandatory.

Research

It is necessary to determine research priorities in the field of fertility regulation, to identify those biomedical research activities of developed countries that are relevant to Africa, and to assess the efficacy, acceptability, and safety of currently available methods of fertility regulation in African countries. It is also necessary to conduct research into ways of improving current methods and evolving new methods acceptable to Africa.

Any research in this field must look into the effects of fertility regulating methods on the various disease entities of Africa. For instance, which hormonal contraceptives are suitable for sicklers? To what degree do oral contraceptives containing hematinics prevent anemia in a situation where 60 percent of the women are anemic? What are the effects of oral and injectable steroid hormonal contraceptives on women with known vitamin and other nutritional deficiencies? Effects on lactation are important, as are the effects on the return of the menses and fertility after cessation of steroid hormonal contraception. In view of the high incidence of cervical, as well as breast cancer in a number of African countries, such as Nigeria, it is necessary to determine if and to what extent oral contraceptives are associated with carcinoma of the breast and cervix in African women. Although an increased incidence of thromboembolism has been found in Caucasians taking steroid hormonal contraceptives, it would be interesting to know the effects on the black African in whom the incidence of thromboembolism is reportedly low.

Clinical research to determine the psychological effects and methods of female sterilization best suited to the community is necessary. In addition, research must be conducted to determine the optimum time for pregnancy termination and the safest method for this procedure. Research at the health service delivery level is necessary to determine what cadre of staff is best suited to deliver health care in rural, periurban, and urban areas. Research into nonmedical distribution of oral contraceptives is important if the needs of teeming rural populations are to be met. It is well known that the commercial outlets for contraceptives in Nigeria, Ghana, and Uganda far exceed the family planning clinic distribution (Black, 1972). Research

into native herbs, some of which may contain abortifacient and contraceptive agents, should be encouraged especially in developing countries which have faculties of pharmacy in their universities.

Research is also necessary to determine what level of training is needed to allow paramedical and nonmedical personnel (including traditional birth attendants) to deliver family planning and maternal and child health services safely, effectively, and at low cost in rural areas. Finally, emphasis must be placed on research in the field of infertility.

Final Recommendations

1. Strenuous efforts should be made by the more developed countries to help African countries achieve a drastic reduction in (a) maternal morbidity and mortality, (b) perinatal mortality, and (c) infant and child mortality.

2. Technical and financial assistance should be given to African countries in two major areas: (a) the provision of maternal and child health services to all people and (b) health manpower development in Africa.

3. Family planning should be encouraged in Africa, primarily as a means of improving the quality of life. A program of adequate information and education on health and fertility regulating methods should be organized.

4. Family planning should be an integral part of a family health program in urban, periurban, and rural areas of Africa. Accessibility of clinics to the people who most need them is of paramount importance.

5. Developed countries of the world should use their surplus funds to free the teeming populations of the African countries from the shackles of poverty and oppression. Foreign aid to African countries should be relevant to the needs of those countries.

6 Traditional African Religions and Cultural Attitudes towards Family Planning

Alan G. Johnston, M.A.

To be effective, a family planning program must be grounded in an understanding of cultural traditions as well as of current social, economic, and political conditions. In Africa, traditional social structures and customs are changing rapidly as a result of modernization, yet many underlying beliefs, values, and practices continue as persistent influences on attitudes and patterns of behavior. This chapter considers the broad range of traditional religious and cultural attitudes, beliefs, values, customs, rituals, and practices relevant to family formation patterns and family planning.

African Traditional Religions

Definition

It is difficult to distinguish between the religious and cultural dimensions of beliefs and practices in many African societies. Whereas religion in some societies may be thought of as referring primarily to the spiritual side of life, in traditional Africa there has been a unity of religion and culture in which all disciplines, such as medicine, science, art, religion, philosophy, social theory, land law, psychology, and politics, form part of a cohesive system. The term *traditional religion* as used here refers to the preliterate religions, mostly from sub-Saharan Africa. Early writers, and even some social scientists today, referred to these African religions by the terms

animism, fetishism, or polytheism. While these labels may have been justified in certain contexts, none is adequate as a holistic description of African religious beliefs and practices which were not simply magical practices, or the personification of nature, but almost invariably included worship of a supreme being (Parrinder, 1976).

Characteristics

The study of African traditional religion is made difficult by the great variety and multiplicity of peoples and the lack of a central tradition. African traditional religions developed in preliterate times and no ancient scriptures exist. Yet there is much evidence for the development of religion to be found in a broad range of artistic expression, which has been called the indigenous language of African belief and thought (Parrinder, 1976). Attitudes toward fertility, health, and family planning are tied to this system of thought and expression and, in fact, the artistic expression of the desire for fertility is universally a major theme.

The fundamental powers in African traditional religion are life (a life force), God, and ancestors. Continuity with the past is an important element of these beliefs. African traditional religions have been characterized as world-affirming or life-affirming. There is a frank acceptance of the importance of sex, and much sexual symbolism exists in art and dance. African religion covers the whole of life; therefore, there is a large social element in the rituals, festivities, societies, and brotherhoods.

In the affirmation of life, many African traditional religions seek to ensure the fertility and vitality both of human beings and of the land on which they and the other living creatures depend. In many societies, spiritual beings (deities, ancestors, and other spirits) are seen as having the ultimate control of fertility, and many rituals are directed toward establishing harmonious relations with these spirits. Societies such as the Bemba, Ganda, Nyakyusa, Swazi, and Yoruba have central communal cults explicitly concerned with fertility, while others such as the Azande, Lamba, Mende, and San seek to control rain, the source of fertility of the land (Kilson, 1976). Fertility of both man and the land is thus an important religious goal and the basis of attitudes and behavior regarding the relationship between the sexes and other components of family formation.

Magic is an aspect of African religions which assumes a very prominent role in the field of medicine. Healers and medicine men are important members of their communities. The procedures and success of traditional therapies are often difficult to evaluate in terms of the criteria of Western scientific medicine,

partly because of persistent stereotypes about superstition and black magic. Although traditional healers do not exclude ideas of natural and physical disease causation, much of their influence is based on magic, witchcraft, and superstition which are important factors in the socio-cultural definition of sickness and health (Good, 1977). The magical dimension of African beliefs is not merely a relic of the past, but continues in different forms into the present:

> In modern times, these magical and witchcraft beliefs ought to disappear with the growth of education. There may be some decline in their power, but since new tensions arise in society, new fears and illnesses, so men resort to old superstitions. Even when the higher levels of religion fade or are changed into a new faith, the lower levels tend to linger on. (Parrinder, 1976:65)

Another dimension of African religious beliefs concerns the rites of passage. These traditional rituals mark the stages in the life of an individual from birth to adolescence, marriage, parenthood, and finally to death. The only means to ensure survival is to remain in the memory of one's children and relatives, a belief sometimes referred to as the concept of the "living dead."

Relevance of Traditional Religion to Fertility and Family Planning

The life-affirming character of African traditional religions leads to a frank acceptance of the sexual aspects of life and gives a place of importance to procreation and children. Environmental influences, particularly high infant mortality rates, limit the number of surviving children, so the health of the children and mother are of crucial importance. Health and sickness, however, are not defined in a narrow biological idiom, but link spiritual and magical forces with natural and physical etiologies. The introduction of modern medicine in an African cultural setting must then take into consideration many cultural factors. African health care consumers, including those seeking to delay or prevent a further pregnancy, may not accept the authority of modern practitioners and may move back and forth between Western and traditional therapeutic systems, both of which have a role to play in expanding medical care systems.

In spite of the rapid pace of social and economic change, particularly in contemporary urban settings, traditional fertility ideals persist even after the social customs to which they were once meaningfully linked have been abandoned. The impact of contemporary economic motivation, the conversion from traditional religions to Christianity and Islam, and the trends toward

Western ideas and values and increasing secularization all affect the traditional social and environmental constraints on high fertility. These factors will be considered here with their implications for family planning.

Tradition and Marriage

Age at Marriage

Although age at marriage for girls has generally been very early in Africa, Acsádi (1976) has noted that early marriage was less common among some groups, such as the Yoruba of southwestern Nigeria, but that this did not lead to lower fertility levels than in other societies where marriage occurred very early.

The Practice of Polygamy

Although the prevalence of polygamy is decreasing with increasing modernization and development, Africa still has the highest percentage of polygynous marriages of any continent. The overall correlation of marital fertility with type of union has been unclear and inconsistent.

Several studies have shown a lower fertility among women in polygynous unions (Dorjahn, 1959; Muhsam, 1956; Page, 1975; UNECA, 1968). In such unions, a husband would have sexual access to the co-wives, making it easier for a woman to maintain the traditional period of postpartum abstinence. Husbands in polygynous unions are also likely to be older than those in monogamous unions; therefore, there may be a tendency for the fertility of the wives to be lowered. On the other hand, infertility or subfecundity of a woman may lead a man to take a second wife. Another factor which makes the correlation difficult to interpret is that many women currently in polygynous unions have spent part of their married lives in monogamous unions.

Other studies have shown fertility to be higher in monogamous marriages (Ohadike, 1968; Olusanya, 1971b). This could be a result of monogamous marriages being more common among urban dwellers who have abandoned traditional child-spacing practices without adopting modern contraception.

Marital Stability

Consistently lower fertility levels have been reported for consensual unions than for customary marriages, probably because consensual unions tend to be less stable and of shorter duration than customary marriages. Infertile women from a previous marriage, or women who have yet to bear a child, are more likely to be in consensual unions. Once a child is born into a consensual

union, or once a woman in such a union has conceived, the marriage is likely to be formalized.

Traditional Attitudes toward Family Planning in African Cultures

In examining attitudes regarding family planning, the approach of many demographers has been to study norms about desirable family size. Even without a specific family-size norm, there are factors in African culture that shape attitudes toward family planning.

Negative Attitudes toward Family Planning

The principal attitude which may create a negative reaction toward family planning is the universal desire among Africans for many children. This desire is based on the need to assure continuity in life, the value of children as labor and as an asset in attaining material wealth, the need for old age insurance, and the social status gained by parents of many children. In addition, high levels of infant mortality have made it necessary that each woman give birth to a large number of children in order to ensure that some would survive. It is generally found that attitudes tend to last longer than the facts from which they originated. An example commonly cited is the persistence of a negative attitude toward family-size limitation because of the fear that the few children in a limited family might die. This fear may persist even under conditions of changed infant mortality.

Many demographers have pointed out that fertility decline is most likely to occur when the parents focus more on quality, rather than quantity. In modern society, parents want to invest in the education of children as one aspect of this quality. Molnos (1972) points out that in traditional society there was also a desire for children of quality or with good character, but parents tried to have as many children as possible to assure that at least some would be "good." In other words, they considered character to be predetermined, rather than being shaped by the environment in which the children were raised.

Misunderstandings about how methods of contraception work often cause fear of permanent sterility. For this reason, in particular, there is great resistance to including sterilization as one of the methods offered by family planning programs in Africa. There is also a fear among many Africans of social pressure against contraception, and this pressure is especially significant in traditional settings. For many ethnic groups, planning and forecasting, particularly in regard to family size, are alien concepts. Some may believe that limiting the family size

is not important as God will provide for even a large family.

The timing of births in traditional society is generally not the result of a conscious choice but is determined within the social context. The first pregnancy should come as soon after marriage as possible for most ethnic groups, or even before marriage for other groups. Spacing of births thereafter is not deliberately planned in the sense of a prior decision as to what the length of the interval should be before the next pregnancy. Rather, a complex set of continuously changing factors has an impact on the decision as to when to resume intercourse.

Positive Attitudes toward Family Planning and Child Spacing

While the factors above may lead to negative attitudes toward birth control, fertility in most African societies has not been unlimited. A number of social restrictions have moderated fertility. For example, the importance of maintaining a long interval between children has been widely recognized. The danger of kwashiorkor, the disease of children too soon displaced from the breast by a new infant, is widely known and is seen as the principal motive for maintaining a long period of postpartum sexual abstinence. Preserving the health of the mother, and preventing extramarital pregnancies, would also be strong motives for the use of family planning. That strong positive attitudes toward family planning exist in traditional society is evidenced by the prevalence of a wide variety of traditional methods of birth control as indicated below.

Traditional Methods of Family Planning

Every society has historically regulated its fertility by a number of voluntary measures affecting reproduction which form a "cultural pattern of very great antiquity" (Polgar, 1971:6). In most parts of Africa, the use of modern forms of contraception is extremely limited, yet even the high crude birth rates found in much of Africa fall short of what might have been regarded as unlimited "natural" fertility (Caldwell, 1976). Several factors can account for this limitation of high fertility, despite near universal marriage and general early age at marriage. One factor to which low birth rates may be attributed is the practice of traditional contraceptive techniques. They include, besides the observance of a period of abstinence from sexual relations after the birth of a child, a broad range of abortifacients and contraceptive mixtures, locally made sponges and suppositories, withdrawal, douche, rhythm, and various forms of magic (Himes, 1963). While many of these methods may not have been very effective in controlling fertility, their use is evidence of acceptance of and a motivation to control fertility.

The study of these traditional methods can be of great practical value to health specialists concerned with reducing birth rates and building on earlier fertility regulating practices for the introduction of newer methods.

The following is a brief review of traditional contraceptive measures found to be widespread in Africa.

Abstinence

The principal method of regulating fertility has been a prescribed period of abstinence from sexual relations after childbirth. This may be linked to the adverse effect of a new pregnancy while the mother is still breast feeding another child. A question on this topic was asked of women in three communities in southwestern Nigeria (Table 6.1).

Table 6.1. Opinion in Percentages as to Whether Pregnancy or Sexual Intercourse Has Adverse Effect on Unweaned Child--Nigeria

Community	Agree	Disagree	Do Not Know
Ibadan[1]	42.8	45.8	11.4
Ife[2]	63.2	30.8	6.0
Oyo[2]	66.2	23.0	10.8

Sources: (1) Olusanya (1967); (2) Olusanya (1969)

The proportion agreeing that pregnancy or sexual intercourse has an adverse effect on the unweaned child varied from about four-fifths in the most urbanized of the communities to two-thirds in the least urbanized. In Yoruba society, the prescribed period of abstinence varied from 18 to 36 months, and similar periods have been described from all sections of Nigeria (Olusanya, 1969). The custom of a young woman's returning to her parents' home for delivery, or after delivery, frequently for a long period of time, was an important factor in maintaining these long periods of abstinence. The practice of husbands and wives sleeping in separate buildings also facilitated the maintenance of abstinence in such periods when it was socially prescribed. In some societies, terminal sexual abstinence is practiced when it is no longer considered proper for a woman to become pregnant (Caldwell and Caldwell, 1976b). Such situations would include the case of a woman whose daughter becomes pregnant or whose daughter-in-law joins the extended household. Terminal sexual abstinence may also be practiced when the health

of a woman would be seriously threatened by an additional pregnancy. In general, terminal sexual abstinence is practiced because of role definition and not because of reproductive norms.

Abortifacients

Olusanya (1969) describes induced abortion as the second most common method of traditional contraception among the Yoruba. Abortifacients involve various mixtures taken internally, or a variety of vaginal suppositories. For pregnancies not more than a month old, potash is added to lime juice and taken three times daily for about three days. Another method consists of mixing cactus juice with fresh eggs. The addition of bluing and local gin results in very dangerous and powerful concoctions. Quinine preparations have also been used. Induced abortion through physical means is a method known throughout Africa. Physical manipulation of the womb and tightly constricting the abdomen with a cloth are methods which have been used both for contraception and to induce abortion.

The frequency of induced abortions is very difficult to assess, especially in countries where it is illegal. It is certain, however, that in many cities, and in many rural areas as well, abortions have been performed by professional abortionists, native doctors, and the women themselves. Deaths from complications of induced abortion are not rare, and hospitals report a considerable number of these cases. In traditional cultures in Africa, where fertility reflects a woman's status and where infertility can lead to divorce, it is unlikely that induced abortion would play a major role in childlessness.

Withdrawal or Coitus Interruptus

Common in many areas of Africa before contact with Europeans, withdrawal has been used particularly in premarital sexual life (along with several forms of incomplete intercourse), during the period a child is suckling, and in casual unions (Lorimer, 1954; Molnos, 1972). That it had been given a name in various languages--*adaye* in Yoruba, *chode* in Jaluo, and *ngwiko* in Kikuyu--attests to its institutionalization. In Morgan's 1974 study in Lagos, 25 percent of respondents had heard of this method and 8 percent had used it. When Hausa women in the northern Nigerian city of Sokoto were asked about traditional methods of birth control, many of them did not think that they could ask their husbands to practice withdrawal because it would be unfair to them or because their husbands might reject them in favor of other wives (Trevor, 1975). The practice of withdrawal may be well known in Africa, but has probably been used to only a limited extent within marriage.

Rhythm

One form of periodic abstinence is based on ideas about the fertile period in a woman's menstrual cycle. Many societies incorrectly believe that the days following a woman's menstrual period are the most fertile. Couples concentrate their sexual activity during this period to insure pregnancy, but avoid it if they wish to avoid pregnancy (presumably with the reverse results). Acsádi (1976) reports, however, that some Yoruba women are sensitive enough to recognize the time of their ovulation and to avoid coitus then if they wished not to become pregnant. Although knowledge of the rhythm method is fairly common, correct knowledge about the safe period is rather poor, making the effectiveness of the method doubtful. What is important is that the idea of taking concrete steps to space children or to plan births is part of tradition and not an innovation imported from outside the society. Rather, this history of attempts to space or plan births suggests that effective modern contraceptives introduced in a culturally sensitive program may be accepted as substitutes for the less effective traditional methods.

Contraceptive Mixtures

Although most charms and herbal medicines are traditionally directed at promoting fertility, a variety of mineral and vegetable materials are used as contraceptives. These include salty water or various herbal mixtures consumed immediately after intercourse and various pastes, vegetable plugs, rags, or grass inserted in the vagina prior to intercourse (Molnos, 1972).

Magical Charms

A variety of magical methods of contraception has been used throughout Africa. These methods include a black iron ring worn on the woman's finger during intercourse, a leather belt stuffed with charms and worn around the woman's waist, and various armlets, beads, and pins (Acsádi, 1976; Olusanya, 1969). According to Himes (1963), a possible magical practice in North Africa is for the women to wear a girdle with a Qur'aanic inscription. Although such magical acts might be considered worthless or ineffective, there is evidence that psychological states may have an impact on fertility.

Knowledge of Traditional Methods

The extent of knowledge and use of traditional methods of birth control varies widely among different ethnic groups and countries in Africa and is not easily ascertained through social surveys. Similar surveys within the same ethnic group and in the same country have provided inconsistent results (Caldwell and Igun, 1970; Morgan, 1974). What appears certain, however,

is that the methods are widely known and indeed play a significant role in all traditional societies, persisting even in urban, nontraditional settings today. As an example of the extent of knowledge of these methods, Acsádi (1976) provides data from a survey in southwestern Nigeria on the knowledge and use of traditional methods of contraception (Table 6.2) and on knowledge of specific magical and herbal methods (Table 6.3).

Table 6.2. Folk Methods of Contraception--Yorubaland, Nigeria

	% of Women		
Methods	Heard of	Known of	Had Used
Abstinence	90	83	65
Breast feeding	45	35	25
Rhythm	38	26	15
Withdrawal	29	18	9
Douche	13	7	3
Other	16	5	3

Source: Acsádi (1976:134). Reprinted with permission of the Carolina Population Center, University of North Carolina at Chapel Hill.

Table 6.3. Knowledge of Traditional Birth Control Methods--Yorubaland, Nigeria

			Total (Couples)	
Methods	Males	Females	No.	%
Magic (rings, belts, armlets, etc.)	207	88	259	39.3
Womb turning	110	103	191	29.0
Local medicines, herbs, concoctions	72	46	114	17.3
Traditional chemical abortifacients	12	31	40	6.1
With traditional doctor's contribution (abortion, traditional injection, etc.)	15	7	22	3.3
Physical actions, positions	3	4	6	0.9
Other, unspecified or unidentified	13	14	27	4.1
Total	432	293	659	100.0

Source: Adapted from Acsádi (1976:141)

Traditional Medicine and Practitioners: Their Relationship to Family Planning

A large proportion of people in Africa rely on traditional indigenous medical practitioners for primary care. For many millions of people in rural areas, where the need is greatest, the only recourse is to the traditional birth attendant, the healer, and the herbalist. While many practices are nonscientific from a Western biomedical point of view, traditional medicine is logical, valid, and relevant in its own behavioral setting. Indeed, the system of traditional medicine is deeply rooted in the beliefs, values, social organization, and customary behavior patterns of the practicing communities (Fabrega, 1974; Good, 1977). Even in urban areas where there may be a choice of health care facilities, traditional medicine survives because it satisfies four essential user's criteria: accessibility, availability, acceptability, and dependability (Nchinda, 1976).

Traditional healers and other traditional medical practitioners have been identified as a possible source of support for family planning programs (Good, 1977; Harrison, 1974-75) because they are a part of the culture and they share common beliefs, values, and symbols of communication. A Nigerian health educator, Z. A. Ademuwagun, has recommended using traditional healers and medicines in public health programs for these reasons and because they possess skills in dispensing curative, preventive, and rehabilitative care. They are effective in some aspects of psychosomatic medicine in the use of plant medicine for symptomatic treatment and, because they live in the community, they have skills in interpersonal relations. This includes the ability to counsel with sympathy, empathy, and concern and to establish trust and rapport with the patient (Harrison, 1974-75).

While indigenous medicinal therapies undoubtedly provide social benefits in terms of emotional support and tension reduction, they may also inadvertently be physically detrimental to the individual. For example, faulty midwifery can lead to sepsis resulting in infertility or to increased stillbirths and neonatal deaths, thereby lowering natality (Longo, 1964; Spring, 1976). The skills of the traditional medical practitioners need to be enhanced through training in modern medical practices, and research in a number of African countries has shown that a majority of these practitioners is amenable to and even enthusiastic about such training (Ekanem, Ebigbola, and Igun, 1975; Simpson-Hebert et al., 1980).

The development of traditional therapeutic techniques in a modern framework would enhance the acceptability of a family planning program, while the participation of traditional medical practitioners would also ensure its greater accessibility. The foremost example of this type of integration is the Chinese

medical system. By integrating traditional practitioners, such as herbalists and acupuncturists, with doctors and nurses trained in Western medicine, China has realized remarkable advances in infectious disease control, nutritional standards, and the distribution of maternal and child health care and family planning services. Indeed, the "barefoot doctors" have been accorded substantial credit for China's reported success in reducing fertility (Faundes and Luukkainen, 1972).

An African example of incorporating traditional medical practitioners in a family planning program is the National Family Planning Program of Ghana for 1973 to 1978. One of the operational targets of this program was to recruit and train traditional birth attendants to provide health and family planning services at the village level (Ampofo et al., 1977; Armar, 1975). Similar work in an urban setting has been carried out on a small scale at several sites in Egypt, including one under the Alexandria Family Planning Association (Bruce and Schearer 1979). Traditional birth attendants were also trained as part of the Rural Maternal and Child Health/Family Planning Project of the Cross River State Ministry of Health in Calabar, Nigeria. Family planning projects incorporating traditional midwives have also been started in Liberia, Sierra Leone, and Sudan (Simpson-Hebert et al., 1980).

The role of traditional health practitioners has recently gained a much broader acceptance in Africa as many nations reorient their health programs and policies to focus on primary health care at a local level (Gish, 1978). The clinical validity of many traditional medicines and therapies also has gained international recognition with the establishment of the Instituto Italo-Africano in Rome as the first collaborating center for traditional medicine of the World Health Organization (Laud, 1979). Both of these developments point to the important roles that traditional medicine and traditional medical practitioners will play in health-oriented family planning programs.

Traditional Religion and Contemporary Change

Traditional African religions and cultural attitudes regarding fertility and family planning are increasingly subject to pressure for change from the trend in modern Africa toward Westernization, secularization, and contemporary economic motivations. While traditional rituals may be neglected, many traditional values and beliefs persist as basic sources of cultural support in this period of rapid social and economic change.

Conversion to Christianity has been occurring at a rapidly expanding pace, yet Christianity in Africa has undergone a process of Africanization to incorporate many of the forms, rituals, and

beliefs of traditional religions (Barrett, 1968, 1970; Jules-Rosette, 1979). The acceptance of Christianity has been tempered by an underlying persistent faith in many traditional forces. An African theologian describes this process:

> While, as we have said, every African may wish to be regarded as connected with one or the other of the two fashionable religions, most are at heart still attached to their own indigenous beliefs. It is now becoming clear to the most optimistic Christian evangelists that the main problem of the church in Africa today is the divided loyalties of most of her members between Christianity with its Western categories and practices on one hand, and the traditional religion on the other. It is well known that in strictly personal matters relating to the passages of life, African traditional religion is regarded as the final succor by most Africans. In hospitals, for example, people who on admission have declared themselves Christians and indeed are practicing Christians, have medicine prepared in the traditional way smuggled in to them simply because, psychologically at least, that is more effective in that it is consecrated medicine with the touch of the divine healer, in contrast to the Europeans' mere coloured water or mere pills. In matters concerning providence, healing, and general well-being, therefore, most Africans still look up to their own religion as the way. (Idowu, 1973:205)

The spread of Islam and the imposition of Islamic Law has had a major impact on African life. Though conflicting with some elements of traditional religions in Africa, Islam is closely compatible with African religions in its ideas about faith and conduct, reward and punishment, and life after death. The impact of African traditional religions on Islam is seen in the assimilation of many African rituals and customs relating to circumcision, marriage, and funerals, as well as various festivals. Islam also has been influenced profoundly in this century by the spread of Western education and forms of government. The economic and social changes in African society today have produced Islamic leaders whose outlook has turned towards concerns about development and away from old Islamic legal, social, and marital concerns.

Finally, economic and social changes occurring in Africa today have had a significant impact on traditional values and attitudes related to social organizations, fertility, and family planning. Education, urbanization, improved health status, and contemporary economic motivations have all led to changes in the traditional factors regulating fertility and have introduced new motivations for family planning. Less integrated family and

kinship networks, increasing marital instability, a decline in the importance of premarital chastity, declines in the periods of breast feeding and abstinence, and improved nutritional status leading to declines in the age at menarche and to a decline in subfecundity, all have an effect on fertility. The increases in fecundity because of improved nutrition and health care, combined with the shortening of traditional periods of breast feeding and postpartum abstinence, have been chiefly responsible for an apparent increase in fertility during the early stages of socioeconomic development in Africa (Acsadi, 1976; Molnos, 1972; Olusanya, 1971a).

While many of the traditional values leading to negative attitudes toward family planning persist in contemporary African society, additional positive attitudes may emerge as a result of economic motivation and contact with Western ideas. Aspirations for educating children and providing the material needs of the family are more easily fulfilled with smaller families. In addition, a confidence in health services and modern child care may develop as infant mortality levels drop. One of the major factors, the one to which this larger research project is addressed, is an increasing concern for maternal health and an increased understanding of the health consequences for both mother and child of having a long series of closely spaced births.

7 Islam and Family Planning in Africa

Abdel R. Omran, M.D., Dr.P.H.

Almost half of Africa's population is Muslim and the Islamic way of life and thinking has permeated much of African culture for several centuries. The issue of family planning in Africa, therefore, cannot be discussed without due consideration of the Islamic viewpoint in regard to family formation and family planning. Participants at a 1979 African conference on family planning recognized this as follows:

> If the benefits of family planning are to be brought within reach of the African people, the African Muslim and the position of Islam with regard to family planning must be taken into account. (Milas, Nabwiso, and Dossou-Yovo, 1979:1)

It is fortunate, indeed, that Islam caters to the family as the basic unit of the Islamic society, sanctioning family planning in general and strongly supporting it for health indications.

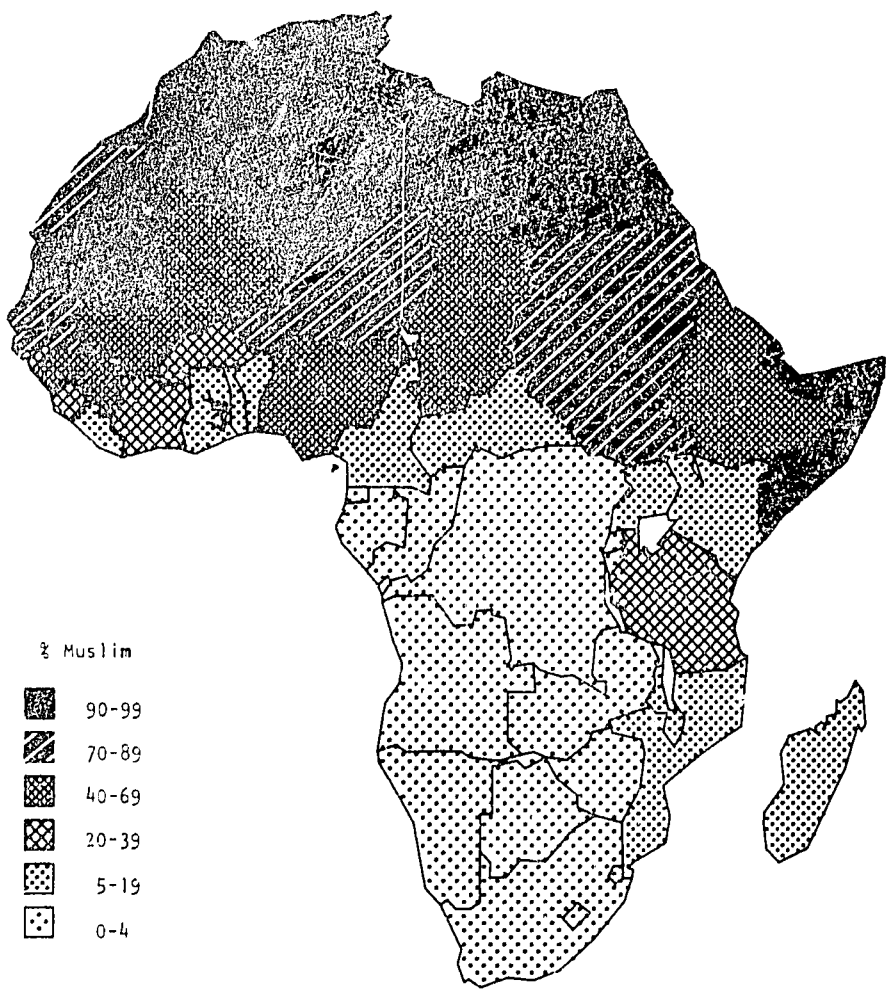
A Historical Note

Only nine years after the death of the Prophet Mohammad, Islam came to Africa when Egypt became a Muslim nation under Amr Ibn-el A'as, one of the Prophet's companions. The spread of Islam was particularly fast in North Africa, but exceedingly slow in sub-Saharan Africa where Islamic teachings in some areas may still be mixed with traditional religions.

The Current Status of Islam in Africa

While Islam is the predominant religion throughout North Africa, Muslims form significant minorities in a broad belt across the Sahelian region of West Africa, into Central Africa, and in the coastal regions of East Africa (see Figure 7.1). While the West and East African Muslim populations are on the periphery of the Islamic world geographically, many of these Islamic communities are among the most traditional and conservative. The Islamic religion thus continues to have a substantial impact on family formation patterns and attitudes toward family planning in Africa.

Figure 7.1. Distribution of Muslims--Africa



Source: Based on data from Weeks (1978)

Islamic Teachings about Family Planning

Although the term *family planning* does not appear in the traditional Islamic texts, the concept of preventing or postponing pregnancy is not new to Muslim couples. The method in use at the time of the Prophet was *al-azl*, or withdrawal. The term *al-azl* literally means separation, and implies separation of the husband's sperm from the wife's ovum. There are indications that barrier methods were also used. The Islamic medical texts from the tenth to the seventeenth centuries (for example, those of Rhazes, Avicenna, and al-Jurjani) described various methods of contraception. These works were the authoritative texts of medical practice at that time not only in the Middle East, but also in Europe. Islam views family planning in a wide context of the total familial and societal welfare. It considers the ability of the family to provide for its members and to raise good and pious citizens within certain physical, emotional, and financial constraints.

Sources of Islamic Jurisprudence

The rules that govern the life and attitudes of Muslims come from four fundamental sources. They are, in descending order:

1. The Holy Qur'aan

2. The Prophet's tradition, including his sayings (as related by successive authorities), his deeds, and his tacit approval of certain issues

3. Consensus (*Ijma'a*) of theologians (*'Ulamaa*)

4. Ruling by analogy (*al-Qiyas*).

Several other sources may be used at times, including consideration of the public welfare.

The Qur'aan. No verse in the Qur'aan categorically prohibits al-azl or other birth control methods. On the contrary, some verses have been interpreted as sanctioning family planning. Imam al-Shafei, founder of a major sect, interprets Verse 3 in Sura IV, which deals with polygamy, as an encouragement to marry only one wife as a way to avoid having too many children.

The Qur'aan also endorses breast feeding: "The mothers shall give suck to their babies for two whole years, if they desire to complete the term" (Sura II:233). This means minimal spacing of two years during which conception is discouraged through either abstinence or use of al-azl. The Qur'aan is also the source for many general rules that can be taken as direct support for the concept of family planning.

The Prophet's tradition. The Prophet's tradition includes several direct and precise judgments on al-azl. The question was raised because the companions of the Prophet were using it and had some concern lest the practice was prohibited in religion. Jabir, a celebrated companion of the Prophet's, related, "We used to have recourse to al-azl at the time of the Prophet, while the Qur'aan was being revealed," implying if it were interdicted by religion, the Qur'aan would have prohibited it.

On another occasion, Jabir said, "We used to practice al-azl at the time of the Prophet. The Prophet came to know of it, but did not prevent us from practicing it." Thus, neither the Qur'aan, nor the Prophet, prevented the Muslims from practicing al-azl.

One direct quote from the Prophet relates to the practice of avoiding pregnancy during the lactation period of two years. Such a practice coincides with basic African traditions. The Prophet refers to the possible harm to the child who is breast fed by a pregnant woman, that the harm may appear only when the child has grown into an adult.

Consensus of theologians. The leading *mad-habs*, which are the different schools of *fiqh* (or Islamic jurisprudence), sanction the principle of al-azl. The Mad-habs differ, however, in the degree of permissiveness as to whether there is justification and whether the wife should give her consent or not. Most jurists require her consent, except in exceptional cases. Permission of the wife is not required if, for example, at the time of the marriage contract, it is specified that family planning would be practiced.

The approved historical justifications for al-azl are:

1. When the woman has tendencies for successive pregnancies that come close together while she is too weak to sustain repeated physiologic burden

2. The presence of a disease in one or both parents that may be transmitted to the offspring

3. The possibility of endangering the health and safety of the woman from repeated pregnancies

4. The inability of the father (or family) to support a larger family and the danger that he might follow wrong pursuits to fulfill his financial obligation

5. Protection of the woman's beauty which could be impaired by pregnancy and child rearing. (Sharabassy, 1974:8-9)

Ruling by analogy. Al-Qiyas is the source of jurisprudence invoked when birth control methods other than al-azl are considered. Contemporary theologians have sanctioned modern methods of contraception as being analogous in purpose to al-azl.

Present day theologians produce *fatwas*, or religious judgment, based on the above sources of Islamic jurisprudence. As early as 1937, Sheikh Abdel-Majeed Selim, then Grand Mufti of Egypt (the official theologian who has the last word in fatwas) sanctioned the use of al-azl, barrier methods, and other methods known at the time. Since then, fatwas sanctioning modern methods have been declared by theologians and muftis all over the Muslim world. One of the most recent fatwas sanctioning family planning was announced by Sheikh Gad el Haq, in 1980, when he was the Grand Mufti of Egypt; currently he is the Grand Imam of Islam in Egypt.

Other sources. Certain fundamental principles of *fiqh* can be invoked even in the absence of any specified sanctions for an issue. This adds to the flexibility of Islam and its ability to handle issues that have no analogy to the early days of Islam. In relation to family planning, these Qur'aanic principles are the principle of ease, the principle of no harm, and the principle of obligation within ability. These principles of Islam can be invoked to sanction family planning as a means to (1) safeguard the health of the mother and children, (2) ward off economic difficulties for the family, and (3) avoid social and economic consequences of rapid population growth in relation to the nation as a whole. Of all of these, the most appealing to the Muslim theologians is the health argument for family planning.

Interaction between Islam and African Traditions

Islamic practices in Africa have been as much affected by the traditional and tribal customs and religions as they have affected these traditions. For example, both Islam and African traditions agree that the family is the central and most important unit in society, that children are highly valued, that parents have important responsibilities towards their children, and that the elderly should be cared for by their children and society. They both recognize the obvious need for a large family as a source of solidarity, social support, ethnic group defense, and manpower for tilling the vast areas of land.

In relation to family planning, both African and Islamic traditions have emphasized child spacing and have warned against feeding a baby a pregnant mother's milk. Nonetheless, family planning is not liberally practiced by African Muslims and

Some hold negative attitudes towards it.

Sources of Negative Attitudes among the Muslims in Africa

It is apparent that the African Muslims have not taken advantage of the relatively liberal policies of Islam regarding family planning. African Muslims probably have one of the highest fertility rates in the world because of several factors: (1) universality of marriage; (2) early age at marriage, (3) low prevalence of contraception, and (4) abandonment of the African custom of abstinence and physical separation of husband and wife during lactation.

Scientific surveys and evaluations suggest that African Muslims have strong negative feelings against family planning, with only a few exceptions in North Africa. Some African Muslims mistakenly hold the following beliefs:

- Family planning conflicts with the desire of Islam for Muslims to reproduce and populate the earth (numbers being equated with power). They also share the view of other Africans that the continent needs extensive manpower to develop its vast resources.

- Family planning is equated with genocide.

- Family planning is an interference with the will of God and represents a disbelief in the providence and in the divine responsibility to take care of each child born on earth.

- Family planning would distort the familial system of organization and inheritance, especially if it yields few or no sons.

- Family planning may encourage promiscuity among the youth.

- Family planning will increase the number of barren women, or women with very few children. (Barren women lose their social prestige in the African society and are often social outcasts.)

- Family planning is an imperialist plot by colonial powers against Islam and African growth.

It is obvious that these are misconceptions that should be dispelled.

Recent Debates on Family Planning in Africa: Rabat, Banjul, Dakar

The North African countries were first to declare positive attitudes toward family planning, both individually and officially. Reference has been made to fatwas by theologians in Egypt, sanctioning the use of al-azl, as early as 1937. Many authoritative declarations have followed from Egypt and other countries in North Africa.

The Rabat Conference on Islam and Family Planning (1971)

The movement in favor of family planning reached a peak at the International Conference on Islam and Family Planning held in Rabat, Morocco, in 1971 (Nazer, Karmi, and Zayid, 1974). In that meeting, Muslim scholars from religious and civil institutions, representing Muslim communities in the Middle East, Asia, and the Far East, discussed these issues and resolved that Islam does sanction family planning. When health reasons exist, the sanction is indisputable and family planning may become mandatory to safeguard the health of mothers and children.

The Banjul Conference on Islam and Family Planning (1979)

In 1979, a conference on Islam and family planning for sub-Saharan Africa was held in Banjul, The Gambia. The conference was well attended and several authoritative statements were made. Because of the particular significance of this conference, selected excerpts of its discussions are quoted from the final report as reported by Milas, Nabwiso, and Dossou-Yovo (1979):

> The papers and discussions brought out the fact that family planning is not new in African culture, nor in Islamic practices. Family planning in the context of birth spacing has been an aspect of African culture from time immemorial. Islam also places value on birth spacing through the Koran recommendation of two full years of breastfeeding for the child. . . . (p. 13)

> Other Africans think that Islam is against family planning. In this regard, the Guinean delegation cited a statement of the Constitutional Council of the Islamic World League which described family planning as "an aggression against the Muslim religion, personal liberty and human rights", adding that consequently "The Guinean Party and Government were opposed to generalized family planning and would never adopt any law favorable to this so-called family planning". The same delegates said that

their government's policy was to encourage increased natality and to provide to each and every person the opportunity to live in freedom and dignity. They further claimed that Africa has limitless resources which need to be exploited by a larger population and that according to the Koran, anyone who fears God always receives from Him the means of resolving his problems.

Many participants expressed serious reservations about the above-mentioned conceptions. It was pointed out that although many African countries have been under the influence of Islam for several centuries, there have not been serious conflicts between Islam and family planning. Islam is not against family planning and is a dynamic and progressive religion which has sought to improve the cultural and moral lives of its followers and to accelerate the development of Muslim nations. . . . (p. 14)

It was shown that where family planning (birth spacing) is needed in terms of the health of mother and child, it is encouraged by Islam. . . . (p. 14)

The participants discussed thoroughly the various papers presented and the relevant references of the Holy Koran and the Sunna and found ample evidence to support the acceptability of family planning in Islam. They then recommended that family planning should be encouraged in all Muslim societies in Africa and explained within the teachings of Islam with emphasis on responsible parenthood. They defined family planning as follows:

> Family planning aims at promoting responsible parenthood by enabling couples to space their children through mutual agreement; by all legitimate and safe means within the framework of Islam and to enable countries to plan for their people in such a way that they will have a high quality of life and thereby help to create happy, stable, and healthy families *throughout the world.* (p. 15)

The Dakar Seminar on Islam and Family Planning (1982)

Still another African interchange of views on Islam and family planning was held in Dakar, Senegal, in April 1982. More than 200 persons attended, among them eminent Islamists, religious leaders, and key members of the Senegalese government. During the seminar, the following points were made.

1. Islam considers the family to be the basic unit of society and the foundation of all nations. For this reason, marriage is placed at the first order of duties to be fulfilled by every Muslim, because without marriage there could be no families and children to assure the continuation of the Muslim nation in quantity and quality.

2. As accepted in Islam, family planning or the planning of births enhances the family's well-being.

3. Furthermore, family planning is seen in Islam from the viewpoint of protecting the rights of children and sheltering them from poverty, ignorance, and sickness, and attending to their physical, moral, and religious education.

4. All the authors of papers agreed on conditions under which family planning could be practiced by the Muslim family. The consensus was that family planning is authorized if:

   a. The woman is not able to carry closely-spaced pregnancies to term

   b. She suffers from a contagious disease which could be passed on to her children

   c. The parents are afraid of not being able to protect their progeny and provide for their needs. The Prophet Mohammad said, "It is better that your heirs be left in a comfortable situation rather than in poverty and need."

   d. The woman is breast feeding a child, she should not get pregnant.

There was, however, some disagreement in regard to national programs. One author suggested that Islam permits family planning on an individual basis, but does not tolerate the imposition of family planning on a society. Others were more tolerant and suggested that governments are responsible for the welfare of their people, including family planning. The seminar participants expressed the desire that Senegal adopt a family planning system which takes into consideration the teachings of the Muslim religion and the necessity to protect the happiness and prosperity of the Senegalese family.

Conclusion

It is quite evident that Islam sanctions family planning and that the companions of the Prophet practiced birth control even

when the Muslim nation was in a stage of rapid growth and expansion. Birth spacing is indisputable in Islam and is in great harmony with African cultures and tradition. Family planning to safeguard against potential health risks to family members is not only sanctioned, but actually encouraged, by Islam. These health risks have been documented from African experience in previous chapters.

Three recent African conferences on family planning were in agreement that family planning is sanctified by Islam for the health and welfare of the African family and for the love of the African people.

To quote the Banjul Conference:

> Family planning aims at promoting responsible parenthood by enabling couples to space their children through mutual agreement; by all legitimate and safe means within the framework of Islam and to enable countries to plan for their people in such a way that they will have a high quality of life and thereby help to create happy, stable, and healthy families throughout the world. (Milas, Nabwiso, and Dossou-Yovo, 1979:15)

As expressed in the Dakar Seminar:

> Family planning is seen [in Islam] from the angle of protecting the rights of children and sheltering them from poverty, ignorance, and sickness, and attending to their physical, moral, and religious education. (Battelle Population and Development Policy Program, 1983:6)

It is hoped, therefore, that Muslims in Africa (and elsewhere) will take advantage of the liberal and wise attitudes of Islam towards family planning.

8

Christianity and Family Planning in Africa with Special Reference to Catholicism

Paul Burgess, M.S.P.H., L.Th.

Christianity is growing at a rapid rate in Africa. Currently, Christians constitute over 40 percent of the population. It is, therefore, important to examine the influence of Christian teachings on family planning.

Christianity entered Africa in the first century when its teachings were carried to Egypt and the Sudan by the first missionaries in the early years of the Church. By 320 A.D., there were small pockets of Christianity in parts of Africa. The spread of Islam to Africa in the seventh century slowed down the diffusion of Christianity. During the sixteenth century, however, Christian missionaries returned, but were not prevalent on the continent until the nineteenth century. Arriving from Germany, Britain, France, Spain, Portugal, and the United States, the missionaries set up schools and clinics, as well as churches. There are presently about 36,000 missionaries in Africa, 60 percent of whom are from the United States.

Although Roman Catholics represent only one-fourth of the African Christians, the Catholic position on procreation strongly influences the argument against family planning. For this reason, the evolution of the Catholic stance on birth control will be discussed as it specifically relates to Africa. The non-Catholic Christian attitude will then be considered.

The Catholic Church

Birth Control and the Early Christian Church

The practice of birth control does not seem to have preoccupied the formulators of early Christian doctrine, at least not initially. It was only when the practice of contraception was associated with beliefs and practices which threatened principles at the core of the Catholic dogmatic theology that the church formulated a position which was to remain essentially unchanged until the late sixteenth century. Quotations from the Old Testament provided the message that marriage and the procreation of children are eminently desirable human goods which God has blessed. Although the church drew on relevant quotations of the Old and New Testaments to construct its doctrinal edifice, the Catholic church did not rely solely on these as a foundation for the development of a sexual ethic and a position on contraception. The Catholic community has generally recognized that the vital meaning of a biblical passage is that which the church gives it.

Factors such as Stoic thought influenced interpretation of the written word as contained in the Old and New Testaments. Stoicism, a secular intellectual movement, mistrusted human emotions, extolled self-control, and stressed the virtues of decorum, modesty, and freedom from bodily excesses as manifestations of the true Christian spirit. Christianity readily adopted the Stoic doctrine that marital intercourse was morally right only if its purpose were procreative. Thus emerged the Christian position on intercourse and contraception, harmonizing with major schools of thought at the time. Doctrinal development in matters relating to birth control, on the other hand, was a reaction, a hardening and a clarifying of orthodox position in opposition to positions identified as threatening to undermine basic tenets of Catholic dogma.

The Patres

In the early church, the statement and development of theory in dogmatic and moral theology was almost exclusively in the hands of the *patres* (fathers). It is important to appreciate the preeminent position these learned men were accorded by the Christian community and the degree to which the church relied on their pronouncements and writings as indicators of the official position of the church in matters of faith and morals. In refuting heresy, the pronouncements of the patres emerge as severe condemnations, lending a particularly intransigent air to the adopted official position and cutting the issue off from further discussion.

St. Augustine of Hippo (354-430 A.D.) is one of the most outstanding patres; the impact of his thinking was reflected in Catholic moral and dogmatic affairs for centuries. In the matter of birth control, St. Augustine's influence was enormous. His overall respected position as a theologian ensured his individual theories against questioning and his views on the morality of the sex act became entrenched for centuries as Catholic dogma.

Catholic doctrine on birth control during the Monastic era (500-1000 A.D.) was primarily presented by the monks.

> Partly as a projection of their own experience of monastic organization, they insisted on collective standards for all Christians; partly as a reaction to an age of enormous disorder, they valued rules. In the specific area of sexual behavior, they were fearful and inclined to extreme rigor; their distrust was usually not tempered by any clear appreciation of marriage . . . in the formation of this monastic code, the patristic teaching against contraception was given a precise legal form. (Noonan, 1967:143)

When one considers the social conditions of those centuries described as the Monastic Era, it is not too difficult to understand how the monks' code went unquestioned. Appalling health conditions and lack of medical resources made life even more precarious than in the Roman Empire. Military barbarism contributed even further to dwindling populations. In such an environment, contraception was looked upon not simply as attacking the good of marriage, but of depriving the world of much-needed men. One result of prevailing Christian thought in this respect was the first papal legislation against contraception. Pope Gregory IX enacted legislation (1234 A.D.) declaring null and void a marriage entered into with a condition to avoid having children (Noonan, 1967). Pronouncements on the matter of birth control in succeeding centuries changed little and appear in theological writings as simply variations on a fixed theme.

Origins of Attitude Change

The first indications of a change in thought regarding the issue of birth control are seen in the writings of Martin LeMaistre (1432-81). He established the general lawfulness of the marital act without recourse to sacramental theory. His work was the beginning of a new stage in the Catholic approach to marriage. The sex act was accorded a human value in itself and a respect for the Christian couple began to be considered an important aspect in drawing up marital legislation. LeMaistre's thinking had a distinct influence on the leading theologians

of subsequent centuries.

The writings of the theologian A. J. Lecomte (1824-81), who had a knowledge of biology, reveal the impact of scientific medicine on the birth control issue. In 1853, the Bishop of Amiens sought advice from Rome on how to deal with some married persons in the confessional who, "relying on the opinion of skilled doctors," were convinced that there were "several days each month in which conception by a woman could not take place." Rome's response was that "those about whom you ask are not to be disturbed provided they do nothing by which conception is prevented" (Batzill, 1967). In the less restrictive environment created by Rome's reply to the Bishop of Amiens, Lecomte through his writing attempted to take theological account of the nineteenth century discoveries about ovulation. Largely through his efforts, the use of the "safe period" was permitted to Catholic married couples as a method of birth control.

The Catholic Church and the Population Problem

As is generally recognized, one of the most pressing human and social problems facing mankind in this century is the population problem. The Catholic church, particularly since World War II, has been heavily involved in programs aimed at dealing with the population problem. These efforts have stressed aid and development to Third World countries by working through the international agency, Catholic Relief Services.

In 1964, Pope Paul VI, confessing that the complexities of the population problem were such that he did not have the answer himself, established a commission on fertility and the family to study the problem. The commission was comprised of some 64 experts--theologians, medical doctors, demographers, sociologists, and family counsellors. Many felt that the work of the commission represented an unprecedented opportunity to align the church position on birth control with the realities of the twentieth century, particularly in the African continent. In June 1966, the commission submitted its report to the pope, recommending a liberalization of the birth control laws, without restricting the use of contraceptive methods. The pope responded, more than a year later, with the encyclical, *Humanae Vitae* (Pope Paul VI, 1968). In *Humanae Vitae*, Pope Paul VI restated the traditional stance on contraception, thereby rejecting the commission's report.

Needless to say, the encyclical was subject to critical analysis by many concerned about the population problem. In a publication by the Population Reference Bureau, the following comment was made: "Essentially, the encyclical was an authoritative statement relying on tradition and the Pope's doctrinal supremacy

rather than on arguments from the Scriptures or human reason in supporting the contention that 'every conjugal act had to be open to the transmission of life'" (Murphy and Erhart, 1975:21-22).

Many Catholic scholars signed statements challenging the arguments in the encyclical by pointing out the inherent contradictions in the papal insistence that the unitive and procreative aspects of conjugal intercourse could not be separated without grave fault. There was a general consensus that Pope Paul VI, in his emphasis on the traditionalist doctrine of the church, had refused to acknowledge the crisis-ridden problems of overpopulation, particularly in the developing world. However, the pope, in issuing the encyclical, purposefully refrained from designating its teaching infallible and admitted that conjugal coitus was legitimate during sterile periods, thus upholding the legitimacy of the rhythm method of birth control. Vatican Council II, however, adopted the approach to marriage and family life that explicitly gives the parents the responsibility to determine the number of children they should have, and that determination should be based on the conditions of their family, the nation, and the world.

The Catholic Church and Birth Control in Africa

In most African countries, the Catholic Church is a minority church that must look to Rome rather than the people for status and recognition. To some Africans, pronouncements from Rome, however well-intentioned and doctrinally sound, have little relevance in a culture where tribalism is still the sociological backbone of most countries, particularly south of the Sahara. On a continent where, for the most part, the overriding concern is for filling the most basic human needs, the talk of overpopulation and dissension within the Catholic church on the issue of contraception is irrelevant to the concerns of the people. For these reasons, the Catholic church's official position on birth control is unlikely to have a major impact on the population issue in Africa.

The Pope's Visit to Africa, 1980

Pope John Paul II, in May 1980, visited eight nations of Central Africa. On a strictly pastoral mission, the new pope outlined the church's priorities for the national, as well as the spiritual, well-being of the African people. Calling for the adaptation of Christianity to the culture of the African people, he stressed in particular the family tradition of the continent. The pontiff spoke of a profound respect for the family and the good of children as a distinctive gift of Africa to the world. In no instance, however, did the pope allude to the problems

confronting individual families and nations caused by overpopulation. Nor beyond generic references to polygamy, did John Paul II consider the realistic difficulties among the African people, a majority of whom still live in ethnic groupings where the notion of family life differs greatly from the European concept. This fact was brought out clearly in the response of the Pastoral Council of Arusha in Tanzania to the agenda for the October 1980 Roman Synod of Bishops dealing with family. Challenging the papal assertion that the Greco-Roman ideal of monogamy was the only possible expression of the Christian idea of marriage, the council called for an open debate on the realities of marriage as experienced by various people around the world suggesting a possible authentic pluralism in the synod's recommendations.

Such is the dilemma for the Catholic church in Africa today. Certainly, the Catholic church must be able to count on maximum support among its people if it is to have any hope of providing leadership in resolving the population problem. The real issue is one of developing leadership within the African Catholic church which will vigorously address Africa's population problem. Ideally, the leadership will come from young African prelates close to the people and who, both figuratively and literally, can speak their language and identify with their people's aspirations and concerns. What is most needed is a workable, understandable birth control program in the formulation of which African clerics participate because of their recognized solid ties with the ethnic groups and villages.

Protestant Churches and Birth Control

Non-Catholic Christian churches were singularly quiet on the matter of birth control during the periods in modern history which witnessed Malthusianism, the birth control movement, the women's rights movement, and public advocacy of birth control by various labor movements. The first religious proponents of birth control were the Universalists and the Unitarians. In 1930, the Lambeth Conference of the Church of England recognized abstinence as the ordinary means of limiting births, but allowed contraceptive methods where abstinence proved impossible. The following year, 1931, the Committee on Marriage and Home of the Federal Council of Churches in the United States, allowed a "careful and restrained" use of contraceptive devices (Murphy and Erhart, 1975). With the exception of the most fundamental churches and some Lutheran churches, this precedent was accepted by all major Protestant denominations. Contemporary non-Catholic tenets hold that the basic purpose of marriage includes the need for responsible parenthood, including considerations of the number and spacing of births.

It is evident that non-Catholic Christian churches clearly base their position on two generally agreed upon conclusions concerning "contemporary need" and the "ends of marriage" as contained in a statement adopted by the General Board of the National Council of Churches (1961). Because of the importance of this document, we will quote the sections dealing with reasons for family planning, and methods of family planning.

Reasons for Family Planning

Within the purposes of marriage ordained by God, there are a number of considerations concerning parenthood which need to be taken into account in trying to determine the number and frequency of pregnancies. These considerations include

(1) the right of the child to be wanted, loved, cared for, educated, and trained in the discipline and instruction of the Lord (Eph. 6:4). The rights of existing children to parental care have a proper claim.

(2) the prospects for health of a future child, if medical and eugenic evidence seem negatively conclusive.

(3) the health and welfare of the mother-wife, and the need for the spacing of children to safeguard them.

(4) the social situation, when rapid population growth places dangerous pressures on the means of livelihood and endangers the social order.

Reasons such as these enter into the calculations of responsible parenthood. At the same time, parents need to remember that having children is a venture in faith, requiring a measure of courage and confidence in God's goodness. Too cautious a reckoning of the costs may be as great an error as failure to lift the God-given power of procreation to the level of ethical decision.

Methods of Family Planning

Christians are agreed that the limitation of procreation may be right and proper for parents under certain conditions but differences arise in regard to circumstances and methods. The Orthodox Church follows the traditional teaching which sanctions marital abstinence as the means of family planning. Most of the Protestant churches hold contraception and periodic continence to be morally right

> when the motives are right. They believe that couples are free to use the gifts of science for conscientious family limitation, provided the means are mutually acceptable, non-injurious to health, and appropriate to the degree of effectiveness required in the specific situation. Periodic continence (the rhythm method) is suitable for some couples, but is not inherently superior from a moral point of view. The general Protestant conviction is that motives, rather than methods, form the primary moral issue, provided the methods are limited to the prevention of conception.
>
> Protestant Christians are agreed in condemning abortion or any method which destroys human life, except when the health or life of the mother is at stake. The destruction of life already begun cannot be condoned as a method of family limitation. The ethical complexities involved in the practice of abortion related to abnormal circumstances need additional study by Christian scholars.
>
> Another approach to family limitation is voluntary sterilization. Because medical science cannot guarantee that the procedure is reversible, it presents the Christian conscience with special problems. Responsible parenthood is seen by many as a day to day process of decision-making which sterilization may negate. On the other hand, where reasons of health or the obligations of parenthood argue for the use of the most effective means of family limitation, sterilization represents one sure method now available. Recognizing the dilemmas confronting Christian doctors and parents, particularly in some of the poorer societies where realistic alternatives seem to be lacking, we are constrained to point out the hazards in sterilization, and to stress the possibility of its use only after the most thoughtful consideration of all the factors involved. Additional study of these factors and of the moral issues entailed needs to be undertaken by Christian scholars. (National Council of the Churches of Christ in the United States of America, 1961:4-5)

The actual number of Christians in Africa may be somewhat less than the available figures indicate. Christianity (as well as Islam) has such a high prestige in some African countries that some may claim to be Christian who do not actually practice the religion (Parrinder, 1976).

A large number of Africans who convert to Christianity continue to maintain many traditional beliefs. Traditional practices are often relied upon in matters of personal importance, such

as rites of passage and crises of life.

There has also been a movement among African Christians to break away from the Christian mission churches to set up independent African churches. In 1976, there were approximately 4,300 separate independent churches in Africa. They seem to have sprung from the same spirit that was pushing for political independence during the 1950s and 1960s (Parrinder, 1976). The clergy is becoming increasingly African. For example, of the 16,000 Catholic priests in Africa, 6,000 are African. While they retain the Bible, and the prayer and hymn books, native language, music, dance, and dress are integrated into African services.

9 Population, Health, and Population Policy in Africa

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In the preceding chapters, evidence has been presented to document the health risks associated with certain patterns of family formation. The evidence makes it clear that in order to avoid these health risks, childbearing in Africa should conform with the safeguards advocated by the health community. These are:

1. Spacing two to three years between pregnancies

2. Avoiding high parity, particularly high grand multiparity (parities of 4+)

3. Timing pregnancies to occur at the safest maternal ages (20 to 29 years, or at most, 18 to 34 years).

Thus, the health rationale for family planning is sufficient in itself to endorse organized efforts to space and regulate fertility in Africa. It is also clear that population pressure in Africa is an added impetus for family planning. It is with this in mind that the demographic situation in Africa deserves at least a brief consideration. To this will be added consideration of the family planning policy in African countries and the place of the health rationale therein.

The Population Profile in Africa

Population Size

The population profile of Africa has changed dramatically over this century. In 1920, the total population of Africa was estimated to be 143 million. The mid-1983 estimate of the population of Africa reached 513 million, a three-and-one-halffold increase in only 63 years. Most of the increase occurred after World War II when mortality started to decline, while fertility remained at high levels, resulting in a rate of increase of 3.0 percent per year. At this rate, by far the highest among all continents, Africa's population could double itself in 23 years; by 2006, there may be one billion people in Africa. From the nationalistic viewpoint, there is nothing wrong with having one billion Africans; the problem is that the pace of increase has strained the current resources of the continent and may delay its economic development. More developed countries, in contrast, have a much longer doubling time, many over 100 years, not to mention their more readily available and abundant resources. Perhaps more importantly, as has been demonstrated in this volume, continuing excessive fertility adversely affects the health of mothers and children in Africa.

Population size within Africa varies extensively, from approximately 84 million in Nigeria to 100,000 in Seychelles; nevertheless, there is an almost universal tendency for rapid population growth in all countries (Table 9.1). Kenya stands out with the highest rate of growth in Africa and the whole world; its rate of 4.1 percent per year is a product of a high birth rate (54 per 1,000) and a low death rate (13 per 1,000). If this growth rate persists, Kenya will double its population in less than 17 years.

Population Composition and Distribution

Three features of the population composition of Africa are of special relevance to this study: ethnic, religious, and age compositions. The religious composition of Africa is examined in detail elsewhere in this monograph. Africa has at least 800 distinct ethnic divisions, whose people speak more than 1,000 languages and dialects. The inevitable competition between these divisions has enhanced the desire for large family sizes. The underlying perception of equating numbers with power makes the demographic argument for family planning unacceptable. It is hoped, however, that the health rationale will prove to be a more cogent argument for family planning because of the concern of all ethnic groups for the health of their mothers and children.

In regard to age, all African nations have young populations, with one-third to one-half of the population under age 15, and high child dependency ratios. This is a function of both high fertility and relatively short life expectancy. The proportion of the population under age 15 has also been growing rapidly, thus increasing the pressure on the educational systems and on housing. One advantage, however, is that this segment of the population is the source for the labor force of the future, if vocational training and job opportunities are provided.

The total population density of the African continent is relatively low (approximately 16 persons per square kilometer) as compared to the other continents. For example, the population density of the European continent is approximately 98 persons per square kilometer. This comparison is misleading in view of the fact that much of the land in Africa is unsuitable for support of human life, being covered with deserts, swamps, tropical rain forests, and badly leached soils. A more accurate measure of density is the number of persons per square kilometer of arable land. Table 9.1 demonstrates the contrast between the total population density and the arable land density for Africa. For example, the total density for Egypt is 42 persons per square kilometer, whereas the arable land density is 1,489 persons per square kilometer. The pressure of population on resources in terms of land available to grow food will increase rapidly with time unless major steps are taken both to limit population growth and improve the productive capability of currently useless land.

Four areas of the continent have fairly dense concentrations of population: (1) along the Gulf of Guinea in West Africa (including Nigeria, Ghana, Benin, and Togo); (2) the Nile Valley; (3) the East Africa highlands (including Ethiopia, eastern Zaire, Rwanda, Burundi, and Tanzania); and (4) the eastern and southern coast of South Africa.

Rapid urban growth contributes to the changing population distribution in Africa. This growth is, in part, attributable to the rapid influx of migrants from rural areas in search of jobs and better social and economic opportunities. The result has been crowded cities, depleted rural areas, and thus decreased agricultural output. The impact of the added numbers in already crowded cities is all too well known. Several cities in Africa exceed one million in population, including Cairo, Alexandria, Kinshasa, Lagos, Ibadan, Casablanca, Algiers, Johannesburg, Capetown, and Addis Ababa.

Social and Economic Characteristics

Literacy levels in many African countries are low for both men

Table 9.1. Population Data

Place	Mid-1983 Population (millions)[1]	Population Projection to 2000[1]	Rate of Natural Increase[1]	Population Density[2] (per km²) Total Area	Population Density[2] (per km²) Arable Land
WORLD	4677	6130	1.8		
LDCs	3519	4857	2.1		
MDCs	1158	1273	0.6		
ASIA	2730	3528	1.9		
LATIN AMERICA	390	549	2.3		
NORTH AMERICA	259	286	0.7		
EUROPE	489	511	0.4		
USSR	272	302	0.8		
OCEANIA	24	30	1.3		
AFRICA	518	851	3.0		
Algeria	20.7	36.5	3.2	7	267
Angola	7.6	12.2	2.5	5	366
Benin	3.8	6.6	3.0	31	122
Botswana	0.9	1.6	3.4	1	58
Burundi	4.5	7.0	2.4	160	357
Cameroon	9.1	14.0	2.7	17	115
Cape Verde	0.4	0.4	1.8	75	750
Central African Republic	2.5	3.9	2.5	3	37
Chad	4.7	7.1	2.1	3	64
Comoros	0.4	0.7	2.9	150	333
Congo	1.7	2.7	2.6	4	241
Djibouti	0.3	0.5	2.7	4	-
Egypt	45.9	65.5	3.1	42	1489
Equatorial Guinea	0.3	0.4	2.5	14	172
Ethiopia	31.3	50.6	2.5	26	237
Gabon	0.7	0.9	1.5	2	387
Gambia	0.6	1.0	2.1	54	230
Ghana	13.9	24.1	3.2	48	433
Guinea	5.4	8.8	2.5	20	119
Guinea-Bissau	0.8	1.2	1.9	16	210
Ivory Coast	8.9	14.8	2.9	24	87
Kenya	18.6	37.1	4.1	27	736
Lesotho	1.4	2.2	2.9	43	366
Liberia	2.1	3.8	3.2	17	519

Table 9.1--continued

Place	Mid-1983 Population (millions)[1]	Population Projection to 2000[1]	Rate of Natural Increase[1]	Population Density[2] (per km²) Total Area	Arable Land
Libyan Arab Jamahiriya	3.3	6.1	3.4	1	117
Madagascar	9.5	15.2	3.0	14	303
Malawi	6.8	12.0	3.3	51	266
Mali	7.3	12.1	2.6	5	67
Mauritania	1.8	3.0	2.8	1	159
Mauritius	1.0	1.2	1.9	450	841
Morocco	22.9	37.3	3.1	46	268
Mozambique	13.1	21.5	2.7	13	334
Namibia	1.1	1.8	2.9	1	152
Niger	6.1	10.5	2.9	4	36
Nigeria	84.2	148.2	3.3	83	323
Reunion	0.5	0.7	1.7	166	892
Rwanda	5.6	9.9	3.1	196	543
Sao Tome & Principe	0.1	0.1	2.9	82	-
Senegal	6.1	9.7	2.6	29	237
Seychelles	0.1	0.1	2.2	333	-
Sierra Leone	3.8	6.1	2.6	48	85
Somalia	5.3	7.2	2.6	2	338
South Africa	30.2	48.5	2.6	44	195
Sudan	20.6	33.2	3.0	7	249
Swaziland	0.6	1.0	3.3	35	346
Tanzania	20.5	35.4	3.2	19	295
Togo	2.8	4.8	3.0	44	109
Tunisia	6.8	9.6	2.5	39	147
Uganda	13.8	24.2	3.1	58	254
Upper Volta	6.8	10.9	2.6	25	122
Zaire	31.3	50.7	2.8	12	470
Zambia	6.2	11.0	3.2	7	115
Zimbabwe	8.4	15.0	3.4	18	298

Sources: (1) Population Reference Bureau (1983); (2) Food and Agricultural Organization (1980)

and women. In 18 countries, fewer than 10 percent of the female population is literate, and in 6 of these countries, only 10 percent of the male population is literate (Table 9.2). Several countries have realized the importance of education and have channeled large portions of their budgets into education only to find that the rate of increase in the number of school-age children is too rapid for the existing educational resources.

There are sharp contrasts in the economic status of the 54 African countries. Some countries (e.g., Gabon, Guinea, Liberia, Libya, Mauritania, Nigeria, South Africa, Zambia) have large reserves of minerals and other natural resources, whereas other countries (e.g., Central African Republic, Chad, Upper Volta) suffer from poor resource bases and landlocked locations. Libya, by far, has the largest total annual GNP (gross national product) per person (US $8,960) in Africa. The continent of Africa, as a whole, has the lowest GNP per capita (US $783) relative to other continents of the world.

Another proxy measure of development is energy consumption. Though oil is produced in parts of Africa, many regions still suffer from energy shortages. On the average, per capita energy consumption increases as production and wealth increase. South Africa, which has a high GNP per capita (US $2,290) has the highest energy consumption per capita (3,157 kilogram equivalents of coal), while Burundi and Rwanda, both with $200 GNP per capita, use only 12 and 18 kilogram equivalents of coal, respectively. Even Nigeria, an Organization of Petroleum Exporting Countries (OPEC) member, uses only 83 kilogram equivalents.

Fertility Profile

In Africa, marriage is a universal institution--almost every woman marries at least once in her lifetime and family formation begins at a very young age. Thirty-four percent of African women aged 15-19 are in marital or consensual unions; in five countries--Benin, Chad, Gabon, Mali, and Niger--the proportion is greater than 60 percent (Table 9.3). Childbearing continues throughout the reproductive span and the fertility level is quite high, despite social customs intended for child spacing and despite pockets of infertility within some countries. Although the rate of child loss is high in Africa, the number of surviving children is still large.

Crude Birth Rate

Crude birth rate (CBR) is the most frequently used measure of fertility, and one for which data are more readily available than for other measures. The 1983 CBR for Africa as a whole is 46 per 1,000, three times higher than the rate of 15 per 1,000

for more developed countries, and one and a half times higher than the rate of 33 per 1,000 in less developed countries (of which much of Africa is a part) (Table 9.3). Only the island nations, Cape Verde, Mauritius, Reunion, and Seychelles, have CBRs less than 30 per 1,000. In six nations, the rate is actually 50 or more per 1,000.

Total Fertility Rate

The total fertility rate (TFR) gives another dimension of the level of fertility. It denotes the average number of children born per woman during her childbearing years. An African woman has, on the average, 6.5 children in her lifetime, while a European or American woman has only two. For a majority of Africans, the total fertility rate is six or seven children per woman. A Kenyan woman bears eight children on the average, more children than women in any other country in the world.

Age-Specific Fertility Rate

Age-specific fertility rates give more detail about the progression of fertility with maternal age. The African fertility pattern is distinctive because fertility begins at a very early age, peaks between the ages of 20 and 29, and continues to the late age of 45 to 49. Teenage pregnancy is apparently commonplace in both northern and sub-Saharan Africa. Figure 9.1 shows the age-specific fertility rates for selected African countries and illustrates the problems of high parity and timing of pregnancies in terms of maternal age.

Infertility in Africa

A discussion of fertility in Africa would be incomplete without a word about the problem of infertility in some areas on the continent. The measurement of infertility among Africans is, however, very difficult because of the absence of specific epidemiological studies on the topic. Demographic data and information from hospitals and clinics provide only an estimate of the number of couples afflicted with involuntary infertility. The problem of infertility is compounded because women in infertile unions are usually socially ostracized. Several indices are used to describe the distribution of infertility, including rates of childlessness, nulliparity, and the number of women never pregnant.

Africa south of the Sahara has the highest prevalence of infertility in the world. In an excellent review article on the epidemiology of infertility in sub-Saharan Africa, Belsey (1976) estimates that in some areas up to 40 percent of the women are reported to have completed their reproductive years without bearing a child. In certain locales in Cameroon, Gabon, the

Table 9.2. Social and Economic Indices--Africa, 1970-82

Place	% Adults Literate 1970-80[1] Male		Female	GNP per Capita[2,3] 1980-81 (US$)	Energy Consumption (Kg of Coal Equivalent per Capita)[4,5] 1970-80
WORLD	73		61	2754	
LDCs	57		36	728	
MDCs	99		97	8657	
ASIA	60		39	968	
LATIN AMERICA	79		74	2063	
NORTH AMERICA	99		99	12405	
EUROPE	97		94	10025	
USSR	100		100	4701	
OCEANIA	92		91	8864	
AFRICA	37		17	783	
Algeria	42		14	2129	671
Angola	-	13*	-	790	208
Benin	12		4	326	68
Botswana	30		35	902	-
Burundi	-	25	-	235	17
Cameroon	31		7	793	148
Cape Verde	-	37	-	300	-
Central African Republic	13		2	328	55
Chad	12		1	120	54
Comoros	66		52	313	-
Congo	-	50	-	1108	213
Djibouti	-		-	476	-
Egypt	57		29	654	565
Equatorial Guinea	-	12	-	175	101
Ethiopia	8		4	142	20
Gabon	22		5	3909	1279
Gambia	9		3	348	84
Ghana	43		18	402	265
Guinea	14		4	298	87
Guinea-Bissau	7		3	185	58
Ivory Coast	-	20	-	1174	234
Kenya	-	40	-	432	180
Lesotho	44		68	538	-
Liberia	-	30	-	536	448

Table 9.2--continued

Place	% Adults Literate 1970-80 Male		Female	GNP per Capita[2,3] 1980-81 (US$)	Energy Consumption (Kg of Coal Equivalent per Capita)[4,5] 1970-80
Libyan Arab Jamahiriya	67		30	8560	2360
Madagascar	-	50	-	332	94
Malawi	34		12	200	70
Mali	4		1	185	30
Mauritania	-	17	-	484	185
Mauritius	72		50	1342	405
Morocco	34		10	869	315
Mozambique	15		8	240	139
Namibia	45		31	1410	-
Niger	2		1	336	48
Nigeria	25		6	873	83
Reunion	60		66	3830	-
Rwanda	24		9	250	30
Sao Tome & Principe	-		-	382	-
Senegal	10		1	499	266
Seychelles	55		60	1797	-
Sierra Leone	10		4	319	89
Somalia	-	60	-	282	78
South Africa	57		57	2509	3479
Sudan	25		4	380	141
Swaziland	31		28	844	-
Tanzania	-	66	-	299	53
Togo	27		7	391	117
Tunisia	-	55	-	1417	618
Uganda	44		26	356	39
Upper Volta	2		1	237	29
Zaire	-	15	-	225	103
Zambia	61		34	586	858
Zimbabwe	48		31	815	791

Sources: (1) Population Reference Bureau (1981); (2) Population Reference Bureau (1982b); (3) Population Reference Bureau (1983); (4) International Bank for Reconstruction and Development (1980); (5) World Bank (1981)

* Indicates combined (male and female) percent literate.

Table 9.3. Fertility Data

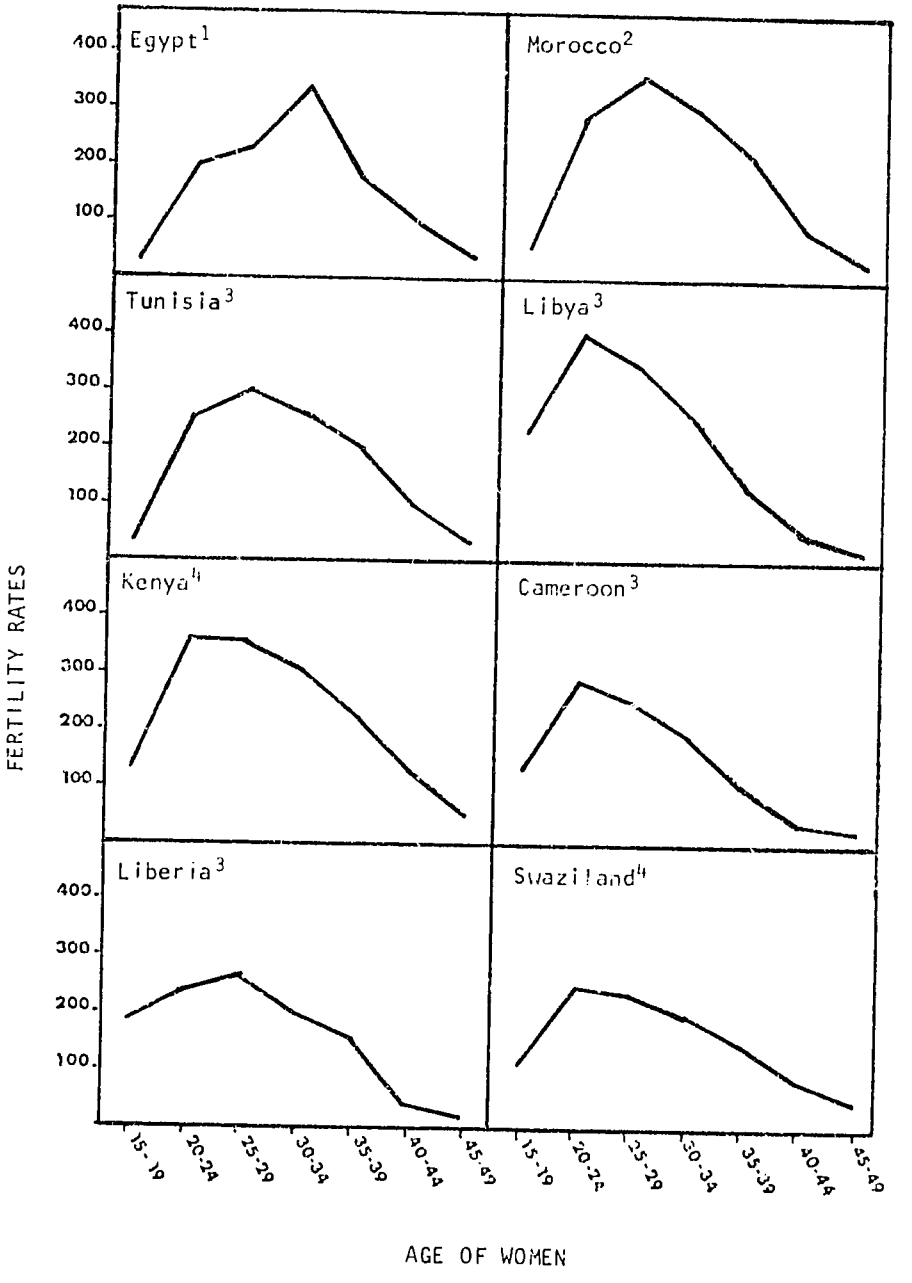
Place	% Women Aged 15-19 in Marital Unions[1] 1970-79	Crude Birth Rate[2] 1975-81	Total Fertility Rate[2] 1975-81
WORLD	28	29	3.9
LDCs	37	33	4.5
MDCs	8	15	1.9
ASIA	-	30	4.2
LATIN AMERICA	15	32	4.4
NORTH AMERICA	11	16	1.9
EUROPE	7	14	1.9
USSR	10	18	2.3
OCEANIA	9	21	2.7
AFRICA	34	46	6.5
Algeria	44	46	7.0
Angola	42	47	6.4
Benin	66	49	6.7
Botswana	8	51	6.5
Burundi	11	46	5.9
Cameroon	44	44	5.7
Cape Verde	4	28	3.0
Central African Republic	44	45	5.9
Chad	69	45	5.9
Comoros	-	46	6.2
Congo	56	44	6.0
Djibouti	-	49	-
Egypt	16	43	6.0
Equatorial Guinea	-	42	5.7
Ethiopia	-	48	6.7
Gabon	61	35	4.7
Gambia	-	49	6.4
Ghana	29	48	6.7
Guinea	74	46	6.2
Guinea-Bissau	44	40	5.4
Ivory Coast	-	47	6.7
Kenya	34	54	8.0
Lesotho	22	41	5.9
Liberia	44	47	6.9

Table 9.3--continued

Place	% Women Aged 15-19 in Marital Unions[1] 1970-79	Crude Birth[2] Rate 1975-81	Total Fertility Rate[2] 1975-81
Libyan Arab Jamahiriya	37	47	7.3
Madagascar	34	46	6.4
Malawi	31	51	6.9
Mali	78	47	6.7
Mauritania	-	50	6.9
Mauritius	13	26	3.1
Morocco	27	44	6.6
Mozambique	29	45	6.1
Namibia	11	43	5.9
Niger	34	51	7.1
Nigeria	-	50	6.9
Reunion	7	23	3.1
Rwanda	17	49	6.9
Sao Tome & Principe	-	39	-
Senegal	42	48	7.1
Seychelles	6	29	4.2
Sierra Leone	-	45	6.1
Somalia	-	46	6.1
South Africa	8	36	5.1
Sudan	41	47	6.6
Swaziland	-	49	6.5
Tanzania	50	46	6.5
Togo	35	48	6.5
Tunisia	18	35	5.6
Uganda	46	46	6.1
Upper Volta	53	48	6.5
Zaire	45	46	6.1
Zambia	37	48	6.9
Zimbabwe	6	47	6.6

Sources: (1) Population Reference Bureau (1981); (2) Population Reference Bureau (1983)

Figure 9.1. Age-Specific Fertility Rates--Selected African Countries



Sources: Based on data from (1) UNECA (1978); (2) Johnson (1980); (3) UNFPA (1979); Blacker (1979)

Sudan, and Zaire, childlessness ranges between 20 and 40 percent. It is striking, however, that the overall birth rate in the affected regions is still high (over 40 per 1,000), and in some regions, over 50 per 1,000 (Table 9.4). This means that the focuses of infertility are geographically circumscribed. Nevertheless, this infertility problem should receive the utmost effort for its prevention and control.

The main causes of infertility are venereal diseases, particularly gonorrhea, which are manifested as tubal occlusion in women and azospermia in men. Other infections that can lead to sterility include pelvic inflammatory disease, toxoplasmosis, bilharziasis, genital tuberculosis, infection following abortion, and other tropical infections.

Mortality and Health Profile

Compared to other world regions, the health in Africa is poor, with epidemic and endemic disease prevalent, mortality high, and life expectancy short. The main causes for the substandard health status include poor sanitation, undernutrition, poor access to preventive or curative health care, crowding in the home, and unregulated fertility. Children and mothers tend to be the most vulnerable members of the society and bear the brunt of poor environmental and social conditions. Africa stands out as the continent with the highest child mortality and morbidity and excessive losses among women from causes related to childbearing. Most of the causes of death in Africa among mothers and children can be avoided and have been avoided in the more fortunate regions of the world. It is important, therefore, to characterize the health profile of African mothers and children as a background for identifying the health risks associated with unplanned fertility. Health planners need information on the size of these health problems and their differentials in various geographical and sociocultural settings to formulate intelligent strategies for combating the problems.

Crude Death Rate (CDR)

Despite some relative health improvement in recent years, the annual death rate in Africa is still the highest in the world. The CDR is approximately 16 per 1,000 population, compared to 11 per 1,000 for the world as a whole, and 8 per 1,000 for several regions. In 16 African countries the rate reached or exceeded 20 per 1,000 population. Only in some small African islands (Cape Verde, Mauritius, Reunion, Sao Tome and Principe, and Seychelles) is the rate 10 or less per 1,000 population (Table 9.5).

Table 9.4. Infertility and General Fertility--Central and West Africa

Place	Crude Live Birth Rate per 1,000 Women, 15-44 Years	% Childless Women, Aged 50+ Years
Cameroon		
West	49.8	6.7
Southeast	36.4	23.0
North	41.0	15.0
Central African Republic	48.0	13.6
Bunda	40.6	-
Nzakara	20.0	-
Baya	54.6	-
Centre Region	41.0	15.0
West Region	53.0	10.4
River Region	36.0	19.0
Congo	41.1	15.0
Gabon		
Wolen N'tem	37.0	31.2
Ogoone Lolo	25.0	46.2
Nyaya	52.0	17.8
Mali (Toureg)	52.0	15.0
Niger	50.6	5.2
Senegal	43.3	5.6
Sudan	51.7	9.6
Bahr el Ghazal	84.6	4.2
Blue Nile	45.7	8.4
Darfur	41.8	7.3
Equatoria	54.1	21.2
Kassala	42.6	13.5
Khartoum	40.7	9.7
Kordofan	50.0	9.9
Northern	43.0	7.8
Upper Nile	69.3	2.3
Upper Volta	49.6	6.0
Zaire	42.7	17.6
Kwango	48.1	3.4
S. Kivu	52.3	4.6
Equateur	33.7	40.0
Tshuapa	30.5	33.0
Stanleyville	34.0	23.3
Bas-Vele	19.1	37.3
Haut-Vele	23.2	36.9
Nanie-Ma	34.3	23.5

Source: Adapted from Belsey (1976)

Table 9.5. Mortality and Health Indices--Africa, 1970-82

Place	Crude Death Rate[1] 1975-81	Infant Mortality Rate[1] 1981	Life Expectancy at Birth[1] 1975-81	Population: Per Physician[2,3] 1977	Population: Per Hospital Bed[3] 1970-80	Population: Per Nurse or Midwife[4] 1977
WORLD	11	84	62			
LDCs	12	93	58			
MDCs	10	19	73			
ASIA	11	89	60			
LATIN AMERICA	8	65	64			
NORTH AMERICA	8	11	74			
EUROPE	10	11	72			
USSR	10	33	70			
OCEANIA	8	38	72			
AFRICA	16	120	50			
Algeria	14	116	56	5330	370	1256
Angola	22	153	42	15170	370	1710
Benin	19	153	47	26880	780	2434
Botswana	17	82	50	-	340	1268
Burundi	22	121	42	45020	760	5420
Cameroon	18	108	47	16500	380	1250
Cape Verde	9	81	61	-	-	817
Central African Republic	20	147	43	17610	460	2155
Chad	23	147	40	41940	760	3822
Comoros	17	92	47	-	500	1764
Congo	18	128	47	7290	190	661
Djibouti	23	-	-	-	-	407

Table 9.5--continued

Place	Crude Death Rate[1] 1975-81	Infant Mortality Rate[1] 1981	Life Expectancy at Birth[1] 1975-81	Population: Per Physician[2,3] 1977	Population: Per Hospital Bed[3] 1970-80	Population: Per Nurse or Midwife[4] 1977
Egypt	12	102	56	1050	460	1074
Equatorial Guinea	18	142	47	-	-	2116
Ethiopia	23	146	40	75320	2980	19439
Gabon	20	116	45	4705	130	549
Gambia	26	197	42	13120	1291	2434
Ghana	16	102	50	9920	606	597
Guinea	21	164	45	16630	980	2116
Guinea-Bissau	21	147	42	6750	760	1347
Ivory Coast	18	126	47	15220	840	1475
Kenya	13	86	55	11630	760	2574
Lesotho	13	114	52	18640	560	3120
Liberia	15	153	54	9260	690	1658
Libyan Arab Jamahiriya	13	99	57	900	240	351
Madagascar	16	70	47	10240	410	2439
Malawi	18	171	47	40680	760	3846
Mali	21	153	43	25150	1350	2193
Mauritania	22	142	43	15160	2580	2708
Mauritius	7	35	65	2550	280	517
Morocco	13	106	57	11040	710	1820
Mozambique	18	114	47	33980	640	4070
Namibia	14	119	52	-	-	-

Table 9.5--continued

Place	Crude Death Rate[1] 1975-81	Infant Mortality Rate[1] 1981	Life Expectancy at Birth[1] 1975-81	Population: Per Physician[2,3] 1977	Population: Per Hospital Bed[3] 1970-80	Population: Per Nurse or Midwife[4] 1977
Niger	22	145	43	42720	1200	2514
Nigeria	17	134	49	15740	1170	1667
Reunion	6	16	65	-	-	277
Rwanda	18	106	47	38920	790	4923
Sao Tome & Principe	10	72	-	-	-	543
Senegal	22	146	43	15710	730	1393
Seychelles	7	24	65	-	-	433
Sierra Leone	19	206	47	-	1080	2591
Somalia	21	146	43	-	570	2947
South Africa	10	95	61	-	150	288
Sudan	17	123	48	8690	960	844
Swaziland	16	134	47	-	290	552
Tanzania	14	102	52	17550	684	2084
Togo	18	108	47	17980	680	1377
Tunisia	10	98	59	4800	410	1013
Uganda	15	96	54	27600	640	2385
Upper Volta	22	210	43	49810	1518	3984
Zaire	18	111	47	15530	330	1680
Zambia	16	105	50	10190	250	1966
Zimbabwe	13	73	53	7030	290	738

Sources: (1) Population Reference Bureau (1983); (2) World Bank (1981); (3) International Bank for Reconstruction and Development (1980); (4) Population Reference Bureau (1981)

Life Expectancy at Birth

Life expectancy in Africa has increased by 13 years since 1950, yet the African people are still short-lived compared to other populations. Life expectancy on the continent is estimated to be 50 years--23 years less than that for the more developed countries. Life expectancy differs within the African continent, being highest in southern and northern Africa, and lowest in middle Africa. Considering individual countries, life expectancy ranges from 40 years in Ethiopia to 65 years in Reunion and Seychelles. As expected, countries with high life expectancies usually have lower infant mortality rates. For example, Reunion has an infant mortality rate of 16 per 1,000 live births, compared to Upper Volta, where the infant mortality rate is 210 per 1,000 live births, and life expectancy is 43 years (Table 9.5).

Access to Doctors, Nurses, and Hospitals

The African continent as a whole is sparsely served by doctors, nurses, and health facilities, particularly hospitals. With few exceptions, only one African doctor is available to serve several thousands of people; in some countries, this rate is unbelievably high (Table 9.5). For instance, the population per physician is 75,320 in Ethiopia, 49,810 in Upper Volta, and 45,020 in Chad. The population per nurse or midwife in Ethiopia is by far Africa's highest--19,439.

Actually, the future of health care in Africa over the next two decades lies more in the increase and proper distribution of nurses and midwives than on physicians. The reasons are obvious, namely, that training of nurses and midwives is less time consuming, less expensive, and can be made problem-oriented and culturally relevant to African situations. It is encouraging, therefore, to observe a rate of less than 1,000 population per nurse in many countries (Table 9.5). Hospitals, as are physicians, are concentrated in the major urban areas. Gabon and The Congo have the lowest number of people per hospital bed, 100 and 220, respectively. In contrast, Ethiopia has the highest ratio of 2,980 people per hospital bed.

Population Policy in Africa

Population policy is usually defined as an official statement about a population problem, including population growth, population distribution, and migration. In some cases, the policy is implicit or inferred, rather than explicit. Before a governmental policy is formulated, the existence of the underlying health and demographic problems should be recognized. While almost all governments in Africa recognize the existence of a

serious population maldistribution in their countries, only a few African leaders view rapid population growth as problematical and, therefore, few countries have explicit official policies to limit population growth through fertility control. Several reasons can be cited as to why so many African leaders are reluctant to enact fertility control policies:

- Equating numbers with power
- Apparent low population densities (based on total area)
- Lack of comprehensive or reliable demographic data (Haupt, 1980)
- View of family planning as a Western approach to slow down population growth in Africa (the genocide assumption)
- Intertribal conflicts make politicians wary of seeming attempts to limit the growth of rival groups (Haupt, 1980)
- Prevalence of cultural and religious pronatalist attitudes
- High infant and child mortality
- Fear that preoccupation with the population problem will take away from emphasis on economic growth.

That attitudes may be changing slowly in Africa is evident from a recent survey among selected groups of government and private opinion makers in four countries (Lesotho, Senegal, Tanzania, and Togo) conducted by Battelle's International Development Study Center (Robinson and McLees, 1982). Among the issues considered in relation to rising concern about rapid population growth were rapid growth of cities, overtaxation of agricultural land, unchecked movement of people, concern over children's education in view of the increasing pressure on the schooling system, and an apparent breakdown in traditional values and mores, especially as people move to urban areas, with increasing numbers of unwanted pregnancies ending in illegal abortion.

In the United Nations' latest government opinion surveys, conducted by the Population Division (UNFPA, 1979; UN Secretariat, 1980), African leaders were asked to characterize current national fertility levels. Over half described their country's fertility level as satisfactory or low; only a third thought it too high. Thus, at the official level, there is a marked lack of public recognition of the need for reduced fertility in much of Africa. This trend is reflected in the official population policies of African countries (Table 9.6).

Table 9.6. Official Population Policy and Reasoning for Family Planning Policies--Africa

Official Policy to Reduce Population Growth		Policy of Nonintervention		
Demographic & Health Rationale	Primarily Health Rationale	Implicit Health Rationale	No Policy	Pronatalist Policy
Algeria	Ghana	Angola	Burundi	Cameroon
Botswana	Guinea-Bissau	Benin	Comoros	Central African Republic
Egypt	Liberia	Cape Verde	Congo	Chad
Kenya	Senegal	Ethiopia	Djibouti	Equatorial Guinea
Lesotho	Seychelles	Gambia	Guinea	Gabon
Mauritius	South Africa	Madagascar	Ivory Coast	Libya
Morocco		Mali	Niger	Malawi
Rwanda		Mauritania	Sao Tome & Principe	
Swaziland		Mozambique	Somalia	
Tunisia		Nigeria	Upper Volta	
Uganda		Sierra Leone	Zimbabwe	
		Sudan		
		Tanzania		
		Togo		
		Zaire		
		Zambia		

Source: Based on IPPF (1982) and UN Secretariat (1980) data

Family Planning Services

Countries with official policies to reduce population growth usually resort to family planning programs, which can also be available from nongovernmental services. At least 26 countries have family planning services available from government or private agencies. Coverage within these countries varies from just a few urban facilities to widespread urban and rural coverage. In an additional ten countries, limited services are available from private doctors, pharmacies, or in a limited number of hospitals. Of the remaining countries, five now have plans for pilot family planning projects (Central African Republic, The Congo, Guinea-Bissau, Mozambique, and Upper Volta) (IPPF, 1982).

In three studies covering nine African countries (Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Tanzania, Tunisia, and Zimbabwe), Piles (1980) and Mortman and Hofstatter (1978, 1980) found that oral contraceptives were the most frequently used

method of birth control. The IUD followed in popularity. Male and female sterilization was available only in Botswana and Zimbabwe, while female sterilization was frequently used in Tunisia. Tunisia was the only country of the group in which abortion was frequently used.

The Health Rationale in African Population Policy

The health rationale, when properly presented, is likely to gain acceptance in most African countries. Reviewing the policy briefs of these countries (UN Secretariat, 1980), one is left with the impression that improvements in maternal and child health and child spacing are the concern of most countries, regardless of their population policies.

The countries can be classified into five categories (Table 9.6). The first category includes 11 countries with official policies where demographic reasons supervene, but where health objectives are often envisioned. For example, in Swaziland, the inclusion of family planning programs within the public health service is intended to bring about a decline in fertility, as well as contribute to the improvement of maternal and child health. Even in Kenya, the policy refers to health concerns. The Kenyan government was the first sub-Saharan country to express concern about the effects of population growth on social and economic development. The country established an official national family planning program for the purpose of lowering the rate of population increase. This national family planning program is part of an overall plan to strengthen the rural health system and is directly linked to the provision of maternal and child health services. Any push for immediate reduction in family size, however, has been carefully avoided (UNFPA, 1979).

The second category includes six countries where the health rationale is the primary reason for their population policy. Ghana, for example, has emphasized the view that the high birth rate is a health constraint on socioeconomic development. Therefore, Ghana's five-year plan states the goal that the population growth rate should be reduced from 3.[illegible] percent in 1970 to 1.8 percent by the year 2000 (UN Secretariat, 1980).

Sixteen countries are included in the third category where, despite the absence of explicit policy, the governments concede the importance of family planning and maternal and child health. Benin, for example, has no expressed governmental population policy. Yet, the Ministry of Public Health is in favor of the integration of maternal and child health and child spacing in the basic health services (UN Secretariat, 1980).

The fourth category includes nine countries with no family planning policy and with no concession as to the importance of family planning and maternal and child health.

The fifth category includes eight countries with prenatalist policies.

Although this last chapter leaves no doubt that population pressure has negatively affected the process of economic and social welfare, the emphasis throughout this document has been on the health impact of unplanned fertility. It is hoped that the evidence presented here will be instrumental in achieving the following goals:

1. Documenting an important issue in the health and welfare of the African people

2. Stimulating political leaders and policy makers in Africa to promote family planning within the context of health

3. Enlisting the African health authorities to provide advice, supplies, and services for family planning within the context of primary health care throughout Africa

4. Convincing African physicians that the prescription of family planning methods is an integral part of everyday practice and is both a medical and social responsibility

5. Persuading African couples that it is for their own benefit from both the health and social points of view that children should be conceived at an age with minimal risks, should be properly spaced, and their numbers should be in an acceptable range to ensure the health of the mother and child.

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