THE HAND THAT ROCKS THE CRADLE RULES THE WORLD

EXPLORING THE RELATIONSHIP BETWEEN MATERNAL AND CHILD HEALTH

By

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THE HAND THAT ROCKS THE CRADLE RULES THE WORLD:
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INTRODUCTION

In most communities in the world the birth of a child is a cause for joy. However too often in sub-Saharan Africa it is a cause for mourning due to the death of the mother or the child or both. The protection and care of the child is dependent on the mother especially in the first 5 years of life and is influenced by the education, health, skills and abilities of the mother. The importance of maternal health and its relationship to child health therefore cannot be underestimated because the health and well being of the mother affects the health and well being of the child, the whole fabric of family life and by extension affects the community and its ongoing existence and development.

Maternal mortality is defined as the death of a mother during pregnancy, delivery and up to 6 weeks after delivery irrespective of the site or duration of the pregnancy and from any cause related to or aggravated by the pregnancy or its management, but not from accidental or unrelated causes. The causes of maternal deaths can be classified as due to direct or indirect causes. Direct causes are those arising from obstetric complications, any interventions and any health problems related to pregnancy, delivery and the puerperal period, that is defined as the first 6 weeks following delivery. Indirect causes are those arising from the aggravation of existing diseases or medical conditions by pregnancy or delivery.[1]

Maternal mortality can be measured using two rates: the maternal mortality ratio and the maternal mortality rate. The maternal mortality ratio relates the numbers of maternal deaths to the number of live births per hundred thousand in a given year whilst the maternal mortality rate relates the number of maternal deaths

to the number of women of reproductive age (generally taken as being from ages 15- 49) per hundred thousand.

$$\text{Maternal mortality ratio} = \frac{\text{number of deaths due to pregnancy, delivery and the puerperium}}{\text{number of total births}} \times 100{,}000$$

$$\text{Maternal mortality rate} = \frac{\text{number of deaths due to pregnancy, delivery and the puerperium}}{\text{number of women aged 15-49 years}} \times 100{,}000$$

The relationship between the maternal mortality ratio and the maternal mortality rate can be shown as follows:

$$\text{Maternal mortality ratio} = \frac{\text{Maternal mortality rate}}{\text{General fertility rate}}$$

where the General Fertility Rate (GFR) is defined as the number of live births per thousand women aged 15-49 years.[1]

$$\text{i.e. General Fertility rate} = \frac{\text{number of women aged 15-49 years}}{\text{Total number of live births}} \times 1000$$

The importance of the maternal mortality ratio is that it is an indicator of the risk of dying from maternity related causes for women and it is therefore an indicator of the obstetric risk of a population. In addition it is used to compare the mortality risks from pregnancy between populations of women with different fertility levels.[1]

The international realisation of the importance of maternal health was manifested first in 1985 when the World Health Organisation (WHO) held a meeting on maternal health in Geneva. This was followed in 1987 by the organisation of the Safe Motherhood Initiative which was launched at a meeting of United Nation's

agencies and large Non Governmental Organisations including WHO, UNICEF, UNFPA, the World Bank, The Population Council and International Planned Parenthood Federation (IPPF).[2,3] The Safe Motherhood Initiative had as its objective a 50% reduction in maternal mortality ratios of 1990 by the year 2000.

Also in 1987 the participants of the 5th International Women and Health Meeting in Costa Rica endorsed an International Day of Action for Women's Health which was launched in 1988 by the Women's Global Network for Reproductive Rights and the Latin American Caribbean Women's Health Network.[4]

There has also been the International Conference on Population and Development (ICPD) held in Cairo in 1994 that produced a 20-year "Programme of Action".[4] This programme of action differed from previous conferences on population and development because it addressed a wider spectrum of topics including sexual and reproductive health, education, human rights, women's empowerment, the control of HIV/AIDS and the environment. In addition the emphasis on family planning as a means of population control was changed to it being a component of reproductive health that has a more comprehensive definition and a broader scope.[5]

Reproductive Health was then defined for the first time as " a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the rights of men and women to be informed and to have access to safe, effective and affordable and acceptable means of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law and the right of access to

appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant". As you can see the last part of the definition specifically referred to the benefits that good reproductive health would bring for the health of the mother and child.[5]

In addition the issues addressed by reproductive health include:

1. Maternal health/safe motherhood
2. Unsafe abortion
3. Infant and child survival, growth and development
4. Fertility regulation/family planning
5. Infertility: prevention and treatment
6. Reproductive cancers
7. HIV/AIDS and sexually transmitted diseases
8. Harmful traditional practices/violence against women
9. Gender equity
10. Sexual behaviour
11. Adolescent reproductive health and sexuality
12. Reproductive health of the elderly[6]

This new emphasis on total reproductive health involves not only women but also men and, starting from childhood, enables a comprehensive approach to be utilised to address all health areas concerning reproduction rather than separating each area. It also stresses the fact that the twelve components are interlinked and are important issues affecting the state of not only women's but also men's reproductive health and their ability to function optimally.

The ICPD Conference was followed by the Fourth World Conference on Women held in Beijing in 1995 during which the global need to address the health issues of women including maternal mortality and morbidity was reiterated and gender issues raised.[7] A meeting of the Technical Consultation on Safe

Motherhood was held in Sri Lanka in 1997 and the ICPD organised a review meeting of their Programme of Action called the ICPD+ 5 Review Process in New York in 1999.[4]

Finally, there followed an international conference in 2000 at which 189 members of the United Nations undertook to address the burden of ill health including the high maternal and child mortality experienced by the developing countries and which is contributed to by the persistent poverty resulting from economic mismanagement and corruption as well as neglect of women's human rights, by producing the Millennium Declaration.
The Millennium Development Goals (MDGs) are eight in number and are as follows, to:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

As can be seen from this list there is an overlapping with the components of Reproductive Health in that gender issues, maternal health, child health and HIV/AIDS were also mentioned. However, the Millennium Declaration per se did not specifically include the all encompassing Reproductive Health Rights Issues as a result of strong opposition from nations within the G77 association formed by developing nations.[8] These are the very nations where maternal mortality and morbidity rates are highest and where women's rights are so often neglected.

Apart from these international conferences, in 1987 the Carnegie Corporation of New York gave a grant to the Centre for Population and Family Health of the School of Public Health, University of

Columbia to form a network of multidisciplinary research teams in Africa to explore methods of care that would result in the prevention of maternal mortality.[9]

The Prevention of Maternal Mortality (PMM) Network consisted of 12 teams, 7 in Nigeria, 2 in Ghana, 2 in Sierra Leone and a technical support team from Columbia University with a regional office in Ghana. The participants of the network first undertook needs assessments of their study areas and then designed projects to reduce the maternal mortality in these areas. The objectives of the Network were to:

1. Strengthen the capacity of African institutions to design, implement and evaluate health programs in a variety of settings.
2. Develop a cadre of health professionals with experience in maternal mortality.
3. Develop programme and operations research models for use in maternal mortality projects.
4. Inform decision makers about the importance of maternal mortality and provide information on effective strategies to reduce it.[9]

The importance of the PPM Network is that it created an opportunity to come to grips with the problems of maternal mortality and was able to set priorities and develop practical and achievable strategies to combat maternal mortality.

In 1993, AVSC International (now called Engenderhealth), IPAS, the International Planned Parenthood Federation (IPPF), the JHPIEGO Corporation and Pathfinder International formed the Post Abortion Care Consortium (PAC), initiated a strategy to reduce pregnancy associated deaths by educating the reproductive health community about abortion risks and by promoting post abortion care as an effective public health strategy. The 3 main elements were to provide:

1. Emergency abortion treatment services
2. Post abortion family planning counselling and services
3. Comprehensive reproductive health care

The emergency treatment abortion services were to be incorporated as part of the emergency obstetric services (EmOC) already in existence.[10] Over the last few years post abortion care has continued to play an important part in maternal health and a modified and more comprehensive model of the PAC model has been formulated to now include:

1. Community and service provider partnerships
2. Counselling
3. Treatment
4. Family planning and contraceptive services
5. Reproductive and other health services[10]

Table 1. Essential Elements of Post abortion Care

Community and Service Provider Partnerships
- Prevent unwanted pregnancies and unsafe abortion
- Mobilise resources to help women receive appropriate and timely care for abortion complications
- Ensure health services reflect and meet community expectations and needs

Counselling
- Identify and respond to women's emotional and physical health needs and other concerns

Treatment
- Treat incomplete and unsafe abortions and potentially life threatening complications

Family Planning and Contraceptive Services
- Help women practice birthspacing or prevent unwanted pregnancies

Reproductive and Other Health Services
- Preferably provide on site or via referrals to other accessible facilities

Source: Post abortion Care Consortium Community Task Force, Essential Elements of Post abortion Care, an expanded and updated model, PAC in Action. 2002 No. 2 Special Supplement. Reference: 10

Despite the various conferences mentioned earlier and the efforts of international and national agencies and organisations, maternal health is still a major problem and the maternal mortality ratio and abortion rate are still high in the developing world. However there are many obstacles that affect the theory and practice or implementation of the suggested strategies that relate to cultural and religious factors and which have policy and legal implications. In addition other factors such as the state of the health services including availability, accessibility and affordability and quality of medical and nursing manpower continue to cause challenges in countries where the problem of safe motherhood and unsafe abortions still endanger maternal health.

For the purposes of this lecture I am going to consider the health of the mother and the maternal risks she faces and how her health can affect the health, well-being and normal development of the child who is the raison d'etre for the pregnancy.

Let me state here that the prepregnancy state of a female can have a far-reaching effect on her ability to get pregnant, carry a pregnancy to term and deliver a healthy baby; thus the health of the girl-child also has a role to play in maternal health.

I will not address the problem of infertility in this lecture except to acknowledge the role of sexually transmitted diseases and some harmful traditional practices as major causes of infertility and maternal morbidity in Sub Saharan Africa and in Nigeria.

THE EXTENT OF THE MATERNAL HEALTH PROBLEM

The realities of maternal deaths in Nigeria were revealed by the findings of the Society of Obstetrics and Gynaecology that were reported in *The Guardian* newspapers of May 1st and May 4th, 2005. In these reports the hospital maternal mortality ratio documented by the Island Maternity Hospital, Ayinke House of the Lagos State University Teaching Hospital and the Lagos University Teaching Hospital, was 3,499 deaths per 100,000 live births and this is more than four times the national average which is estimated at 800 maternal deaths per 100,000 live births.

These shocking figures revealed that 90% of the deaths occurred in patients referred to the three hospitals from other health care facilities. This suggests that the inability of other health care facilities to provide emergency obstetric care on site contributes to further delays for patients to obtain appropriate emergency care and that is a major problem area. In addition it was identified that less than 50% of the women who died had received any antenatal care whatsoever. The above statistics are for hospital deaths so the problem of maternal deaths in the community can be assumed to be of an even greater magnitude.

In Africa as a whole, one out of every five women risks losing a newborn infant throughout her lifetime.[11] In addition, a woman's risk of dying from pregnancy is 1 death for every 16 pregnancies. In comparison a woman's risk of dying from pregnancy is 1 death in 3,700 pregnancies in North America. For all developing countries the risk of dying from pregnancy is 1 in 48 compared with 1 in 1,800 for all developed countries.[3,12] In addition the maternal mortality rate is estimated at 800 per 100,000 live births for Nigeria and at only 7 and 8 per 100,000 live births for America and the United Kingdom.[13,14] So as you can see there are vast differences between the risk of dying from pregnancy alone and the maternal mortality rates for females from developing countries and those from developed countries.

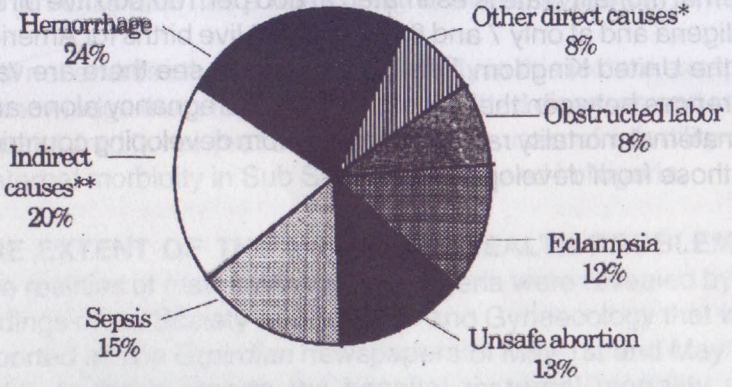
Table 2. Women's Lifetime Risk of Death from Pregnancy, 1990

Region	Risk of Death
Africa	1 in 16
Asia	1 in 65
Latin America	1 in 130
Europe	1 in 1,400
North America	1 in 3,700
All developing countries	1 in 48
All developed countries	1 in 1,800

Source: Adapted from Family Care International, 1998. **Reference: 3**

About a quarter of maternal deaths occur during pregnancy and about 15% occur during delivery, however the majority of maternal deaths occur after childbirth and usually during the first 24 hours. The most common cause of death is haemorrhage causing about 24% of the maternal deaths.[15], (Figure 1).

Figure 1: Causes of Maternal Mortality



*Other direct causes include ectopic pregnancy, embolism, and anesthesia-related complications.
**Indirect causes include anemia, malaria, and heart disease.

Source: Family Care International 1998. Reference: 3

A 100 points index has been used to rate the reproductive risk index for women around the world. The variables used to calculate the reproductive risk index were as follows:

1. Annual births per 100 women aged 15-19
2. Contraceptive use
3. Abortion policy
4. Pregnant women with anaemia
5. Women receiving antenatal care
6. Births attended by trained personnel
7. HIV/AIDS level in women
8. Infertility in women
9. Average births per women
10. Maternal deaths per 100,000 births

Each of the variables was awarded 10 marks and the scores obtained ranked as:

1.	Very low risk	< 15 points
2.	Low risk	15-29 points
3.	Moderate risk	30-44 points
4.	High risk	45-59 points
5.	Very high risk	>60 points

Using this classification, females from the United Kingdom and the United States of America were classified as very low risk scoring 11.8 and 13 respectively while females from Nigeria were classified as very high risk with a score of 62.3.[14]

Ten years later the same organisation Population Action International (PAI) produced a similar index on sexual and reproductive health rights following on the ICPD and MD meetings. Using their goals as the range of indicators for sexual and reproductive health, gender and socio-economic development, a report card of 20 indicators was produced. Out of the 20 indicators only 13 indicators were found to be comparable nationally in the 133 countries that were analysed. These

indicators or variables were scored on a 100 point scale and averaged to produce an overall country score. These scores were then used to classify the countries as being at highest, elevated, moderate, reduced or lowest risk for sexual and reproductive health and rights. Interestingly, almost 10 years later Nigeria still featured in the highest risk level. Using 2 indicators as examples it was found that the Nigerian maternal mortality ratio was still 800 per 100,000 live births, with an infant mortality rate of 110 deaths per 1,000 live births while the comparable figures for the United Kingdom were 13 deaths per 100,000 live births and 6 deaths per 1,000 live births and for the United States 17 maternal deaths per100,000 live births and 7 deaths per 1,000 live births for the infant mortality rate.[16]

PRE PREGNANCY FACTORS – MATERNAL CHARACTERISTICS

AGE

The age at which a woman starts child bearing has an effect not only on her health and ability to have a healthy and safe pregnancy and delivery, but also has an effect on the health of the unborn child. The younger a woman is when she becomes pregnant, the less likely she is to survive the whole childbearing process partly because her body has not yet had a chance to reach its full adult growth and potential resulting in an inadequate pelvic size and partly because the diets of many young women are nutritionally inadequate contributing to their poor development and to continuing inadequate nutrition during pregnancy.

The cultural practice of early childhood marriages in developing countries compounds the problem where girls as young as 7 or 8 years are married and in Northern Nigeria it is claimed that the average age of marriage is about 11 years.[17,18] In the developed countries adolescent pregnancies are also a problem and lead to dropping out of school and various other social problems related to single parenthood. In America it is estimated that 1 million adolescents get pregnant every year.[19]

It is estimated that globally each year 15 million women under the age of 20, give birth. This amounts to about 1 birth in every 10 globally. Studies have shown that adolescents aged 15-18 are twice to five times as likely to die from childbirth as women in their twenties.[18,20]

Women older than 39 years are also at greater risk of dying from childbirth. One of the reasons is that they usually have had more than 5 children by the time they reach their late thirties or early forties especially if they started childbearing as adolescents. This high parity carries risks related to the inefficient functioning of the uterus and in addition the older woman may have accumulated health problems over the years such as diabetes and hypertension. The risk of dying from pregnancy related complications is estimated to be five times higher in women aged 40-44 than in women in their twenties.[21]

In addition to the maternal risks for young adolescents, infants born to adolescents are more likely to die before their first birthday than those born to mothers in their twenties. The infants also have an increased risk of a wide variety of health problems if they survive, such as low birth weight, malnutrition, an increased risk of communicable diseases and slower physical growth and development.[21]

PARITY

The parity of a woman, which is defined as "the number of times a woman has been pregnant for 20 or more weeks regardless of whether the infant is dead or alive," has a great influence on her health and well-being. The fertility levels in Africa are inextricably tied to traditional customs that emphasise the importance of children in the continuation of the extended family. The status of a woman in the family and her community is positively correlated to the number of children she bears, especially if they are of the male sex. In addition the high infant mortality rates also act as a catalyst for high birth rates.

The risk of dying during childbirth increases as a woman's parity increases. From a woman's fourth birth, the risk of maternal complications increases substantially and regardless of her age she is1.5 to 3 times more likely to die when giving birth to her fourth child than when giving birth to her second or third child. The risk of complications and death is directly related to "overuse of the uterus". The uterine musculature becomes less efficient the greater a woman's parity and this can result in an increased risk of haemorrhage during delivery or of rupture of the uterus.[21] In addition, the uterus may contract less efficiently causing delayed labour with the need for a caesarean section if maternal or foetal distress occurs. This in itself is a risk factor in countries where emergency obstetric care facilities and staff are not readily available. Delayed labour can result in anoxia of the infant's brain with consequent brain damage or death. Obstructed labour is also a hazard for the grand multiparous woman as she may develop an unstable lie of the baby resulting in another part of the body rather than the head of the baby presenting first. This can also result in an obstetric emergency causing high morbidity or mortality in both the mother and child.

Supporting these negative effects of parity on child survival, a study in the Kainji Lake area of Nigeria found that the chances of child survival were inversely related to parity. In other words survival of the infant decreased with increasing parity .[22] In addition, sibling rivalry is thought to have a substantial influence on the development of both the previous child and the newborn as there is competition not only for the mother's attention but for all other family resources such as food, shelter, clothing and medical care and this results in increases in the risks of high morbidity and mortality in both children.[21,23]

BIRTH INTERVALS

It was well known that too frequent pregnancies affect the health of the mother and the child. Pregnancy depletes a woman's body as her nutritional needs are increased during and after pregnancy.

She requires a sufficient time lapse between pregnancies to build up her nutritional reserves and her stores of iron. She also requires time for her reproductive system to repair itself and for her uterine, pelvic and vaginal muscles to regain their tone and strength.

In the past, it was recommended that the best interval between births to protect the health of mother and child was 2 years. However recent studies have now demonstrated that a birth interval of 3-5 years offers even greater protection to the health of the mother and child. The advantages to mothers include reductions in the level of anaemia and the chance to improve any nutritional deficiencies or depletions that may have occurred during previous pregnancies.[21,23] A mother's poor nutrition, even before becoming pregnant, affects the outcome of her pregnancy and her ability to function effectively during the delivery process. In addition, she runs a greater risk of dying from 3rd trimester bleeding.[23]

It is estimated that a birth interval of 3-5 years increases the survival rate of the mother by 2.5 times that of a mother whose birth interval is 9-14 months and the survival rate of the child by 2.5 times that of children born with birth intervals less than 2 years. Other advantages to the child include the fact that malnourishment is less likely to occur and the risk of stunting is reduced up to the age of five.[23]

Shorter birth intervals are suspected of contributing to premature delivery resulting in low birth weight babies that are less likely to survive. In addition short birth intervals not only affect the succeeding child but also affect the preceding child.[21] When a mother who is breastfeeding becomes pregnant her breast milk begins to dry up due to hormonal changes and this means that the last child is now put at risk because its nutrition will be seriously affected as it has to be taken off the breast. Early weaning onto a diet low in protein (because of the absence of the breast milk)

leads to the development of the well-known nutritional condition called protein calorie malnutrition or "kwashiorkor" in the older sibling. Added to this scenario, poor and unhygienic weaning practices can lead to the development of diarrhoea and gastroenteritis. In addition, sibling rivalry as mentioned earlier, can have a detrimental effect on the children's health.[21,23]

It is estimated that in Nigeria, infant mortality could fall from 75 deaths per 1000 births to 54 deaths per 1000 births if all women spaced their births at least 3 years apart. In addition the under five mortality would fall from 140 deaths per 1000 births to 108 deaths per 1000 births. This represents a 28% and 23 % decline respectively.[23]

NUTRITION

The nutritional needs for the adolescent female usually increase between the ages of 10-15 years when the growth spurt occurs. In addition the onset of menstruation leads to an average loss of 15-28 milligrams of iron per month that needs to be replaced. There are also increased needs not only for iron but for protein, zinc, calcium and folic acid.[24] However in developing countries, the nutritional needs of females as a whole are not recognised as being important and are often neglected. This has resulted in an estimated 450 million adult women in these countries being classified as "stunted" as a direct result of inadequate childhood nutrition.[25] Throughout the world it is estimated that 1.3 billion people live on less than a dollar a day. Of these 70% are women amounting to about 910 million women.[12] The impoverished state of these women manifests itself as malnutrition in their children and also as poor nutrition for themselves.

Apart from a low calorie intake, the Nigerian diet is very poor in protein content. Many Nigerians are unable to afford to eat protein every day or in sufficient quantities and this also leads to chronic anaemia. During pregnancy the maternal need for iron increases to provide for the growing foetus and placenta and also to increase the maternal red cell mass.[25] The Recommended Daily Allowance

(RDA) for iron for pregnant females is 30 milligrams. This amount of iron should prevent iron deficiency anaemia, maintain the stores of iron in the mother and promote the foetal storage of iron.[26] These extra needs for iron increase the level of anaemia of the Nigerian mother as the maternal needs are superimposed on her chronic anaemia. The protein demands also increase during pregnancy due to the increase of blood volume and growth of the maternal and foetal tissues.[27] The recommended intake of protein is 60 milligrams per day.[28]

A consistently poor diet results in underweight women who are chronically anaemic and are more likely to experience poor pregnancy outcomes both for themselves and for their babies. A lifetime poor diet results in women who are not able to achieve their full growth potential and who are stunted or short with pelvises that are small. This substantially increases the risk of experiencing obstructed labour with the possibility of uterine rupture, haemorrhage and death or the development of VVF or RVF as sequelae. A mother who is also chronically anaemic is less likely to survive any bleeding episode because her reserves of iron are already depleted.

Perhaps it is pertinent to mention here in greater detail the Maternal Depletion Syndrome. This syndrome is defined as "a broad pattern of maternal malnutrition resulting from the combined effects of dietary inadequacy, heavy workloads and the energy costs of repeated episodes of reproduction" [29] and it is likely to occur when women from lower socio-economic groups have a high parity of more than 5 children with short birth intervals. Due to the frequent pregnancies, they do not have enough time to recuperate from childbearing and breastfeeding and to build up their nutritional and energy levels and body mass.[22] It is estimated that a woman requires an extra 300 calories per day during the second and third trimesters of pregnancy to meet the energy demands of pregnancy[27] and an extra 500 calories a day if she is fully breastfeeding her child. These extra nutritional requirements

coupled with early childbearing and too much hard physical labour, can result in early ageing of women.

Most mothers in developing societies are estimated to spend at least 12 –15 hours a day taking care of the daily household needs of their families from child caring and rearing to providing food, water and fuel and very often, also acting as wage earners for the family[30] All these activities and the effect of short birth intervals of less than 18 months, prevent nutritional recuperation of mothers and can affect foetal growth and increase the risk of intrauterine growth retardation.[31]

In estimating whether a mother is underweight or not, the Body Mass Index (BMI) is used. This is a measure of weight for height and is expressed as the weight in kilogrammes divided by the square of the height expressed in metres. The BMI is classified into underweight, normal weight, overweight and obese. Underweight is defined as a BMI of less than 19.8 prior to pregnancy and the lower a woman's BMI the more likely she is to be poorly nourished. Normal weight is a BMI between 19.8 to 26.0, overweight is a BMI greater than 26.0 and up to 29.0 and obese is a BMI of over 29.0.[32]

Table 3: Classification of Women's Prepregnancy Weight According to BMI

Prepregnancy weight	*BMI*
Underweight	<19.8
Normal Weight	19.8-26.0
Overweight	>26.0-29.0
Obese	>29

Source: Institute of Medicine. Reference: 32

The pre-pregnancy nutrition of a woman has an important bearing on the growth and development of the foetus and a woman's general health and nutritional status at conception is a good predictor of pregnancy outcome. Women and adolescents who

are underweight before pregnancy tend to have smaller babies for a given weight gain than do the older and heavier women even when gestational weight gain remains the same. In addition they are more likely to experience a higher peri-natal mortality rate and other pregnancy complications. [28]

Studies have proved that diets providing an inadequate calorie intake affect development, growth and the eventual birth weight of the infant. In addition, as foetal growth depends on the woman's nutritional status during pregnancy, supplementing the diet by increases in the calorie and protein intake may be an important means of reducing the risk of low birth weight babies[33] especially during the second and third trimesters where a low maternal weight gain is related to poor foetal growth and low birth weight.[32]

Parameters have also been set by the Institute of Medicine in the US regarding the recommended weight gain during pregnancy. The total recommended weight gain for women according to their prepregnancy BMI is that those who are underweight should gain from 28-40lbs, those who are normal weight 25-35 lbs, those who are overweight 15-25 lbs and those who are obese at least 15 lbs.[32]

Table 4: Ideal Weight Gain for Each Prepregnancy BMI Classification

Weight	Prepregnancy BMI	Total ideal weight gain (lb)
Underweight	<19.8	28-40
Normal weight	19.8-26.0	25-35
Overweight	>26.0-29.0	15-25
Obese	>29	At least 15

Source: Institute of Medicine. Reference: 32

There are also risk factors for overweight and obese women and for their babies. The overweight woman is at risk for postpartum weight retention of her prenatal weight gain. This

has attendant risks for health such as hypertension and cardiovascular complications. The obese woman is at greater risk of delivering a baby that is very large and is likely to experience obstructed labour due to the size of the baby. Other complications may occur at delivery placing both the mother's and the infant's lives at risk especially if surgery, such as a caesarean section, has to be performed. Obese women are at greater risk of developing gestational diabetes, diabetes related to pregnancy, and this is also a risk factor for the development of very large foetuses. Finally, obese women are also more likely to develop type 2 diabetes later in life, if their obesity is not controlled post delivery.[32]

MATERNAL BEHAVIOURAL INDICATORS

USE OF ANTENATAL CARE SERVICES

Apart from the personal factors such as age, parity and birth interval that affect maternal and child health, the use of services for antenatal, delivery and postpartum care have an important bearing on the health of the mother. Antenatal care is important because it is an opportunity to detect early in pregnancy if the mother has any medical conditions such as diabetes, hypertension, heart disease or renal disease that could become worse as her pregnancy proceedes. Her height, weight, pelvic size and haemoglobin level are also important indicators of the possible pregnancy outcome. Apart from the assessment of the presence or absence of the non-communicable diseases, it is important to also assess the presence or absence of communicable diseases such as syphilis, gonorrhoea, HIV and rubella because of their effects not only on the mother but also on the foetus. Finally it is an opportunity for monitoring the health of the mother in case any pregnancy related disease occurs such as eclampsia, pregnancy related hypertension, or the development of malpresentation of the foetus.

Important components of antenatal care therefore include:

1. Screening and treatment for STD's
2. Treatment and management of both communicable and non communicable diseases including malaria and anaemia.
3. Identification early in pregnancy of women who are less than 1.5 metres in height and have a small pelvis.
4. Identification of malpresentation of the foetus.
5. Identification of multiple births
6. Health education to the mother about potential complications and when and how to access care[3].

With regard to the use of antenatal services, the American College of Obstetricians and Gynaecologists has established guidelines to monitor the progress of the mother and child during the antenatal period. These guidelines call for an early entry into antenatal care covering at least 13 visits during a full term pregnancy. It has been shown that women who commence antenatal care after the first 3 months of pregnancy are at greater risk for poorer pregnancy outcomes resulting in the delivery of premature infants, low birth weight infants or growth retarded infants.[32] Delays in commencement of antenatal care also reduce the chances of early identification of multiple births which have a very high incidence in Nigeria and which also contribute to the delivery of premature and low birth weight infants.

However, it is found that in developing countries utilisation of modern antenatal clinics is universally poor. In the 2003 Nigerian Demographic and Health Survey (NDHS) it was found that about 43.4% of mothers, who had had a child in the preceding 5 years before the survey, received antenatal care before the end of the first 5 months of pregnancy. The mean duration of pregnancy at the time of that first most important visit was about five months.[34] This meant that the advantage of an early entry into the antenatal care system was lost. Early entry is an opportunity for the general

health of the mother to be assessed and to identify any diseases or risk factors present before the pregnancy has progressed too far. The early identification of diseases such as diabetes or hypertension or risk factors such as narrow pelvis or short height enable appropriate treatment or decisions to be made in good time to protect the health of the mother and child.

This late entry into the antenatal care system also affected the number of antenatal visits made and 47% of mothers made only four or more antenatal visits.[34] The median number of antenatal care visits was 5, less than half that of the number recommended by the American College of Obstetrics and Gynaecology.[32]

The National HIV/AIDS and Reproductive Health Survey of 2003 (NARHS) found that 62% of women had received some form of antenatal care with a higher percentage of urban women receiving care compared to rural women (87% and 52% respectively). The increased use of antenatal care was positively correlated with education and the percentage of use of antenatal services was consistently low in all the northern zones of the country ranging from 38%-69% whilst for the southern zones the range was from 76% to 92%.[35]

Younger women were also less likely to receive antenatal care. Only 44.5% of Nigerian females aged 15-19 years attended antenatal visits and of these 72.3 % were attended to by a nurse/ midwife.[35]

Regarding the attendant present at the antenatal clinic, the nursing professionals were more often present and 82% of mothers claimed to have had a nurse/midwife attend to them.[35] This is higher than the figure obtained in the 2003 Nigerian Demographic and Health Survey (NDHS), in which it was found that in the five years preceding the survey, 58% of mothers received antenatal care from either a doctor, nurse, midwife or auxiliary midwife. In about 37%, of births, mothers received no antenatal care at all.[34]

In a recent study of 2 rural communities in Zaria , Northern Nigeria within a 10 kilometre radius of the Ahmadu Bello University Teaching Hospital and Zaria town itself with numerous maternal health services, the results showed that only 25.9% of the women had had modern antenatal care during their last full term pregnancy and the mean time for entry into the antenatal care service was 6.6 months with an average of 5.4 visits throughout the pregnancy.[36] This is similar to the results obtained in the NDHS.

USE OF DELIVERY SERVICES AND SKILLED BIRTH ATTENDANTS

The use of modern delivery services where competent well-trained nursing and medical personnel are available, is often a luxury that few women in developing countries can afford. There are many reasons for poor use of these services ranging from inaccessibility, and not being affordable, to the quality of care given including the attitudes and manners of the medical personnel to the patients. However in cases where mothers are expected to have uneventful deliveries, home deliveries by competent and trained midwives who have access to emergency obstetric services, are a fairly safe option.

One estimate is that only about 55 % of women in developing countries have a skilled birth attendant at delivery.[3] According to the NARHS of 2003, only 34% of women who had delivered in the last 5 years had a skilled attendant at delivery. A skilled attendant was defined as a caregiver with midwifery skills that included the capacity to initiate the management of complications and obstetric emergencies such as physicians and nurses/ midwives.[35] The NDHS also found that 35% of births were attended to by skilled attendants and 66% of the births were delivered at home[34] with only 33% delivered in any health facility.

In the Zaria study, it was found that 90.1% of women claimed to have delivered their last pregnancy at home with only 9.9% delivering in a heath facility. Of the women that delivered at home, 42% claimed to have delivered alone without any birth attendant, 40% claimed to have been delivered by untrained traditional birth

attendants and only 3% claimed to have been delivered by trained traditional birth attendants. The remaining15% claimed to have been delivered by skilled birth attendants. The reason for non - use of hospitals for delivery care was cultural unacceptability of the hospital practices.[36] With these high levels of non use of delivery facilities and non- attendance of skilled attendants at deliveries, it is not surprising that the high maternal mortality ratio for Nigeria estimated to be 704 per 100,000 live births in 1999 has increased to 800 per 100,000 live births in 2004.[37]

TRADITIONAL BIRTH ATTENDANTS (TBAs)

It is perhaps pertinent here to mention the role of traditional birth attendants in providing maternal health and delivery services. Since the 1970s some countries started to provide modern training to the TBAs in addition to giving them maternity kits with which to practise. Ethiopia was one of the first countries to experiment with this policy to improve the TBAs management of pregnant women and their delivery skills as a means of improving maternal and child health in areas where modern health services were either not available or were insufficient for the needs of the communities.

However the rationale for believing that the use of TBAs improves maternal mortality is rather weak as there are no clear indications that training of TBAs can reduce the onset of complications or improve the treatment of these complications that are the causes of maternal deaths. The majority of complications resulting in maternal deaths cannot be prevented or treated by TBAs. In addition to this, the fact that TBAs are needed to assist in the delivery of maternal care, already indicates that the health system is deficient either in the provision of modern health facilities or the availability of trained health manpower. Under those circumstances, even teaching TBAs to identify and refer complications may not be a realistic option because the necessary services and manpower to cope with emergencies are not readily available or easily accessible.[38]

At a workshop in Ogun State organised by the Women's Health and Action Research Centre, it was reported that generally the performance of TBAs in the community had been improved by training. However in some studies it was reported that on some occasions even when the trained TBAs identified high risk pregnancies, they still continued to manage them instead of referring them to health facilities as required. In addition trained TBAs were still likely to introduce their own traditional methods such as the use of native herbs for various complaints. These findings pinpoint the problem with using illiterate manpower as a stopgap because "old habits die hard" and it must be quite difficult and require a high level of motivation for the TBAs to orientate themselves to the ideas and practices of modern medicine.

However, admitting the fact that due to the lack of manpower resources in the formal health sector, there is likely to be a continuing need for services of TBAs to be used for some time to come, especially as they are highly regarded in many communities, it was concluded by the workshop that TBAs should continue to be trained and retrained (i.e. continuing education), but that they must receive adequate support, supervision and collaboration from the formal health system to enable them offer a safer and effective service.[39] In addition it was suggested that TBAs should not be seen as providing a permanent solution to the shortages in health manpower and facilities and should not be seen as substitutes for the further training, development and employment of formal health care providers.[40] In fact as the manpower situation improves, the use of TBAs should be phased out and they should be replaced with trained nurse midwives.[4]

Despite some reservations about the use of TBAs, it would appear that well-trained and supervised TBAs can assist in improving maternal health by monitoring the pregnancy, giving health education and assisting in early referral of women with risk factors.[3] With regard to child health it has been stated that

the improvement in practice of the hygienic care of the umbilical cord has had a positive impact in reducing the incidence of neonatal tetanus and that TBAs can be involved in advocacy for exclusive breastfeeding for the first 6 months of life.[41] Thus the TBAs may still have a role to play in strengthening child health in the community.

The fact that TBAs are still necessary to complement the provision of maternal health care in the 21st century is surely an indictment of the political will to provide sufficient health and manpower resources for Nigeria to enable every pregnant woman to have access to trained health care providers and adequately equipped health facilities to ensure safe deliveries. It is possible that the use of trained TBAs might have caused delays in the provision of comprehensive maternal and child health services throughout Nigeria as TBAs are available as an official option so that the provision of manpower would appear to have been alleviated. However the supervisory aspect of the work of the trained TBAs still requires inputs from the formal health sector and this may not always be easily available. Without regular supervision, it is possible for the TBAs to revert to their usual practices thus defeating the whole purpose of the training programmes to improve maternal and child health at the grassroots level.

With regard to the process of delivery, it has been concluded that the health of women is endangered when labour starts because there are often multiple delays to their receiving prompt and skilled care at delivery. These delays are classified as follows:

Delay One: Lack of recognition of life threatening complications
Delay Two: Postponement of seeking care
Delay Three: Length of time to reach appropriate care provider/ facility
Delay Four: Substandard or slow care at health facilities. [15,42]

The use of Essential Obstetric Care (EOC) plays an important part in the reduction of maternal deaths caused by obstetric complications but EOC will only work if the experienced obstetricians, nurse midwives and supporting staff are available and if the necessary basic infrastructure and equipment are available. The following table shows that skill and expertise of a high level are required. There are still unfortunately too few governments able to provide the range of essential and emergency services required to save maternal lives and there is an urgent need for essential obstetric care programmes to be implemented as near to the grassroots level as possible.

Table 5: Essential Obstetric Care (EOC): Key Functions

Basic EOC

- Parenteral (intravenous or intramuscular) antibiotics
- Parenteral oxytocicx (drugs which make the uterus contract to stop bleeding)
- Parenteral sedatives or anticonvulsants (for ectampsta)
- Manual removal of the placenta (to stop haemorrhage)
- Removal of retained products of conception (to prevent bleeding and infection)
- Assisted vaginal delivery (to alleviate prolonged labour).

Comprehensive EOC

Basic EOC plus

- Surgery (caesarean section)
- Blood transfusion

Reference: Maine D. "What's so special about maternal mortality", in *Safe Motherhood Initiatives: Critical Issues* Eds. Berer M and Sundari Ravidaran TK 2000 Blackwell Science Ltd 175-182

USE OF POSTNATAL CARE SERVICES

Postnatal care is also a necessary component of maternal care. It is at the postnatal visit that the mother's reproductive health is assessed to ensure that her reproductive system is healthy and has not been too greatly traumatised by the delivery process. It is an opportunity for the skilled attendant to identify any health problems such as the development of fistulae, uterine prolapses, urinary incontinence and any reproductive tract infections that might inconvenience the mother and affect her health and well-being.

A high morbidity rate is more likely in women of a high parity or "grand multiparae" as women who have borne more than five children are called. The problems they may experience are related to the overstretching of the uterine and reproductive musculature which can result in uterine prolapse[21]or stress incontinence. These conditions can lead to a great deal of pain and discomfort and the odour from the stress incontinence can lead to social embarrassment.

Unfortunately many women in developing countries are unaware of the need for and the benefits of that final postnatal visit at 6 weeks post delivery. The 2003 NRHS investigated the use of postnatal services in Nigeria and found that 41% of Nigerian women did not use these services. However the educational level of women had a marked effect on the level of attendance. Eighty six percent of women with tertiary education made use of postnatal services compared with only 20% of those who were not educated. [35]

The level of post delivery morbidity should not be underestimated because for every woman who dies from childbirth, there are approximately 30 more women who are left to suffer from post delivery injuries, infection and disabilities. It is estimated that 300 million women, or more than one quarter of adult women in the developing world, suffer from complications relating to childbirth that have an effect on their health, well being and quality of life.[15]

OTHER FACTORS RELATED TO MATERNAL HEALTH

UNSAFE ABORTION

Unsafe abortion is an option often resorted to by unmarried or married women with its attendant health risks and the possibility of death. WHO defines unsafe abortion as "any procedure for terminating an unwanted pregnancy carried out either by persons lacking the necessary skills or in an environment lacking the minimal medical standards or both".[10,43]

WHO has estimated that globally about 46 million pregnancies end in induced abortion and of these 20 million are unsafe.[10,43,44] This means that the 20 million unsafe abortions have been performed by untrained persons or in unsanitary environments or have been self-induced. About 95% of unsafe abortions take place in developing countries and this high prevalence is due to restrictive laws that prevent safe abortions being performed in hospitals by competent and trained medical personnel and is also due to the unmet need for contraception resulting in low contraceptive prevalence rates. An estimated 120-165 million women, including 12-15 million unmarried women, want to prevent or space their pregnancies but are not using any method of contraception. Many of these women resort to unsafe abortions as a form of contraception.[10] It is suggested that even if all contraceptive users used their methods perfectly all the time there would still be 6 million unintended pregnancies.[10] However studies have shown that the incidence of abortion decreases with increasing use of contraception.[45]

The common perception that unwanted pregnancies are usually problems for young single women (adolescent or otherwise) and are aborted, is wrong because abortions are also sought by married women especially where there is an unmet need for family planning.[43] In a study in Mexico City, the majority of the women who were being treated for abortion complications were married[46] and in another study in Ghana, 64% of women who

had an abortion during the study period were married women and 60% of them were under 30 years of age. In addition, only 12% of the women had their abortions performed by doctors.[47]

Unsafe abortions are estimated to cause 80,000 maternal deaths globally each year. This translates to 13% of all pregnancy related deaths.[10,44] Apart from the high mortality experienced from unsafe abortions, there is also a high morbidity rate resulting in conditions such as chronic pelvic pain, pelvic inflammatory disease leading to blocked fallopian tubes with an increased risk of developing ectopic pregnancies and developing secondary infertility. In addition, premature delivery with its attendant hazards for the infant may also occur as well as the possibility of spontaneous abortion due to injury to the cervix resulting in cervical incompetence.[30]

In sub-Saharan Africa, an estimated 3.7 million unsafe abortions are performed each year, the equivalent of 26 unsafe abortions per 1000 women. Also about 23,000 women die each year from the complications of unsafe abortions.[30]

About 12% of pregnancies in Nigeria are estimated to end in abortions. This figure excludes spontaneous abortions/ miscarriages. This is equivalent to about 610,000 abortions annually and gives a rate of about 25 abortions per 1000 women aged 15-44.[48] In a nationwide study of health establishments in Nigeria where abortions might be performed, it was found that about 40% of abortions were performed by physicians in health facilities and of these, 73% were performed by general practitioners. The remaining 60% of the abortions were performed by non- physicians, such as paramedics, pharmacists, nurse midwives and quacks (persons with no formal medical training). The abortions performed by these non-physicians contributed substantially to the number of complications experienced by the women who then required hospitalisation. It was estimated that half of all women who had non- physician abortions experienced

complications requiring treatment by a physician.[48] Women who have developed complications from unsafe abortions are more likely to require inpatient treatment owing to the severity of the complications whereas women who suffer from spontaneous abortions can sometimes be treated on an outpatient basis.

A study of Nigerian adolescents investigating their sexual activity, contraceptive practice and abortion practice, found that 29% were sexually active and in addition about one third of them had multiple sexual partners (33.7%). Only 23% used orthodox methods of contraception and 23.5% claimed to have had abortions the majority of which were from unskilled persons with only 47.7% being performed by doctors. Studies have also shown that many women, including adolescents in developing countries, tend to use abortion as a means of contraception so running the risk of permanent damage to their reproductive systems from unsafe abortions. In this study, 10.5% of the adolescents had had more than one abortion.[49]

Using focus group discussions, another Nigerian study investigated why Nigerian adolescents preferred to use abortion as an alternative to contraception and found that the adolescents used abortion as a means of contraception because they thought that modern contraception had adverse effects on future fertility. The conclusion was reached that there was an urgent need to improve the education of adolescents on the mode of action and side effects of modern contraception if an increase in their use with a fall in the rate of adolescent abortions is to occur.[50]

VESICO AND RECTO VAGINAL FISTULAE

Vesico Vaginal and Recto Vaginal Fistulae (VVF and RVF) are chronic conditions caused by pregnancy complications, such as obstructed and prolonged labour as a result of poor delivery practices or by damage to the reproductive tract due to unsafe abortions. A Vesico Vaginal Fistula occurs when there is a connection between the vagina and the bladder allowing urine to

pass out uncontrollably from the vagina and the Recto Vaginal Fistula occurs when there is a connection between the rectum and the vagina resulting in faeces passing out through the vagina. As you can imagine the stench of urine and faeces that arise from these unfortunate women make it impossible for them to interact normally with their families, relations or friends and leads to social ostracisation. The resulting chronic pain and ill health are a major cause of morbidity in women.

Early marriage rites in many developing countries contribute to the high prevalence of VVF and RVF because the pregnant adolescent has not fully completed her skeletal growth with regard to her height and the size of her pelvis. The immature and inadequate size of the pelvis leads to obstructed labour as the baby is often too large for the pelvis. Many of these young girls come from poor homes where they are unlikely to be taken to hospital on time and they are frequently left to struggle in labour alone for several days until they are nearly at death's door. By the time they reach hospital, if they do not die, they very often have stillbirths and are left with a VVF or a RVF as a result of the obstructed labour. It is estimated that obstructed labour occurs in 5% of pregnancies worldwide and accounts for about 8% of maternal deaths and that 90% of all VVF in Africa is caused by obstructed labour.[51,52]

A study in Nigeria estimated that the prevalence of VVF was 50-80 per 100,000 live births and that over 50% of those with VVF were less than 150cm tall.[53] Another study of 241 fistula patients found that more than 25% of them had become pregnant before age 15 and more than 50% had become pregnant before the age of 18 years.[54] A study in Tanzania found that 72% of the patients suffering from VVF were 150cm or less in height.[52] It is clear that early age of marriage coupled with poor childhood nutrition leading to underweight and stunted adolescents are risk factors for obstructed labour and the development of fistulae in adolescents.

There are certain harmful traditional practices such as female genital cutting that can also contribute to the development of obstructed labour leading to VVF and RVF. The Sunni type of circumcision or type 3 produces a great deal of scarring of vaginal tissues. This produces narrowing of the birth canal and contributes to the development of obstructed labour during delivery. In addition the "Gishiri Cut" in Nigeria, another harmful traditional practice, involves the cutting of the vagina using unsterilised cutting implements such as razor blades, knives or pieces of sharp glass. This is in an attempt to widen the birth canal and make the delivery process easier. Unfortunately in the hands of the inexperienced traditional birth attendant, damage can be done to the urethra or the bladder and it is estimated that about 15% of cases of VVF in Northern Nigeria are a result of this traditional practice.[49,55]

Obstructed labour not only affects the mother but also affects the newborn baby if it survives the obstructed labour. Obstructed labour contributes substantially to neonatal deaths which are deaths occurring in the first one month of life. It is estimated that about 30% of neonatal deaths are as a result of birth injuries. One of the important causes of death in the newborn is birth asphyxia that is often caused by obstructed labour and globally about 1 million newborns die from this annually. Another 4-5 million babies that suffer from birth asphyxia survive but with disastrous consequences such as epilepsy, cerebral palsy, and developmental delay due to cerebral damage. In developing countries, these disorders cause a great deal of hardship for the mother in caring for the infant as the medical and social support systems are not easily available to her. Inevitably these infants are likely to be maltreated or ill cared for and it is easy for them to become another infant mortality statistic.[11]

POSITION OF WOMEN IN SOCIETY

In many of the developing countries, women are still regarded as their husband's possessions and as such have very little in the way of human rights. This coupled with poverty and the women's economic dependence on their husbands ensure that their physical, reproductive and emotional needs are not considered as worthy of note. In some communities however, women in fact do play an important role in society, for example the market women in Nigeria. Their economic power enables them to wield some political power especially through their market women associations.

The average housewife in many developing countries may have little or no economic power and this situation leaves much to be desired as she is then totally under the authority of her husband and his family. In Nigeria the tradition of petty trading enables women to have some economic independence but this to some extent depends on which part of the country they come from.

It is estimated that women of the developing world receive only three-fourths of male wages and although women in Africa form more than 60 % of the agricultural labour force and contribute up to 80% of total food production, they receive less than 10% of the credit given to small farmers. Also based on UN surveys in 31 countries, it was found that women worked longer hours than men. In the developing world, rural women can spend up to 2 hours or more each day collecting water and firewood and this unremitting hard work can contribute to the maternal depletion syndrome as mentioned earlier.[12]

Gender inequalities militate against the health of women and the girl-child especially in the areas of nutrition, education and reproductive health. Gender discrimination regarding eating practices occur in many developing countries. The women prepare food for the family but the men eat first taking the greater part of the food and the leftovers are what the women and girls

eat. In Nigeria, there are traditional food taboos that are invoked against women during pregnancy as shown in Table 6, and that reduce the availability of protein in the diet and contribute to poor nourishment during pregnancy. These food taboos also extend to children and in some parts of Nigeria it is believed that giving a child meat will turn the child into a thief. In Ahmedabad in India, the belief is widespread that women should not eat too much during pregnancy so that their babies will be small and delivery will be easier. This results in family members discouraging pregnant women from eating well thus compounding their nutritional problems.[56]

Table 6: Food taboos: Examples from Ile-Ife

Foods proscribed for pregnant women	Explanations provideds for the proscription
Okro soups and snails	To avoid excessive salivation in the infant after delivery
Snake soup	To prevent the limbs of the infant from becoming twisted (i.e. crippled)
All pregnant animals and birds	To prevent the death of either the pregnant woman herself or the foetus
Certain vegetables (ebodo and odu)	To prevent excessive belching

Source: Children's and Women's Rights in Nigeria: A Wake Up Call. 2001. National Planning Commission and UNICEF.

Reference: Odebiyi A. (1989) "Food taboos in Maternal and Child Health: The View of Traditional Healers in Ile-Ife", *Nigeria Soc. Sci. Med,* Vol 28:9

EDUCATION

The statistics for education show that globally, 121 million children do not go to school and of these, 65 million are girls and that by the age of 18 years girls have received on average 4.4 years less education than boys. The education of girls is linked to development not only of their families but of the community and the nation. Regions that have invested in female education such as South East Asia have shown higher levels of economic development and there is a positive correlation between an increase in primary school enrolment of girls and the gross domestic product per capita. It has been shown that the countries that have failed to invest in girls' education experience a slower growth of their development efforts and a reduction in income. An analysis by UNICEF of 55 countries, showed that children of educated women were more likely to go to school and that the benefit of schooling was also more likely to extend to their grandchildren.[57]

Many other studies have shown the effect of education on health related matters of both mother and child. The use of antenatal, delivery and postnatal services are all affected by educational level. This is documented by the results of the National HIV/AIDS and Reproductive Health Survey that found that 36% of women who had never attended school attended antenatal care during their last pregnancy compared with 100% of those women with higher than secondary education. With regard to delivery care, only11% of uneducated women were delivered by skilled attendants at birth compared with 68% of those who had higher than secondary school education and finally, 20% of the non educated women attended for postnatal care while 86% of the educated women made use of the postnatal care services.[35] Another study performed in Zaria, Northern Nigeria, found a significant association between the level of education and the use of antenatal services, with the more educated women making greater use of antenatal services.[36]

The 2003 Nigerian Demographic and Health Survey found that 60% of non educated women had no antenatal care provider, 70.4% had no tetanus toxoid immunisation during pregnancy, 89% of them delivered at home, 27% had no assistance during pregnancy and 74.9% had no postnatal check up. On the other hand of those women with education higher than secondary education only 1.7% had no antenatal care provider, 4.6% had no tetanus toxoid immunisation during pregnancy, 10% delivered at home and only 0.4% had no assistance at delivery. No figure was given for postnatal check ups. From the data presented, it can be seen that educational level is positively correlated with the use of orthodox or modern health facilities for maternal health.[34]

To summarise, well educated women are generally more likely to have better knowledge about health care practices, are more likely to use health services during pregnancy and birth and are more likely to be better nourished. In addition they are more likely to know about family planning and to space the births of their children. The sum total of this is that for every additional year of education per 1000 women, 2 maternal deaths will be prevented.[57]

The link between a mother's education and her ability to look after or rear her child has been well researched. A study using data from the Ghana Demographic and Health Survey data of 1998 and the World Bank data of 2000 was able to document that there is a positive relationship between childhood survival and mother's education.[59] In Uganda, a study of risk factors for early childhood malnutrition found that poor education of mothers was one of the risk factors for both stunting and for a low mid upper arm circumference.[60] Another study in Uganda found that the nutritional status of children was related to both father's and mother's educational status. In that study, 50% of the children were stunted with almost a quarter of them being severely stunted and one of the risk factors was father's low education. For children who were underweight (about 17% of the sample)

both the father and mother's education were included in the risk factors.[61]

A study in Lagos, Nigeria by Oyediran, on the utilisation of health services by ill pre-school aged children, found that 10.5% of ill children whose mothers were not educated died compared to 3.6% of those whose mothers had had a secondary school education. With regard to father's education there was little effect on the survival of the children and in fact the highest percentage of deaths occurred in children whose fathers had received a higher education. However this was not found to be statistically significant.[62] A study on the utilisation of health care services by mothers' of children suffering from diarrhoeal disease in rural Vietnam found that mothers with lower levels of education were less likely to seek advice or treatment for their children.[63] A Burmese study on risk factors for the development of diarrhoeal disease and severe malnutrition found that again one of the risk factors was low education of the mother who had less knowledge about the causes of diarrhoea and how to prevent malnutrition in their children.[64]

A study by Oyediran and Bamisaiye explored the effect of education on the child care arrangements of mothers working in a tertiary health care institution in Lagos. Using the grade level as an indicator of educational and socio-economic status, it showed that the use of child care arrangements was inversely related to the grade level of the mothers. Therefore the lower the grade level the more likely a child was to be cared for outside the home during the mother's working hours. In addition, the effect of care outside the home was reflected in a higher rate of incomplete immunisations with 52% of children cared for outside the home being incompletely immunised compared to 42% cared for at home. A higher percentage of children cared for outside the home

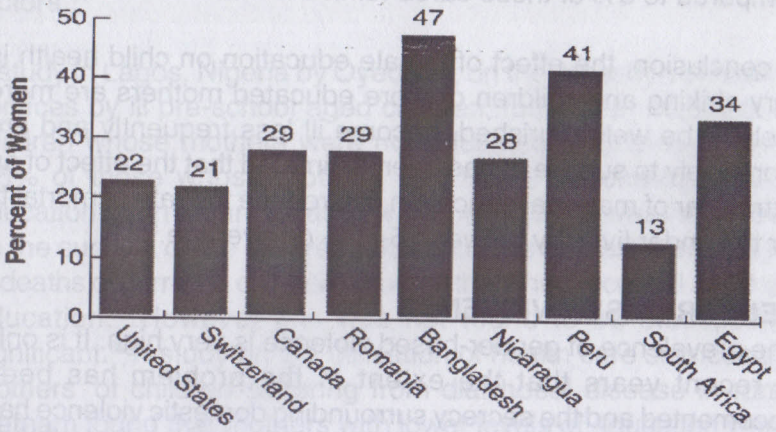
(20%) also experienced multiple episodes of gastroenteritis compared to 9% of those cared for in the home.[65]

In conclusion, the effect of female education on child health is very striking and children of more educated mothers are more likely to be well nourished, become ill less frequently and are more likely to survive. It has been estimated that the effect of an extra year of maternal education can reduce the rate of mortality for the under fives by between 5-10% on average.[57]

GENDER-BASED VIOLENCE

The prevalence of gender-based violence is very high. It is only in recent years that the extent of the problem has been documented and the secrecy surrounding domestic violence has been to some extent uncovered. Violence against women occurs at all levels of society and is found not only among the poor but also among the affluent. The types of violence against women include physical, sexual, verbal and psychological abuse and the violence is characterised by its high prevalence within the home and family. The role of power in sexual relationships is a very important one and relates to the ability of a partner to act independently of the other, to dominate decision-making, to engage in behaviour against another partner's wishes or to control a partner's actions.[56]

Figure 2: Intimate Partner Violence in Selected Countries



*Percentage of adult women who have been physically assaulted by an intimate partner according to national surveys. Due to differences in study population and methods, results are not necessarily comparable.

Source: Heise et al. 1999; Serbanescu et al.; INEL 2001 Reference: 18

It is estimated that globally about one in three women have experienced some form of gender abuse in their lifetime and that the most common acts of violence against women are physical, sexual and emotional. Globally, it is estimated that 10-58% of gender-based abuse is carried out by husbands or partners.[18] Physical abuse can cause mental health problems such as depression and anxiety symptoms. It can also lead to alcohol and substance abuse as a means of escape from the unhappy life of the abused.[66] Women who are abused frequently come from homes where violence was the norm and may have themselves been abused as children or watched their fathers being violent towards their mothers.[18]

Women who are abused also often suffer from chronic health problems resulting in chronic pain such as chronic headaches, pelvic or back pain. Gastrointestinal disorders and cardiac problems such as palpitations may also occur and as abused

women live in a permanent state of fear there is a high degree of depression, anxiety and also post-traumatic stress disorder. In America, a study found that abused women were three times more likely to suffer from post-traumatic stress disorder than non-abused women.[67]

A study of abuse in Nigeria found that 81% of the 1000 women interviewed admitted being abused by their husbands. Of these, 69 % experienced only verbal abuse while the remaining one-third experienced both verbal and physical abuse. In 46% of the cases, their children witnessed the abuse. The level of education had an influence on the level of abuse and those husbands with university education had the fewest number of wives abused regularly or always and fewer of their children witnessed the abuse. Three-quarters of the women (75%) felt stressed and 8% felt depressed and about one-third of them (35.6%) had had to seek medical treatment for their injuries.

Table 7: Wife's State of Mind After Fighting

State of mind	Number	percent
Depressed	791	7.6
Stressed	609	75.2
Considers divorce	125	15.4
Afraid of husband	74	9.1
Feels like committing suicide	14	1.7
Anxious	7	0.9

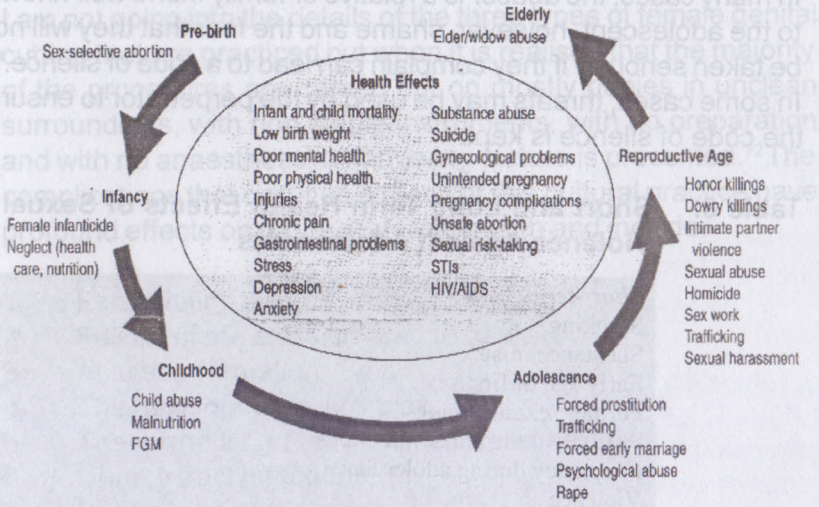
Reference: 68

The effect of abuse during pregnancy can result in patterns of behaviour that put both the mother and foetus at risk. These include increased smoking and substance abuse including alcohol abuse by the mother, poor maternal weight gain, depression and delays in seeking antenatal care. Abused women are more likely to opt for unsafe abortions if the pregnancy is unwanted and abuse such as punching the woman on the stomach can lead to trauma affecting both the mother and her

unborn child and leading to a miscarriage or premature labour.[18, 66] Maternal abuse during pregnancy can also affect the unborn child leading to intrauterine growth retardation and low birth weight and an increase in neonatal mortality.[18] The care of the child after birth can be greatly affected by the effects of abuse on the mother. For instance, a mother who is a substance abuser is unlikely to be a fit mother to care for the infant and this can lead to an increased risk of disability and death for the infant.

The cycle of violence also continues as children who come from homes where violence occurs are more likely to suffer from learning and behavioural problems as well as being at increased risk of becoming abused themselves or becoming abusers later on in life, as stated earlier.[66] The life cycle of violence is shown in figure 3 and as you can see this starts from pre-conception when sex selective abortions might be carried out. At a time this occurred in China when the "one child policy " existed because boys were required to perform the ancestral customs and rites and to continue the family name. Other countries with similar cultural values regarding boys include Korea and India where sons have social, religious and economic significance. Boys were and still are more highly valued than girls in many developing countries. A number of countries have statistics which show that women are more likely to get pregnant sooner following on a daughter's birth then when a son is born.[23]

Figure 3: The Life Cycle of Violence Against Women and its Effects on Health



*The categories of abuse and resulting health effects listed here are representative, not comprehensive.

Based on information from Watts and Zimmerman, 2002[3] and Campbell, 2002.[4]

Reference: 18

The whole issue of gender-based violence includes sexual abuse of children, both male and female and according to analyses from around the world, the overall prevalence of child sexual abuse is 25% for females and 8% for males and the majority of cases occur in children aged 5 to 14 years of age. As stated earlier, sexual abuse in childhood is associated with high risk behaviour in later life such as alcohol and drug abuse, prostitution and psychiatric problems and it is also a risk for sexual abuse to continue in adulthood. [69]The following table classifies what are termed short and long term health effects against adolescents but in fact these effects apply to women of all ages. It is only that adolescents are more vulnerable because of their relative lack of judgement and innocence that may lead them into situations where they are unable to prevent the occurrence of sexual abuse/ violence. However, sexual abuse also occurs in families and although in some cases a mother may even suspect that her

husband is abusing her daughter, she may be too afraid to say anything. Sometimes even tacit approval of the mother is present. In many cases, the abuser is a relative or family friend well-known to the adolescent, however, shame and the fear that they will not be taken seriously if they complain can lead to a code of silence.[69] In some cases, threats may be used by the perpetrator to ensure the code of silence is kept.

Table 8: Short and Long Term Health Effects of Sexual Violence Against Adolescents

Short-term
Smoking
Substance misuse
Early age of first sex
Further sexual assault
Sexually transmitted infections
Pregnancy during adolescence
Violence
Depression
Suicidal ideation and attempts
Alcohol misuse
Increase in preterm delivery; poor pregnancy outcomes
Long-term
Mental ill-health
Increased sexual health risk behaviour and symptoms
Unwanted pregnancies
Sexually transmitted infections
Excess in physical disorders (eg, irritable bowel syndrome, gynaecological problems, heart disease, cancers)
Increase in infant mortality

(Source: Nurse J, WHO, in press).

Reference: 68

Finally this discussion on gender violence would not be complete without mentioning the cultural practice of female genital cutting (FGC) other wise known as female circumcision. Female genital cutting is now recognised as an act of gender violence following

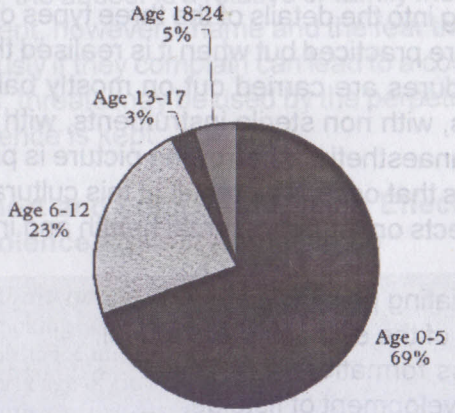
the 1993 UN Declaration on the Elimination of Violence against Women and the 1998 Convention on the Rights of the Child. [70,71]

I am not going into the details of the three types of female genital cutting that are practiced but when it is realised that the majority of the procedures are carried out on mostly babies in unclean surroundings, with non sterile instruments, with no preparation and with no anaesthetic, a harrowing picture is presented.[72] The complications that occur as a result of this cultural practice have profound effects on future maternal health and include:

1. Excruciating pain
2. Failure of the excision area to heal,
3. Abscess formation,
4. The development of fistulae,
5. The formation of dermoid cysts and keloids,
6. Urinary tract infections,
7. Scar neuromas
8. Painful sexual intercourse. [55,70,72]

In addition there is a high risk of contracting HIV/AIDS, hepatitis B and other blood borne infections due to the use of non sterile instruments and of course the risk of death from haemorrhage or generalised septicaemia is ever present. The risk of STIs becomes greater when group procedures of female genital cutting are carried out as puberty rites on adolescent girls because in some cultures FGC is not limited to babies and adolescence but can be carried out just prior to marriage and also during the 7th month of pregnancy.[55] The following Figure 4 shows the percentages of female genital cutting at various ages in Nigeria

Figure 4: Age at Which Female Genital Mutilation is Carried Out (Percentage Distribution by Age Groups)



Source: UNDS 1998. Reference: Children's and Women's Rights in Nigeria: A Wake Up Call. 2001 National Planning Commission and UNICEF Nigeria

It is not surprising that apart from the physical complications listed above, long-lasting and severe emotional and psychological damage can occur that have severe repercussions on the health of the girl-child and her future total reproductive health including her maternal health.

SEXUALLY TRANSMITTED INFECTIONS (STIs) AND HIV/ AIDS

Sexual violence against women very often results in sexually transmitted infections and / or HIV infection. Apart from the risks of developing STIs, the trauma caused by forced sex or rape can lead to damage to the urethra, vagina and anus.[18] The worldwide estimate for STIs is more than 300 million curable cases per year. For a woman, the presence of an STI can cause complications in pregnancy such as spontaneous abortions, premature births, stillbirths, or congenital infections and this is especially true with infections caused by syphilis.[73] Many STIs

also predispose women to HIV/AIDS especially STIs where ulcerative lesions occur such as in granuloma venereum, chancroid or genital herpes.

A study in a Bangkok rape centre found that 10% of those women raped developed STIs and over 15% became pregnant as a result of the rape.[74] In Ethiopia, a study of the prevalence of STIs among Commercial Sex Workers (CSWs) and married women found that while the rates for STIs were higher in the CSWs, (88% with gonorrhoea and 78% with chlamydia) the married women were also infected by their husbands with 40% of them having gonorrhoea and 54% being infected with chlamydia.[75]

Presently, the global estimate for the prevalence for People Living With AIDS (PLWA) is about 35.7 million adults aged 15-49.[76] It is a sad fact but because of gender issues and the continuing low status of women in many developing countries, over 50% of the people infected with AIDS are women. In sub-Saharan Africa, the estimate is that about 75% of those infected are young women and girls.[77]

In Nigeria, the official prevalence rate for AIDS dropped from 5.8% in 1999 to 5% in 2003 but whether this is a true reflection of what is happening remains to be seen. The prevalence of HIV is highest among young adults between 15 and 24 years of age and among those with only primary school education.[58] Globally although young adults make up about 20% of the world's population they in fact are responsible for almost 60% of new HIV infections annually.[37]

It has been stated that the number of people living with HIV/AIDS in Nigeria at the end of 2003, was about 3.2 million to 3.8 million and these figures have been projected to reach 4 million PLWA by the end of 2005.[37] With the estimates of at least half of AIDS cases being women and the majority of cases occurring in those aged 15-24 years, these figures indicate a very high risk for

pregnant women.[77] It said that in Nigeria more and more children are being born with AIDS due to the infection being passed onto them in utero.

One of the reasons that women are more susceptible to HIV infections is because men's semen carries a higher viral load than female secretions. In addition a greater area of mucous membrane in the reproductive tracts of women is exposed during sex compared to men and this provides a larger surface area for the HIV retrovirus to enter the body.[77] Male circumcision however is associated with lower rates of HIV transmission and un-circumcised men are 2 to 8 times more likely to develop HIV infection.[78]

The fact that women have great difficulty negotiating for safe sex through condom use, are also subject to sexual violence/rape and also face the possibility of the infidelity of husbands, increases their risks of being exposed to and being infected with STIs and HIV /AIDS. Both married and single women are at risk from unprotected sex with their husbands or partners who may also have had unprotected sex with other wives, girlfriends and/or commercial sex workers.[77] In the Nigerian environment where polygamy is still very much the norm, it comes as no surprise that the epidemic is likely to spread and continue to spread rapidly and that growing numbers of women attending antenatal clinics will be found to be HIV positive.

Among the risk factors for HIV infection are:

1. Number of lifetime sexual partners
2. Commercial sex
3. Herpes simplex type 2 virus resulting in genital herpes
4. Hormonal contraception (which although it prevents pregnancy provides no protection against HIV/AIDS),
5. Being married
6. Having an older partner
7. Having a non circumcised male partner.[77]

Some studies on maternal deaths show that maternal deaths from AIDS tend to occur in younger women with a low parity, and that direct or indirect causes of maternal mortality or morbidity are compounded by AIDS resulting in increased risk to the mother. The risk of minor or major complications occurring during operative procedures carried out on mothers with AIDS, is higher than for those mothers without AIDS.[79]

With regard to HIV/AIDS and children, 90% of HIV infections in childhood are estimated to occur through Mother To Child Transmission (MTCT) of the virus. Mother To Child Transmission occurs:

1. During pregnancy,
2. During labour and delivery
3. In the postnatal period through breastfeeding.

A high viral load in the woman during pregnancy, delivery and lactation is a high risk factor for her infant to become infected with the HIV virus and the development of cracked nipples, breast abscess or mastitis during breastfeeding also increase the risk to the infant.[80]

The absolute rate for HIV transmission during pregnancy is 5-10% and 10-20% during delivery. The extent of postnatal transmission depends on the duration of breastfeeding and is estimated at 5-15% of babies breastfed for up to six months and for 10-20% of babies breast fed for more than six months. However, in breastfeeding populations 30-50 % of all HIV infections in babies are attributable to breastfeeding. Infants remain exposed to the risk of infection as long as they are breastfed by HIV mothers.[80]

When interventions such as:

1. Use of anti retroviral drugs during pregnancy and labour
2. Use of anti retroviral drugs by the infant in the first few weeks of life

3. Elective caesarean section before rupture of the membranes/onset of labour
4. Complete avoidance of breastfeeding are used, the risk of MTCT can be reduced to less than 2%.[81]

Other routes of infection for HIV in children include infected blood transfusions, non sterile needles, use of invasive medical equipment and sexual abuse. The prognosis for infants infected with AIDS is very poor and 40% of HIV positive infants will die before their first birthday. Children with AIDS suffer from the usual common childhood illnesses but the main difference being that when they develop the infections they are more likely to be severe and difficult to treat. In addition the episodes and frequency of illness increase.[82]

Children of parents who have AIDS are likely to become orphans sooner than later and if they are not infected, they add to the large numbers of orphan children that are now seen in many developing countries. Nine out of every 10 orphans are in sub-Saharan Africa and over 1 million children in each of the following countries: Uganda, Nigeria, Ethiopia and Tanzania, have already been orphaned by AIDS.[78]

A study of national surveys from 40 countries in sub-Saharan Africa found that 9% of the children under 15 years had lost at least one parent to AIDS and on average one in six households with children were caring for orphans. The heads of the households in these cases were usually older, more often female and the households tended to be larger. Ninety percent of double orphans were looked after by the extended family and were the most likely to be disadvantaged. Finally, orphans were found to be 13% less likely to attend school than non orphans and it was suggested that the stigma of HIV/ AIDS might be a contributory factor to this non attendance.[78,83]

Voluntary Counselling and Testing (VCT) is a strategy that can be used as means of Preventing Mother To Childhood Transmission of AIDS (PMTCT) because when a woman is aware of her HIV status and is informed of the risks to any future children she is able to decide whether she wishes to risk having a child with HIV or not. She can then make an appropriate decision, if that decision is in her power. It is recommended that the use of VCT should become standard practice in antenatal clinics and reproductive health clinics as an important aspect of PMTCT and a means of providing counselling, preventive measures, treatment and support in a timely manner.[73] By preventing unintended pregnancies in HIV positive women through the use of family planning methods, this not only reduces the number of HIV infants but also the number of orphans when both parents die from AIDS.

However health workers can affect the success of programmes on HIV/AIDS if their attitudes are negative or unsympathetic towards PLWA. A study by Adebajo, Bamgbala and Oyediran to examine the knowledge, beliefs and attitudes of nurses and laboratory technologists found that although over 96.3% of the respondents had moderate to good knowledge of HIV/AIDS, their attitudes to PLWA was poor with 55.9% of the health workers feeling that PLWA were responsible for their illness and 34.5% feeling that they should be punished for their perceived sexual misbehaviour. Only 52% were willing to work with PLWA and only 18% would accept to socialise with them. In other words their attitude was generally unsympathetic towards PLWA.[84] This study indicated that more needed to be done to educate health workers and improve their attitudes towards PLWA from being judgemental and callous to being sympathetic and caring. Changes in attitude on the part of health workers, might encourage PLWA to attend clinics regularly for treatment and counselling.

REFUGEE WOMEN

A special group of women require to be mentioned in this lecture. These are women who are displaced from their homes for one reason or another. The total population of people who are of concern to the United Nations High Commissioner for Refugees (UNHCR) was about 19.2 million by the end of 2004. These included refugees, numbering about 9.2 million at the end of 2004 of which about 50% were women, asylum seekers, stateless persons and internally displaced persons.[85] Refugees cross international borders while displaced persons are still within their countries but have had to flee their homes for one reason or the other. Often times the flight is as a result of natural disasters such as famines, floods, hurricanes, tsunamis, earthquakes, etc. However the many wars that have taken place in Africa and around the globe have contributed substantially to the poor refugee situation and left women refugees vulnerable to all types of inhuman treatment including mutilation, rape, being forced to work as sex slaves and other horrific acts.[18,71,86] Refugee women still bear children under these dire situations and in refugee camps that are not able to provide adequate facilities to protect the health of women and children. The reproductive health of refugee women, including adolescents gives great cause for concern especially in the areas of HIV/AIDS and STIs, safe motherhood, sexual and gender-based violence and unsafe abortions.

However, the percentage of women refugees varies depending on factors such as the nature of the situation, the region of asylum and the age of the refugees. For asylum seekers the percentage of women is lower than that of the refugees. In addition about 47% of persons of concern to the UNHCR are children under the age of 18 years, but in Africa more than half the refugees are estimated to be under18 years.[85]

Refugee situations can contribute to the spread of communicable diseases including HIV/AIDS and other STDs to the countries to which they have fled. The spread of HIV/AIDS and STIs is also

contributed to by the sexual abuse of women and by circumstances in the refugee camps that result in the women having to use sex as a means to bargain for various favours such as for supplies of food, medicines, money or even protection. A large amount of violence is experienced in the refugee camps and much of this is directed at the women as very often they are husbandless and become a target for not only sexual but all types of abuse.

Safe motherhood is difficult to achieve for refugee women because the camps themselves have inadequate health facilities and few medical and nursing personnel to provide adequate antenatal care or provide for safe normal deliveries. As for the women with complicated deliveries requiring help in a hospital, the hospitals are very often inaccessible because of lack of finances, distance and transport. There is however little or poor data on the maternal mortality ratio and morbidity of women refugees.

Unsafe abortions also are common amongst refugees, especially where pregnancy takes place as a result of rape. The consequences are often death or grave complications resulting in damage to the reproductive tract and often leading to life threatening infections or infertility.

These problems indicate that the reproductive health of refugees is not yet established as a priority but it should be because refugee camps are not the best of environments in which to become pregnant, deliver and try to bring up infants. Although sometimes there is a stimulus for refugees to try to replace children that have been lost during their flight, this is inadvisable in the emergency phase when the refugees first arrive at the camps with virtually nothing to their names. During this emergency phase, the priority of the relief agencies is to provide food, shelter, clothing, safety and sanitation and unfortunately reproductive health needs are overlooked and only considered when the emergency situation is somewhat alleviated.[71]

In Nigeria, the refugee camp at Oru in Ogun State contains about 8,395 refugees of which about 2780 are women between the ages of 18-59 years.[85,87] Several of the University of Lagos postgraduate students studying for the Masters Degree in Humanitarian and Refugee Studies have performed projects at Oru camp and, as one of their supervisors, I have had the opportunity of reviewing some of the research findings with regard to reproductive health concerns which confirm that reproductive health needs of the refugees are not being fully met.

For instance, out of 55 of the refugee women who had been pregnant in the camp, about one third (32.7%) used the government health centre for antenatal care, 18.2 % used a private hospital, 43% used a traditional birth attendant while 5% did not have any antenatal care at all, as the camp clinic did not provide antenatal care services. With regard to their deliveries, over half of the women (54.9%) claimed to have been delivered by traditional birth attendants in the camp, about a quarter (23.5%) delivered in the government health centre at Oru and about 6% had to be referred to the General Hospital for caesarean sections.[87]

With regard to family planning supplies, these were available but the supply was irregular. With regard to forced sex or having to use sex as a bartering tool, out of the 100 women refugees interviewed, 8 of them claimed to have exchanged sex for food, financial or health needs in the camp, and out of these 8, 6 or 75% of them claimed that this had been with "friends."[87] Although it appears that there is some recognition of reproductive health needs, it is apparent that the health facility provided at the camp is unable to fully provide for the reproductive needs of the refugees.

Refugees who have been in camps long enough to enter what is termed the "stabilisation stage" may remain in the camps for up to seven or more years when there is no quick resolution to the

conflict situation which led to the refugees flight. In these cases, it is necessary that the reproductive health needs of the refugee women, including the adolescents, be addressed and for appropriate services including those for antenatal, delivery and postnatal care, child health care, STD prevention and treatment including VCT for HIV/AIDS and family planning counselling and services, to be provided. This is the stage that the majority of the refugees at Oru camp have reached and an upgrading of the health facility possibly to health centre status providing the full spectrum of primary health care including reproductive health services is desirable.

The reproductive health needs of refugees have been addressed by the Inter Agency Working Group (IAWG) formed by 25 humanitarian agencies in 1995 that has produced a manual for providing reproductive health care to refugees based on WHO standards in 1998. In addition, a manual "Refugee Reproductive Health Guide to Needs Assessment and Evaluation" has been produced by the Reproductive Health for Refugees Consortium to provide procedures for assessing the reproductive health of refugees in the field. [86,87] Although these combined efforts have achieved some improvements in service delivery, problems are still encountered due to lack of information of services available, the ignorance of the refugee women themselves regarding their own reproductive health needs and the lack of priority given by the donors, providers and the refugees. Many of the women come from countries where reproductive health services as well as maternal and child health services have been poor or non – existent and so they are not in a position to know what services they need and what should be provided for them. Hopefully these challenges will be met as greater attention is given to the reproductive rights of women following on the "Millennium Declaration".

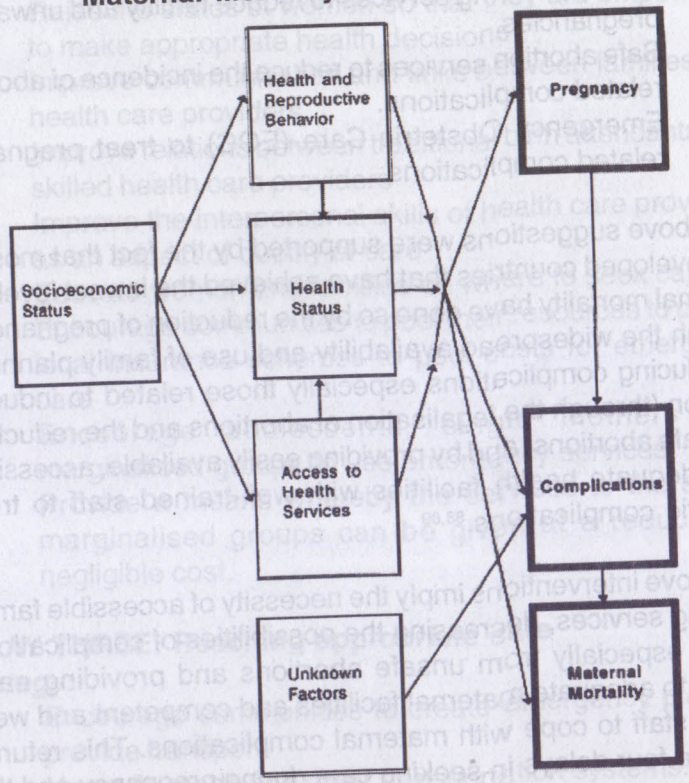
STRATEGIES TO IMPROVE MATERNAL HEALTH

A conceptual framework to help in analysing the determinants of maternal mortality was produced by McCarthy and Maine in 1981

as part of the PMM program mentioned earlier. The framework showed that socio-economic status affected health and reproductive behaviour, health status and access to health services. These variables in turn had effects on the safe progression of pregnancy, the development and treatment of complications and on whether a mother survived her pregnancy or not. Finally, there was the acknowledgement of unknown factors that could occur suddenly and were totally unpredictable and which caused complications during pregnancy, labour, delivery or postpartum. It was these factors that could swing the balance between life and death and for which emergency obstetric care was essential.

A diagram of the framework is shown here below.

Figure 5: Framework for Analysing the Determinants of Maternal Mortality



McCarthy and Maine, 1991

Reference: 88

From the framework analysing the determinants of maternal mortality, it is clear that the interventions necessary to reduce maternal mortality and improve maternal health must:

1. Reduce the number of pregnancies
2. Reduce the number of complications
3. Reduce the likelihood that a complication would result in death [88]

The PPM Network concluded that the strategies most likely to reduce maternal mortality were the provision of:

1. Family planning services to reduce fertility and unwanted pregnancies.
2. Safe abortion services to reduce the incidence of abortion related complications.
3. Emergency Obstetric Care (EOC) to treat pregnancy related complications.

The above suggestions were supported by the fact that most of the developed countries that have achieved the lowest levels of maternal mortality have done so by the reduction of pregnancies through the widespread availability and use of family planning, by reducing complications especially those related to induced abortion (through the legalisation of abortions and the reduction of unsafe abortions) and by providing easily available, accessible and adequate health facilities with well-trained staff to treat obstetric complications.[88,89]

The above interventions imply the necessity of accessible family planning services, decreasing the possibilities of complications arising especially from unsafe abortions and providing easy access to adequate maternal facilities and competent and well-trained staff to cope with maternal complications. This returns us to the four delays in seeking care during pregnancy and the strategies suggested to assist in reducing the possibilities of these occurring are as follows:

DELAY ONE: Recognising danger signs

Strategy:

1. Educate communities on how to recognise life threatening complications
2. Educate women, husbands and families about when and where to go for care for complications

DELAY TWO: Deciding to seek care

Strategy:

1. Encourage families and communities to develop plans of action in advance of obstetric complication
2. Raise the status of women so that they are empowered to make appropriate health decisions
3. Improve communication and links between families and health care providers
4. Improve relations between traditional birth attendants and skilled health care providers
5. Improve the interpersonal skills of health care providers as an aspect of quality of care
6. Educate women and families on where to seek care
7. Encourage communities to pool their resources to create local insurance schemes to pool costs for emergency care
8. Encourage adolescents, single mothers and marginalised groups to use emergency services
9. Provide a means whereby the services to the above marginalised groups can be given at a reduced or negligible cost.

DELAY THREE: Reaching appropriate care

Strategy:

1. Encourage communities to create emergency plans to provide transport.
2. Upgrade roads and other transportation systems.
3. Improve referral systems between communities and health care providers.
4. Establish maternity waiting homes.

DELAY FOUR: Receiving appropriate care at health facilities

Strategy:

1. Improve and upgrade quality of care provided at health facilities including health providers' technical and interpersonal skills, motivation and performance

2. Establish national protocols on treatment of obstetric complications to ensure a more uniform standard of care
3. Train health providers to recognise, admit and treat patients with life threatening complications without delay
4. Ensure adequate and sustainable supplies of drugs, essential emergency equipment, blood and staffing levels at health facilities
5. Provide a 24 hour service for EOC
6. Enhance referral systems between communities and health facilities
7. Improve communication between units providing care in order to generate more referrals
8. Ensure that national curricula for health providers include practical training on how to manage and treat obstetric complications
9. Provide a means of continuing education/refresher courses for health care providers to keep them up-to-date on the management of obstetric complications.[15]

From the foregoing it is quite clear that there are many factors affecting maternal health and contributing to maternal deaths. The alleviation of these factors can provide opportunities for instituting interventions that require the interaction of the individual, family, community and health care providers to achieve improvements in maternal health and reductions in maternal deaths due to obstetric complications.

The development of preconception care as a means of improving maternal health is a relatively new concept in Nigeria. Preconception care is "health care provided before the onset of pregnancy to detect, treat or counsel prospective mothers about pre-existing medical and social conditions that may prevent safe motherhood and the delivery of healthy infants." Preconception care should identify risk factors that would adversely affect the outcome of a pregnancy if left alone. Some of the risk factors for a safe pregnancy and delivery include women with pre-existing

medical conditions, advanced maternal age, poor social history, poor family history, a poor obstetric history and a poor history with regard to drugs therapy. In Nigeria, women with diabetes mellitus and sickle cell disease are among those for whom preconception care would be helpful in safeguarding their health through pregnancy and delivery. Suggested activities that could be carried out in a preconception clinic would include:

1. Genetic screening for sickle cell anaemia and other genetically acquired diseases
2. Screening for medical conditions especially anaemia, HIV/AIDS, epilepsy, cardiac disease and hypertension
3. Screening for poor nutrition and advising on diet
4. Checking for rubella antibodies and if absent immunising against rubella because if this infection occurs in the mother during early pregnancy it can cause severe foetal abnormalities
5. Counselling on social factors such as the effects of cigarette smoking and alcohol on the foetus
6. Counselling on the importance of gentle exercise
7. Counselling on prevention of occupational and environmental exposure to teratogenic compounds which will affect foetal development
8. Contraceptive advice and provision of effective contraception while pregnancy is planned
9. Precise dating of pregnancies by keeping menstrual histories enabling early access to antenatal care.[90]

Although preconception care can help to improve maternal health it is not as successful at preventing maternal deaths as many of the complications causing deaths cannot be predicted in advance. It is important that women entering into pregnancy do so in the best possible state of health and at a time that is advantageous to the family. In addition to preconception care family planning is one of the strategies that can be used in achieving this.

ADVANTAGES OF FAMILY PLANNING

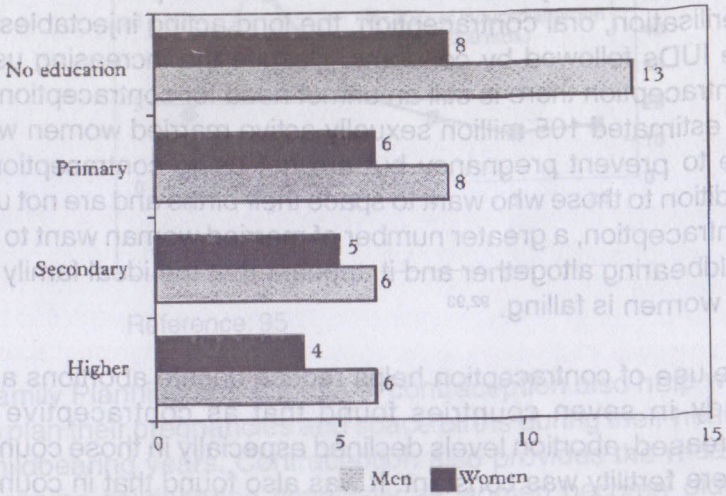
Family Planning is the provision of services that enable families to be planned so that children are born by choice and not by chance. Originally, family planning was seen as a strategy to address demographic challenges especially in developing countries and to assist developing countries in improving their economic development by reducing the rapidity of population growth. However, over the years and with the increasing concerns about human rights and especially women's rights, it has been recognised that family planning is only part of the range of reproductive and human rights and that it is of great importance in the protection of the health of the mother, child, family and the larger community.

Many family planning methods are available but most of them require to be used by the woman. Due to this restriction and the targeting of women only, the family planning movement experienced difficulties in the early years because of male resistance. Many men perceived family planning as providing the means for their wives to be unfaithful to them rather than that it provided an opportunity for them to be relieved of the burden of incessant childbearing.

Since 1990, many countries in sub Saharan-Africa have surveyed men nationally on their attitudes and behaviour to family planning. The major findings were that sexually active unmarried men used contraception more than married men and in 23 out of 25 sub-Saharan African countries, men were more likely than women to know of at least one contraceptive method, usually the condom. On the other hand, men were less likely than the women to approve of family planning and in 21 out of 41 countries married men on average wanted more children than married women wanted. Although polygyny might account for these differences in desired family size, even among monogamously married men the desire for more children was greater than that of monogamously married women.[91]

In Nigeria, the ideal number of children was found to be gender related with husbands, irrespective of their education, desiring more children than wives did. There was also an inverse relationship with education as the less educated couples were, the more children they desired. (See Figure 6).

Figure 6: Ideal Number of Children Desired by Women and Men



Source: UNDS 1999. Reference: Children's and Women's Rights in Nigeria: A Wake Up Call. 2001 National Planning Commission and UNICEF Nigeria

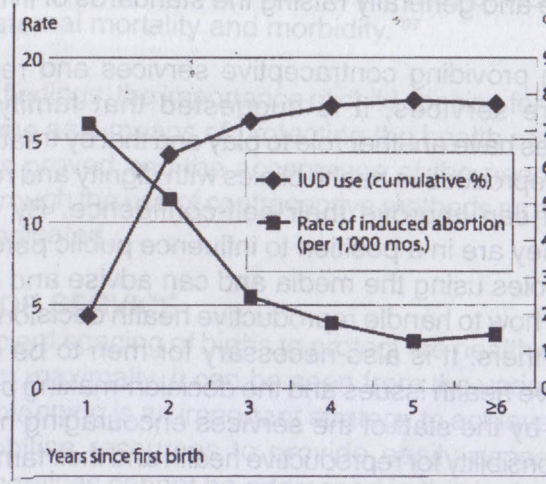
In these surveys of men it was expected that married men and women would have the same level of use of contraceptives but in fact men were found to have higher levels of contraceptive use suggesting that contraception is used by some men in extra marital relationships. Finally the surveys found that more married couples were discussing contraception and that this communication was closely related to the successful use of contraception. There is therefore a need for continuing to educate men on the benefits of contraception.[91]

Family Planning programmes benefit women by saving their lives and it is estimated that preventing unintended pregnancies could prevent about 25% of all maternal deaths.[21] Globally it is estimated that over 600 million married women are using contraception and nearly 500 million of these are in developing countries. The rise in contraceptive use has been documented for both married and unmarried women.

The most widely used methods of contraception are female sterilisation, oral contraception, the long acting injectables and the IUDs followed by condoms. Despite the increasing use of contraception there is still an unmet need for contraception and an estimated 105 million sexually active married women would like to prevent pregnancy but are not using contraception. In addition to those who want to space their births and are not using contraception, a greater number of married woman want to stop childbearing altogether and it appears that the ideal family size for women is falling. [92,93]

The use of contraception helps reduce unsafe abortions and a study in seven countries found that as contraceptive use increased, abortion levels declined especially in those countries where fertility was constant. It was also found that in countries where the level of fertility was falling rapidly, both contraceptive use and abortion levels were high and it was believed that contraceptive use alone was unable to meet the growing demand in those countries for fertility regulation so that women also turned to abortions to help them control their fertility.[94] However a study in China showed a clear cut relationship between increased use of contraception and decreased use of abortion and this is shown in Figure 7.[95]

Figure 7: Rate of Induced Abortion and Cumulative Percentage of Women Using an IUD, by Years Since First Birth, Shanghai, China



Reference: 95

Family Planning and the use of contraception also help women to plan their pregnancies and space births during their healthiest childbearing years. Contraception also provides the means for stopping childbearing especially as women become older. By having the means to control their fertility, women have greater opportunities for improving their own lives through education, employment and community involvement. The availability of contraception such as the male and female condoms also offers opportunities for safer sexual behaviour by protecting the user from the transmission of STIs and HIV/AIDS.[21]

It is well-known that as more people use contraception there is an effect on fertility levels and these gradually fall. As this happens and the population growth rate decreases, there is a resultant effect of protecting the environment due to conservation of resources, reduction in pollution levels of air and water and with

general improvement of the global environment. The reduction of population growth also encourages sustainable development by improving the prospects for education, creating jobs, improving health care and generally raising the standards of living.[21]

Apart from providing contraceptive services and reproductive health care services, it is suggested that family planning programmes have another role to play and that by treating women attending reproductive health clinics with dignity and respect, the clinic staff can improve their self-confidence. By taking the initiative they are in a position to influence public perceptions of women's roles using the media and can advise and encourage women on how to handle reproductive health decisions with their sexual partners. It is also necessary for men to be involved in reproductive health issues and the decision-making process can be helped by the staff of the services encouraging men to take more responsibility for reproductive health and their families' health and welfare.[89]

As mentioned earlier under birth Intervals, the spacing of children's births to between 3 to 5 years apart also improves the odds of infants' survival by about 50%. [21] Several studies have been performed to identify the effects of birth intervals on the health of children and mothers and one such study found that there was a clear relationship of increasing chronic and general under nutrition as the birth interval became shorter and that the risk of dying for neonates and infants decreased as the birth interval lengthened up to 36 months after which the risk reached a plateau. For child mortality, from 1-4 years of age, the longer the birth interval, the lower the risk of dying, even for intervals of 48 months or more.[96]

Some of the new evidence also showed that apart from the fact that births spaced at least 36 months apart had the lowest mortality risks for infants and the under fives, birth to conception intervals of less than 6 months as well as abortion to birth

intervals of less than 6 months were associated with an increased risk of premature births, low birth weight and small for gestational age babies. Birth to conception intervals of less than 6 months also influenced the health of the mother increasing the risks of maternal mortality and morbidity. [97]

With these findings, the importance of child spacing for a sufficient length of time as a means of protecting the health of the mother and child is proved and the acceptance of the need for family planning through the use of contraceptive methods as an enabling factor is vindicated.

QUALITY OF SERVICE

For the efficient spacing of births to protect the health of mothers and children maximally, it can be seen from the various studies that family planning is an important strategy to achieve this goal. How to mobilise resources to provide easily accessible and affordable services cannot be addressed in this lecture but as a part of the provision of family planning services, quality of service is an important issue. There are many aspects to the provision of quality care that are important in enabling programmes to provide efficient, effective and durable services to the communities. WHO defines quality of care as "consisting of the proper performance (according to standards) of interventions that are known to be safe, that are affordable to the society in question, and that have the ability to produce an impact on mortality, morbidity, disability and malnutrition." [98]

In the 1980's the International Planned Parenthood Federation found that the most important factor that influenced the choice and continued use of contraception was the quality of service provided at family planning clinics and the counselling received. In response to this, IPPF evolved a "Quality of Care" concept (QOC) which is shown in the following table 9 and which not only addresses the provision of quality of care from the point of view of the rights of the client but also from the point of view of

the health care provider. It lists the needs of the providers that should be met in order that they are enabled to achieve the quality of care demanded from them.[99,100]

Table 9: Clients Rights and Providers' Need

Clients' rights SRH clients have the right to:	Providers' needs Service providers need:
Information	Training
Access	Information
Choice	Good infrastructure
Safety	Supplies
Privacy	Guidance
Confidentiality	Back-up
Dignity	Respect
Comfort	Encouragement
Continuity of services	Feedback
Opinion	Opinion

Reference: 100

The principles for improving quality of care or service have been more recently enunciated and include:
Quality design
Quality control
Quality improvement.

This scientific approach to promoting the development and maintenance of quality services has been supported by international agencies such as WHO and USAID. Putting clients first and adopting a client-centred approach is important in the planning, implementation and evaluation of family planning services. This client-centred approach ensures that the clients needs and wants come first and that the service revolves around the clients.[98]

The reasons for the emphasis on quality of care is that it has been found that the provision of quality of care has an important

bearing on continuation of use and therefore on the occurrence of unintended pregnancy. A study exploring the link between quality of care and contraceptive use found that the quality of care received at the first time of using a contraceptive method, had a marked effect on contraceptive use. Women who had been given their desired method of contraception were more likely to be using that contraception a year later than other women not permitted choice. This supports the observation that the right of the client to make her own choice of contraception is part of quality of care and assists in promoting continued use. In addition, it has been found that information and counselling on the side effects of contraceptives has an influence on continuation rates. Women who are not well counselled are more likely to discontinue use of their method especially if untoward side effects occur.[101] There is also the possibility that poor counselling enables the spread of rumours in a community that may be detrimental to the local family planning programme.

The ability of service providers to improve on the quality of care provided to the clients can be assisted by self-assessment methods developed by the IPPF. These were formulated to enable family planning clinic staff assess their own services and management procedures with a view to improving them by adopting an action plan to address and improve on the identified deficiencies. This approach was innovative as most evaluation and monitoring exercises that were previously carried out were performed by outsiders and were perceived as threatening and possibly punitive. This new approach is thought to be more positive as, instead of blaming service providers for poor performance, it enables the identification of the reasons for poor performance such as lack of equipment, irregular supplies of contraceptives and poor basic infrastructure. In addition, it increases the motivation of the staff at all levels because everyone is expected to make their own contribution to the evaluation process. It is thought that this method of self-assessment can result in a more comprehensive and thorough evaluation and consequently can

have far reaching effects on implementing improvements to the quality of care.[100]

Quality of care can be improved by continued training and supervision and this should result in a standard of care that does not vary and can be relied upon by the client. The best advertisement for any family planning programme is "the satisfied user" as she can act as a powerful force for motivating other women in the community to use family planning.[102]

CONCLUSION AND RECOMMENDATIONS

In this presentation, I have documented the development of the realisation that for countries to develop and move forward, the health of mothers and children has to be safeguarded. I have attempted to cover the important variables that are harmful to the health of the mother and child. Some of the major conclusions drawn are that without the education of women, the improvement of their status in society and the protection of their human rights, protecting and improving their health will not be an easy task.

What then are some of the positive steps that must be taken to improve maternal health in Nigeria? Firstly there has to be an acknowledgement of the fact that protecting maternal health starts from the birth of the girl-child. This means that traditional practices such as female genital cutting must be recognised as being totally unnecessary and extremely harmful and should be made illegal. Other steps should be taken to protect the health of the girl-child by ensuring that she is well-nourished and cared for but the harsh reality is that the extent of the poverty level in Nigeria has a substantial impact on the nutrition not only of children but also of adults. Until the economy of Nigeria improves, it is unlikely that maternal health or child health will improve as the majority of children and adults in Nigeria are living below the poverty line.

The Human Development Index (HDI) for Nigeria for 2003 was 0.463 compared with that for Ghana, 0.567 and that for the United

Kingdom 0.930. [16] The HDI is measured using the following three variables:

1. Standard of living
2. Knowledge
3. Longevity.

The standard of living is measured by the Purchasing Power based on the real Gross Domestic Product (GDP) per capita adjusted for the local cost of living or Purchasing Power Parity (PPP). The adult literacy level and the mean number of years of schooling measure the level of knowledge and literacy. Finally, longevity is measured by the life expectancy[103] and as we are all aware, life expectancy for Nigerians has fallen in recent years from 55 years to 50 years. So, in the HDI stakes, Nigeria is not doing particularly well in comparison with other countries.

Another index of poverty is the Gross National Income per capita (GNI) and for Nigeria this was $780 compared to Ghana, $2000 and the United Kingdom, $28,870.[16] Again Nigeria is shown to be poorer in comparison to some other countries. Unless the economic situation is improved and international and national investments are made in the country to increase the levels of much needed jobs, we shall continue to lag behind other nations developmentally. We shall also continue to see the hordes of young adolescents who should either still be in school or in gainful regular employment roaming around the street hawking their wares. What is their future?

The educational level of the country still leaves much to be desired and the literacy level for males over 15 years is 58% and for females, 41%.[37] The continued disparity in the levels of education between girls and boys, between rural communities and urban communities and between the northern and southern parts of Nigeria, require to be addressed and these imbalances rectified if there is to be an improvement in the general health and well-being of Nigerians. Although education is a state matter, the

performance of the states must also come under the scrutiny of the Federal Government because we cannot become a great nation without the provision of qualitative education for all Nigerians irrespective of sex or place of domicile. What we want and need is "Quality not Quantity". With education comes knowledge and with knowledge comes the realisation of how to improve the quality of life and the quality of health and the means by which to so do.

Based on the above observations my recommendations are as follows:

That Poverty alleviation should continue to be a priority among all levels of Government and this means ensuring that the investment and living climate in Nigeria is made more attractive to national and international investors. We all know that this means a marked and sustained reduction in the levels of corruption and crime and a sustainable improvement in the basic infrastructure necessary for living and running a business successfully in Nigeria. The harassment that we Nigerians receive every day of our lives is hardly a recommendation to other nationals to leave their comfortable countries to come and suffer here.

Free primary education for all as propounded by the late Chief Obafemi Awolowo when he was the Premier of the then Western Region, should be the war cry for this Millennium. Instead of paying lip service to this philosophy, laws should be passed to ensure that all children have to attend at least primary school as is done in the developed countries. There should be no choice in the matter. This will involve the recruiting of more teachers, the upgrading of the teacher training colleges, the building of more colleges and schools and the provision of the necessary facilities and supporting infrastructure, including affordable, textbooks for the vast numbers of children to be admitted to school.

The institution of the Primary Health Care Services Scheme in 1988 is laudable and has served as a vehicle for the delivery of maternal and child health services. However, there are gaps in care especially with regard to preventing maternal mortality. It should therefore be a priority to ensure that the philosophy and practice of the guidelines for the Prevention of Maternal Mortality programme (PMM), as described earlier in this lecture, is not just limited to a few chosen hospitals or primary health care centres but is actively incorporated throughout the whole of the Primary Health Care Service and is practised assiduously by competent, well-qualified and dedicated nurse midwives.

The lines of referral for essential and emergency obstetric care (EOC and EmOC) should be clearly specified and transport facilities and the requisite health care facilities, including blood transfusions, should be available on a 24 hour basis to reduce the possibility of the 4 delays so often responsible for maternal deaths.

The practice of Post Abortion Care (PAC) can also assist in reducing maternal morbidity and mortality as stated earlier. In view of the fact that despite the laws of Nigeria which prohibit legal abortion, the realities of life are that abortion is still resorted to by young and old and by married and unmarried women, perhaps the time has come to consider whether or not the Nigerian abortion laws should be liberalised, although the use of abortion as a means of family planning should be actively discouraged.

As stated earlier in this lecture, some studies have shown that as the use of family planning services increased, the use or need for abortions decreased. Therefore as a strategy to reduce the need for abortions the provision of family planning services run by efficient and friendly health care providers should be in all the primary health care centres so that they are easily accessible, always available and affordable. A reasonable standard of quality

of care should be provided and this includes not only the attitudes of the staff but the quality of the surroundings including privacy, and the provision of regular and sustainable supplies of family planning commodities so that no family planning client need ever be asked to come back again because the supplies are not immediately available.

The inclusion of the remaining components of reproductive health that were listed out earlier as part of the services offered at the primary care level, is most important. This will require training and re-orientation of the health care providers including the Community Health Officers as their inclusion will increase their duties, demand more of their time and require expertise. However, although quite a number of areas overlap such as maternal and child health and family planning, other important areas requiring mention, to name a few, are adolescent reproductive health, STDs /HIV/AIDS, the eradication of harmful traditional practices and the care of the elderly.

It is necessary that the health care providers/nurse midwives receive the appropriate training and continuing education to enable them to acquire and maintain the necessary skills to provide quality care. This is especially with regard to their role in the management of basic obstetric emergencies using life saving skills that they are competent to apply or by recognising and referring, without delay, those complications that are outside their competence.

The use of trained TBAs in the Primary Health Care Centres should be explored rather than leaving them to their own devices in the community because their supervision in the community may be sparse and spasmodic. Having them work in the health centres enables the easier supervision of the quality of care they provide and should reduce their reversion to old practices. However the final objective should be a gradual replacement of TBAs with nurse midwives, when feasible. If education becomes

more universally available, there is a possibility that in the future those who would have in the past become TBAs, will now stretch their horizons and go for formal nurse midwifery training so that there will be a gradual dying out of TBAs.

Female empowerment is an area that has yet to be addressed as a major strategy in Nigeria for improving the health of mothers and children. Women must become empowered politically and socially to enable them participate in the process of decision-making in their homes regarding their own health and their children's health. Their participation at the community level can also be an asset for the development of their communities. Once women are empowered, they will be in a position to fight against gender inequalities and ensure their rightful place in society. They should be acknowledged for their important contributions to society in nurturing their children and bringing them up to adulthood - thus proving that "the hand that rocks the cradle, rules the world."

To quote the words of Kofi Annan, Secretary-General of the United Nations " To educate a girl is to educate a whole family. And what is true of families is also true of communities, and ultimately whole countries. Study after study has taught us that there is no tool for development more effective than the education of girls. No other policy is likely to raise economic productivity, lower infant and maternal mortality, improve nutrition and promote health-including helping to prevent the spread of HIV/AIDS. No other policy is as powerful in increasing the chances of education for the next generation."[104]

Finally I would like to read from "The Prophet" by Khalil Gibran as follows:

"And a woman who held a babe against her bosom said, Speak to us of children.
And he said:

Your children are not your children.
They are the sons and daughters of Life's longing for itself.
They come through you but not from you,
And though they are with you yet they belong not to you.

You may give them your love but not your thoughts,
For they have their own thoughts.
You may house their bodies but not their souls,
For their souls dwell in the house of tomorrow
which you cannot visit, not even in your dreams.
You may strive to be like them, but seek not to make them like you.
For life goes not backwards nor tarries with yesterday,
You are the bows from which your children as living arrows are sent forth.
The Archer sees the mark upon the path of the infinite and he bends you with his
might that the arrow may go swift and far.
Let your bending in the Archer's hand be for gladness
For even as he loves the arrow that flies
So he loves also the bow that is stable." [105]

ACKNOWLEDGEMENTS

I would like to give thanks to my late parents Professor Oladele A. Ajose and Mrs. Beatrice Spencer Ajose for their love, support and encouragement. I had originally expressed an interest in Nursing but my mother said to me "Why be a nurse when you can be a doctor like your father?" This was the challenge that led me to read medicine at St. Mary's Hospital Medical School now subsumed into the Imperial College, University of London. Unfortunately my father was not alive when I obtained my Professorship in Community Health as I am sure he would have been delighted to know that I had followed in his footsteps and become a Professor in the field of Public Health.

My late father had the distinction of being the first black African Professor South of the Sahara and the only African founding professor at the University of Ibadan. He was the first Head of Department of the then Department of Preventive and Social Medicine. In addition, he became the first Vice-Chancellor of the then University of Ife now Obafemi Awolowo University. My mother was from Glasgow, Scotland and met my father when he was a medical student at Glasgow University. She was instrumental in his return to practice in Nigeria. On his return, he was employed as the Assistant Medical Officer for Lagos under the late Dr. Oluwole becoming the second African Medical Officer Health for Lagos after the late Dr. Oluwole retired, before he was appointed a professor to the University of Ibadan in 1948. My mother was a great support to my father and was honoured with the MBE for her work with the African Troops in Lagos during the Second World War and for assisting my Father in the founding of the Nigerian Red Cross. Perhaps I should also mention here that my father was a Prince from the Royal House of Ologunkutere in Lagos.

To continue with my acknowledgements, I would like to thank my teachers, most of whom must be dead now, for the expertise and dedication with which they taught us. I know that I received

excellent medical training and that the disciplines taught to me have remained with me all these years. I returned to Nigeria to undergo my housemanship at the Lagos University Teaching Hospital in December 1965.

My grateful thanks go the late Professor H. O. Thomas who as the then Dean of the Medical School (as the College of Medicine was called at that time) and the Head of the Teaching Hospital authorised my employment as a house officer in December 1965. I was also his house officer for 6 months and found him to be a strict disciplinarian, an indefatigable surgeon and dedicated teacher. I am also grateful to the late Professor BK Adadevoh, a former Vice-Chancellor of the University of Lagos, and the late Dr. TO Dada both of whom I worked for as a house officer in the Department of Medicine. They were excellent clinicians and ensured that I gained a thorough exposure in tropical medicine. They inculcated in me clinical and professional discipline and were also exceedingly courteous, even when telling me off!

My gratitude is also extended to the many eminent and distinguished senior colleagues that interacted with me during my year as a house officer and afterwards as my career began to develop in the College of Medicine and the Lagos University Teaching Hospital. May I say that they were the finest calibre of clinicians and their dedication and commitment to their patients was exemplary. Among them were Professor Akin Adesola, former Vice-Chancellor, University of Lagos, Professor Ade Elebute, former Provost of the College of Medicine during whose tenure I was appointed a full professor, his wife Professor Oyin Elebute who showed me great kindness as at that time there were only three women medical doctors at the College, herself, Professor Nana Ffoullkes Crabbe and myself. In addition there were Professor TO Johnson, the late Professor M Jaja, Professor I Amaku, the late Professor Omo Dare, Professor Deji Femi-Pearce, former Provost; Professor Akinkugbe, former Provost; the late Professor FEA Lesi, Professor A Akinla, who taught me

how to insert IUDs, and last but by no means the least, the late Professor Olikoye Ransome-Kuti.

Professor Ransome-Kuti and his wife Mrs. Ransome-Kuti, who also worked in the Department of Paediatrics as the Chief Laboratory Technologist, were both my mentors and were always there for me with exceedingly good advice either for my professional or personal life. In addition Professor Ransome-Kuti was an excellent paediatrician and I can testify to his wonderful clinical ability with children as he looked after my children for many years.

I must also say a special thank you to Professor Nana Ffoullkes –Crabbe who extended to me not only her wisdom but also her friendship and love. For many years, after Professor Ransome-Kuti left to become Minister of Health, until her retirement, she was a great support to me and encouraged me during the various times I headed my department. Unfortunately when mentioning names like this there is always someone left out and if I have done so my deep apologies as no offence is intended and it is due to a memory lapse on my part.

The Administrative Staff of the College of Medicine have also been wonderful and I cannot thank them enough for the kind cooperation that I received whenever I had to head a department and when I was the Acting Director of the Institute of Child Health and Primary Care. Among them were the late Mr. McIver –Slowe, the first Secretary of the Medical School who was followed by Mr. ZA Alabi and then Mr.VA Nwabudike. Our present College Secretary Mrs.OO Amodu is the daughter of Mr.ZA Alabi and has followed very successfully in her father's footsteps. It has been a joy to work with her and I thank her sincerely for her helpfulness, cooperation and consistency. Other members of the administration who have assisted me to perform my headship tasks have been Mrs. QA Akinwunmi, now retired from the College, Mrs. TF Ipaye, Mr. AO Ogwezi, Mr. GK Ajunwa,

Mrs. C Ozobia and Mr JA Oni. Again the list of those who have been of great assistance to me over the years is far too long and I apologise for any names omitted.

With regard to my professional development in the Department of Community Health, my grateful thanks must go to the late Professor Ade Adeniyi-Jones who was responsible for starting me along my career path in Public Health. I had undergone a course in family planning with the then Family Planning Association of Great Britain just before my return to Nigeria. This qualification enabled me to be offered a position as a Research Assistant on the Ford Foundation funded project on Population and Family Planning in Lagos, in the Department of Community Health at the completion of my house jobs.

My former Head of the Department of Community Health, the late Professor R.D. Wright, who was an American from the International Health Department of the Johns Hopkins University, School of Public Health made a major contribution to the development of my career in Public Health because he encouraged me to apply for a Population Council Fellowship, which I obtained, and also to apply for admission to the then Johns Hopkins University in Baltimore to read for the Masters Degree in Public Health.

On my return to Nigeria, I was employed in the Department as a Research Assistant until I was able to apply for a permanent appointment as a Lecturer II from where I progressed step by step until I obtained my Professorship in 1986. As you can see my Inaugural Lecture is long overdue! I am proud to say that I applied for and went for an interview for every position I held as an academician in the University.

Over the years the various Departmental Heads of Community Health such as Professor PO Fasan and Professor OO Hunponu-Wusu also contributed to my professional

development. Other members of the department such as Professor TO Daramola, the late Professor SO Daniels, Professor GO Sofoluwe and Professor JWK Duncan were very kind to me as the youngest member of the department and the only female academician. They introduced me to various aspects of public health and helped me to decide on my area of specialisation. I must make a special mention of Professor Duncan who gave me the best advice I ever had which was "publish or perish" He was the only academician who advised me that unless I published papers regularly I would find that my progress would be limited. John was also a mentor and gave me exceedingly good advice especially as he was also a Johns Hopkins School of Public Health Alumni. He and his wife Mrs Betty Duncan were especially kind to me and in the days when travelling in Lagos was very easy I used to shoot over to their house for the occasional lunch with Betty during the lunch break we had in those days. My only other female colleague in the department for many years was Professor Mrs. Dorothy A. Ogunmekan. She joined the department a few years after I did and I am happy to say that we had a very good relationship throughout the years we worked together. I must thank her for her sisterly advice, her Christian spirit and her cooperation.

To my other colleagues in the Department, I thank them for their cooperation, respect and cordiality especially, during the periods that I headed the department. Among them are Professor AO Oshibogun, another alumnus of the College of Medicine whom I taught and who is our present Departmental Head, Professor RO Abidoye, our present Deputy Provost, Professor EE Ekanem and Dr. (Mrs.) CO Akitoye. The other lecturers in the department, Dr. AT Onajole, Dr (Mrs.) KA Odeyemi, Dr. (Mrs.) SB Adebajo and Dr. B. E. Ogunnowo are all alumni of the College of Medicine. I am indeed most fortunate to have worked in a department where "teamwork" has been the watchword and where strife and contention have seldom occurred.

I would also like to thank all the staff of the Institute of Child Health and Primary Health Care that I headed as Acting Director from 2002 to 2005, for their support, cooperation, dedication and hard work. I would like to single out Dr. (Mrs.) AO Bamgbala who unfortunately died during my tenure and who is sorely missed by all the members of staff in the Institute. As she was one of our alumni, had recently given birth and had also recently been promoted to senior lecturer, it was an even more grievous loss. Unfortunately her death added to the dismal Nigerian maternal mortality statistics.

I must mention that it has been a joy and pride for me to have watched so many of the College alumni whom I taught over the years become in their turn Professors and also Provosts of the College of Medicine such as Professor Tolu Odugbemi, Professor O. Abudu and our present Provost, Professor SO Elesha with all of whom I have enjoyed a most cordial working relationship.

I have been working as a doctor at the Lagos University Teaching Hospital for over 40 years, the last 31 years of which were in the capacity of a consultant. I am very grateful to the officers and staff of the Hospital, past and present, with all of whom I have also had a cordial working relationship.

With regard to my personal life, I must thank my "big sister" Ambassador Audrey O. Ajose –Svensson for her love and support over the years when I was a child at school in Scotland and when I was a university student at London University. Many are the numerous battles she fought on my behalf as a child. Audrey has always taken great pride in my achievements and shown great concern over my well-being over the years.

I would also like to mention my "baby sister" Trixie Ajose who was murdered by armed robbers in her home in Lagos 19 years ago. She is sorely missed as although she was 8 years younger

than I was, we were very good friends and she warmed the "cockles of my heart". She will always be remembered for the joy she brought to life.

My children Timi, Bola and Dunmola and my children-in-law Funlola and Thomas, have always shown great interest and pride in my career. I thank them for their support and love from the bottom of my heart. My grandchildren span from 20 years old to 11 months old and I am proud to say that they also are exceedingly interested in my career and are always curious to know how I am getting on except of course the 11 month old baby.

The late Mrs. Jokotade Edu also deserves a special mention because she assisted me in the caring of my two children whenever my maids left suddenly and left me stranded with no one to look after them. As she lived near me in Queen's Drive she allowed me the liberty of leaving my children with her "Mama Nurse" to tide me over until I found a new maid. Eventually I finally found my own Mama Nurse. Mrs Edu's thoughtfulness and generosity enabled me to face my duties at the College and I will never forget her kindness, gentleness and graciousness.

I would like to acknowledge with deep gratitude Madam Bernice Oloye who for over 13 years was "Mama Nurse" to my children. She is now well over 90 years of age and to this day is still called "Mama Bola". Without her loving and dedicated care of my children, I would never have had the peace of mind to concentrate so wholeheartedly on my career.

Finally last but by no means the least, my deepest gratitude goes to my dear husband of nearly 44 years, Cecil Oyeniyi Olurotimi Oyediran otherwise known as COO or Niyi. My husband was also a first in his time being the first African and Nigerian to be awarded first place in the Final Exams of the Institute of Chartered Accountants of England and Wales in 1965. We were married by then so I hope I can take some credit for encouraging him to

study as he encouraged me during our student days together in London. We had our son as students in London and combined parenthood and studenthood with as much aplomb as we could. It was my husband's belief in my ability to complete my medical training that kept me going as many a time I felt that I could not cope with all my duties and his retort was always "Well I'm not complaining you're doing O.K." He helped me with some chores and actually looked after our son and took him to and from the babyminder when I had to be a residential student during my obstetrics posting. His whole hearted support for my professional career enabled me to succeed as a student and during my academic and professional life his support went as far as helping me to read and edit my manuscripts for publication as his English is impeccable. So Niyi, a big thank you from the bottom of my heart because your support over the years has been constant and true.

I have come to the end of my acknowledgements and all that remains is for me to thank the Vice –Chancellor of the University, Professor O. Ibidapo- Obe, for his support and his kindness over the years of his Vice-Chancellorship and for giving me the opportunity at various times to have been of service to the University over the years in differing capacities. I have had a very rewarding and fulfilling professional career and I give thanks to God who is all providing and has guided me and watched over my efforts all these years. To him is the glory for allowing me to have started and completed my professional life in this great Institution.

REFERENCES

1. Ties Boerma J. "Levels of Maternal Mortality in Developing Countries". *Studies in Family Planning* 1987 18:4 213-2
2. Rosenfield A. "The History of the Safe Motherhood Initiative. Prevention of Maternal Mortality Network 1997" *International Journal of Obstetrics and Gynaecology* 59: (suppl.2) S7-9
3. Ganges F. and Long P. "Safe Motherhood: Successess and Challenges". *Outlook* 1998 (Special issue) vol. 16. 1-7
4. Sundari Ravindran TK and Berer M. "Preventing Maternal Mortality: Evidence, Resources, Leadership, Action". In Safe Motherhood Initiatives: Critical Issues 1999" Ed; Berer M and Sundari Ravindran TK. *Reproductive Health Matters.* Blackwell Science Ltd.
5. "The IC- What? A Primer on the ICPD. Countdown 2015". Special Issue. 2004 Ed: Joanne Omang. *Family Care International,* New York 8-11.
6. Akande E.O. "Reproductive and Sexual Health and Rights". Archives of Ibadan Medicine 2002 3:1 1-3
7. Bernstein S. "The Changing Discourse on Population and Development: Toward a New Political Demography". *Studies in Family Planning* 2005 36:2 127-132
8. Crossette B. "Reproductive Health and the Millenium Development Goals: The Missing Link". *Studies in Family Planning* 2005 36:1 71-78
9. Maine D. "About the PMM Network". *International Journal of Gynecology and Obstetrics.* Ed. Maine D. 1997 59 (Suppl. No.2) S3-6
10. Corbett MR and Turner KL. "Essential Elements of Postabortion Care: Origins, Evolution and Future Directions". *International Family Planning Perspectives* 2003 29:3 106-111
11. Tinker A and Ransom E, "Healthy Mothers and Healthy Newborns: The Vital Link". 2002 Policy Perspectives on

Newborn Health, The Population Reference Bureau Washington DC.1-6
12. "Women and International Development: Statistics on Women 1997-98". Women's EdgeCoalition at http/wwwwomen'sedge.org/ppages/referencematerials/reference_materal.jsp?id=43 accessed on 2/5/05
13. "Reduce Maternal and Newborn Deaths in Nigeria: Make Pregnancy Safer". 2003 Federal Ministry of Health Reproductive Health Division and WHO.
14. Chaya N and Helsing K. "Reproductive Risk Chart: A Worldwide Assessment of Women's Sexual and Maternal Health". 1995 Ed: Conly SR. Population Action International, Washington DC
15. Ransom EI and Yinger NV. "Making Motherhood Safer: Overcoming Obstacles on the Pathway to Care". 2002 Population Reference Bureau 1-3
16. The PAI Report Card. 2004 Population Action International Washington DC
17. UNICEF and Innocenti Research Centre. Early Marriage Child Spouses. 2001 *Inocenti Digest*
18. Shane B and Ellsberg M., "Violence Against Women: Effects on Reproductive Health". 2002 *Outlook* 20:1 1-8
19. Sargent RG, Schulken ED, Kemper KA, Hussey JA. "Black and White Adolescent Females' Pre-Pregnancy Nutrition Status". *Adolescence.* Winter 1994 1-13
20. Kilbourne-Brook M. "Adolescent Reproductive Health: Making a Difference". *Outlook* 1998 16:3 1-8
21. Upadhyay UD and Robey B. "Why Family Planning Matters". *Population Reports 1999* Series J 49 Baltimore, Johns Hopkins University School of Public Health, Population Information Programme
22. Adekolu- John EO. "Maternal Health Care and Outcome of Pregnancies in Kainji Lake Area of Nigeria". *Public Health* 1989 103:1 41-49
23. Setty-Venugopal V and Upadhyay UD. "Birth Spacing: Three to Five Saves Lives". *Population Reports* Series L

13 Baltimore Johns Hopkins Bloomberg School of Public Health, Population Information Programme.
24. Morgan B. "Nutritional Needs of the Female Adolescent". *Women and Health* 9:2-3 15-28
25. Girl Child. UNICEF 2005
26. Hallberg L. "Iron balance in Pregnancy". In H. Berger (Ed), *Vitamins and Minerals in Pregnancy and Lactation.* 1988 115-127. New York: Raven Press.
27. Food and Nutrition Board, National Research Council, National Academy of Sciences (1989) Recommended Daily Allowances 10th ed.
28. Subcommittee on Nutritional Status and Weight Gain During Pregnancy, Subcommittee on Dietary Intake and Nutrient Supplements During Pregnancy, Committee on Nutritional Status During Pregnancy and Lactation, Food and Nutrition Board, Institute of Medicine and National Academy of Sciences 1990. Nutrition During pregnancy: Weight Gain and Nutrient Supplements. Washington, D.C. National Academy Press
29. Shell-Duncan B and Yung SA. "The Maternal Depletion Transition in Northern Kenya: The Effects of Settlement, Development and Disparity". *Soc. Sci. Med.* 2004 Jun 58:12 2485-98
30. Salter C, Johnston HB and Hengen N. "Care for Post Abortion Complications: Saving Women's Lives". *Population Reports* Series L 10 Baltimore Johns Hopkins School of Public Health Population Information Programme, Sept 1997
31. Ties Borma J and Bicego GT. "Preceding Birth Intervals and Child Survival: Searching for Pathways of Influence". *Studies in Family Planning* 1992 23:4 243-256
32. Paediatric and Pregnancy Nutrition Surveillance System at www.cdc.gov/pednss/what is/pnsshealth indicators.htm#top. Accessed on 2/5/0005
33. Hediger M, Scholl T, Belsky D, Ances I and Salmon R. "Patterns of Weight Gain During Adolescent Pregnancy:

Effects on Birth Weight and Pre Term Delivery". *Obstetrics and Gynaecology* 1989 74: 1 6-12

34. National Population Commission (Nigeria) and ORC Macro 2004 Nigeria Demographic and Health Survey 2003. Calverton, Maryland: National Population Commission and ORC Macro.
35. National HIV/AIDS and Reproductive Health Survey. 2003 Federal Ministry of Health, Abuja, Nigeria.
36. Ejembi CL, Alti-Muazu M, Chirdan O, Ezeh HO, Sheidu Sand Dahiru T. "Utilisation of Maternal Health Services by Rural Hausa Women in Zaria environs, Northwest Nigeria: Has primary health care made a difference?" Journal of *Community Medicine and Primary Health Care* 2004 16:2 47-54.
37. "Children's and Women's Rights in Nigeria: Hearing the Call". Update of the Situation Assessment and Analysis of 2001. UNICEF 2004
38. McCarthy J. The Conceptual Framework of the PMM Network. *International Journal of Gynecology and Obststerics* Ed. Maine D. 1997 59 (Suppl No. 2) S15-21
39. Fatusi AO and Abioye-Kuteyi EA. "Defining the Traditional Birth Attendants: What We Know About TBAs in Nigeria". Defining the Future Role of Traditional Birth Attendants in Reproductive Health Care in Nigeria. 1998 Report of a Workshop Organised by The Women's Health and Action Research Centre and UNFPA Ota, Ogun State
40. Musoke JB. In The Keynote Address in Defining the Future Role of Traditional Birth Attendants in Reproductive Health Care in Nigeria. 1998 Workshop Report Organised by The Women's Health and Action Research Centre and UNFPA. Ota, Ogun State
41. Okolo AA. "The Role of TBAs in Newborn Care and Breastfeeding". 1998 Worshop Report Organised by the Women's Health and Action Research Centre and UNFPA. Ota, Ogun State

42. Kamara A. "Developing a Network: The PMM Process Int. *J Gynecol. Obstet.* 1997 Supplement 59:2 S27-35
43. Solo J, Billings DL, Aloo-Obunga C, Ominde A, and Makumi M. "Completing Linkages between Incomplete Abortion Treatment and Family Planning Services" Kenya. *Studies in Family Planning* 1999 30:1 17-23
44. Vekemans V and Hurwitz M. "Access to Safe Abortion Services to the Fullest Extent Permitted by Law". *IPPF Medical Bulletin* 2004 38:4 1-2
45. Marston C and Cleland J. "Relationships Between Contraception and Abortion: A Review of the Evidence". *International Family Planning Perspectives* 2003 29:16-13
46. Billings DL, Veldasquez JF and Perez-Cuevas R. "Comparing the Quality of Three Models of Post Abortion Care in Public Hospitals in Mexico City". *International Family Planning Perspectives* 2003 29:3 112-120
47. Ahiadeke C. "Incidence of Induced Abortion in Southern Ghana". *International Family Planning Perspectives* 2001 27:2 96-101
48. Henshaw SK, Singh Susheela, Oye-Adeniran BA, Adewole IF, Iwere N and Cuca YP. "The Incidence of Induced Abortion in Nigeria". *International Family Planning Perspectives* 1998 24:4 156-164
49. Odujinrin OMT. Sexual Activity, "Contraceptive Practice and Abortion among Adolescents in Lagos Nigeria". *Int. J. Gynecol. Obstet.* 1991 34
50. Otoide VO, Oronsaye F and Okonofua FE. "Why Nigerian Adolescents Seek Abortion Rather Than Contraception: Evidence from Focus Group discussions". *International Family Planning Perspectives* 2001 27:2 77-81
51. Hinrichsen D. Obstetric Fistulae: "Ending the Silence, Easing the Suffering". *Info Reports* Sept. 2004 No. 2 1-11 Baltimore, Johns Hopkins Bloomberg School of Public Health, The Info Project

52. Bangser M, Gumodoka B and Berege Z., A "Comprehensive Approach to Vesico Vaginal Fistula: A Project in Mwanza, Tanzania" in *Safe Motherhood Initiatives: Critical Issues* Ed. Berer M and Sundari Ravindran TK Reproductive Health Matters. Blackwell Science Ltd
53. Ampofo KE. "Risk Factors of Vesico Vaginal Fistulae in Maiduguri, Nigeria: A Case Control Study". *Tropical Doctor* Jul 1990 20:3 138-139
54. Ampofo K. "Epidemiology of Vesico Vaginal Fistula in Northern Nigeria". *West African Journal of Medicine* 1990 9:2 98-102
55. Adeokun LA. "Harmful Practices Affecting Women and Children". Archives of Ibadan Medicine 2002 3:1 27-32
56. Blanc AK. "The Effect of Power in Sexual Relationships on Sexual and Reproductive Health: An Examination of the Evidence". *Studies in Family Planning* 2001 32:3 189-213.
57. The State of the World's Children 2004. UNICEF, UNICEF House. New York.
58. National Population Commission. Nigerian Demographic and Health Survey 2003.
59. Buor D. "Mothers' Education and Childhood Mortality in Ghana". *Health Policy* 2003 Jun 64:3 297-309
60. Kikafunda JK, Walker AF, Colett D, Tumwine JK. "Risk Factors for Early Childhood Malnutrition in Uganda". *Paediatrics* 1998 0ct; 102:4 E45
61. Tumwine JK and Barughare W. "Nutrition Status of Children in Kases District at the Uganda-Congo Border". *East Afr Med J* 2002 Aug; 79:8 427-34
62. Oyediran MA. "Utilisation of Medical Facilities in Lagos by Pre School Age Children". *Nig. Med. J.* 4:2 63-71
63. Hong TK, Dibley MJ, Tuan T. "Factors Affecting the Utilisation of Health Care Services by Mothers of Children III with Diarrhoea in Rural Vietnam". *Southeast Asian J. Trop Med Public Health* 2003 Mar; 34:1 187-198

64. U KM, Khin M, Wai NN, Hman NW, Myint TT, Butler T. "Risk Factors for the Development of Persistent Diarrhoea and Malnutrition in Burmese Children". *Int J Epidemiol.* 1992 Oct; 21:5 1021-1029
65. Oyediran MA and Bamisaiye A. A. "Study of the Child Care Arrangements and the Health Status of Preschool Children of Employed Women in Lagos". *Publ. Hlth Lond.* 1983 97 267-274
66. Kols A. "Gender Inequities and Women's Health". *Outlook* 1999 16:4 1-8
67. Campbell J. et al. "Health Consequences of Intimate Partner Violence". *The Lancet* 2002 359 (99314) 1331-1336
68. Odujinrin O. "Wife Battering in Nigeria". *Int J Gynecol Obstet* 1993. 41: 159-164
69. Garcia-Moreno C. "Sexual Violence". *IPPF Medical Bulletin* 2003 37:6 1-2
70. "Female Genital Mutilation: An Overview". 1998 WHO Geneva
71. Gardner R and Blackburn R. "People Who Move: New Reproductive Health Focus". *Population Reports,* 1996 Series J, no 45, Baltimore, Johns Hopkins School of Public Health, Population Information Programme.
72. Ladjali M and Toubia N. "Female Circumcision". *IPPF Medical Bulletin* 1990 24:2 1-2
73. O'Malley J. "Can This Marriage Work? Countdown 2015". Family Care International, *IPPF and Population Action International* 2005 59-63
74. Heise L. "Ending Violence Against Women". *Population Reports* 1999 Series L no.11 Johns Hopkins University School of Public Health, Population Information Program, Baltimore
75. Duncan ME et al. "A Socio-economic, Clinical and Serological Study in an African City of Prostitutes and Women Still Married to Their First Husband". *Soc. Sci. and Med.* 1994 39: 3 323-333

76. UNAIDS. 2004 Report on the Global AIDS Epidemic. 4th Global report Geneva UNAIDS
77. Biddlecom A, Fredrick B and Singh S. Women, "Gender and HIV/AIDS. Countdown 2015. Family Care International", I*PPF and Population Action International* 2005 65-68
78. Kiragu K. "Youth and HIV/AIDS: Can We Avoid Catastrophe?" *Population Reports* 2001 Series L no. 12 Baltimore, The Johns Hopkins University, Bloomberg School of Public Health, Population Information Program.
79. Berer M. "HIV/AIDS, Pregnancy and Maternal Mortality and Morbidity: Implications for Care", In *Safe Motherhood Initiatives: Critical Issues* Ed. Berer M and Sundari Ravindran TK. Reproductive Health Matters 1999 Blackwell Science Ltd.198-207
80. Nduati R. "Breast Milk Transmission of HIV". *IPPF Medical Bulletin* 2002 36:2 1-2
81. IMAP Statement on HIV/AIDS. *IPPF Medical Bulletin* 2005 39:2 1-4
82. HIV and Children. *Child Health Dialogue Issue* 12, *AIDS Action Issue* 1998 42 1-12
83. Monasch R and Boerma JT. "Orphanhood and Child Care Patterns in sub- Saharan Africa: An Analysis of National Surveys from 40 countries. *AIDS 2004* Jun18 Suppl: 2 S55-65
84. Adebajo BS, Bamgbala AO and Oyediran MA. "Attitudes of Health Care Providers to Persons living with HIV/AIDS in Lagos State, Nigeria *Af. J. of Reproductive Health* 2003 7 103-112
85. 2004 Global Refugee Trends. UNHCR, Geneva at http:/ www.UNHCR.ch/statistics.15/6/2005
86. Lush L. "Reproductive and Sexual Healthcare for Refugees". *IPPF Medical Bulletin* 2001 35:7 1-3
87. Obiorah UC. "Reproductive Health Needs of Female Refugees: The Case of Oru Camp". November 2005 A Dissertation produced in partial fulfilment of the Masters Degree in Humanitarian and Refugee Studies, Law Faculty, University of Lagos.
88. McCarthy J, Maine DA, "A Framework for Analysing the Determinants of Maternal Mortality". *Stud.Fam. Plann.* 1992 23 23-33.
89. McCauley AP, Robey B, Blanc AK, Geller JS. "Opportunities for Women Through Reproductive Choice". *Population Reports* 1994 Series M No 12 Baltimore, Johns Hopkins School of Public Health, Population Information program.
90. Omigbodun AO. "Preconception Care in Nigeria: Prospects and Constraints". Archives of Ibadan Medicine 2002 3:1 3-5.
91. Salem R. "Men's Surveys: New Findings". *Population Reports* 2004 Series M 18 Baltimore, Johns Hopkins Bloomberg School of Public Health, The Info Project.
92. Zlidar VM, Gardner R, Rutstein SO, Morris L, Goldberg H and Johnson K. "New Survey Findings: The Reproductive Revolution Continues". *Population Reports* 2003 Series M 17 Baltimore Johns Hopkins Bloomberg School of Public Health, The INFO Project.
93. "Reducing Unintended Pregnancy in Nigeria. Research in Brief 2005". *The Alan Guttmacher Institute Series* No. 4 1-8.
94. Marston C. and Cleland J. "Relationships Between Contraception and Abortion: A Review of Evidence". *International Family Planning Perspectives,* 2003 29:1 6-13.
95. Che Y and Cleland J. "Unintended Pregnancy After Marriage among Newly Married Couples in Shangai". *International Family Planning Perspectives* 2003.
96. Rutstein SO. "Effects of Preceeding Birth Intervals on Neonatal, Infant and Under Fives Mortality and Nutritional Status in Developing Countries: Evidence from the Demographic and Health Surveys". *Int. Jour. of Gyne. and Obstet.* 2005 89 S7-S24.

97. Norton M. "New Evidence on Birth Spacing: Promised Findings for Improving Newborn, Infant, Child and Maternal Health". *Int. Jour. of Gyne. and Obstet.* 2005 89 S1 –S6.
98. Kols AJ and Sherman JE. "Family Planning Programs: Improving Quality". *Population Reports,* 1998 Series J, No 47. Baltimore, Johns Hopkins University School of Public Health Population Information Program.
99. Sai F. "Statement on Quality of Care". *IPPF Medical Bulletin* 1996 30:4 1-4.
100. Huezo C. "Strengthening the Quality of Reproductive Health Care: IPPF's Quality Improvement Programme". *IPPF Medical Bulletin* 2003 37:5 1-3.
101. RamaRao S, Lacuesta M, Costello M, Pangolibay B and Jones H. "The Link Between Quality of Care and Contraceptive Use". *International Family Planning Perspectives* 2003 29:2 76-83.
102. Oyediran M.A. "The Importance of Training and Supervision in Quality Care" 1993 Advances in Contraception. 175-180.
103. Nigerian Human Development Report 1998 United Nations Development Programme. Lagos, Nigeria.
104. Bellamy C. "The State of the World's Children". 2004 UNICEF, UNICEF House, 3 UN Plaza, New York.
105. Gibran K. *"The Prophet"* 1998 Random House United Kingdom 20-21.

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