

# **INAUGURAL LECTURE**

## **WOMEN REPRODUCTIVE HEALTH IN AFRICA: A CONTINUING TRAGEDY**

**BY**

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In the name of ALLAH, the Most Beneficent, the Most Merciful

Mr. Vice-Chancellor Sir,

Deputy Vice-Chancellors,

Registrar,

Other Principal Officers of the University,

Provost College of Health Sciences,

Deans of Faculties, Postgraduate School and Student Affairs,

Professors and other Members of Senate,

Heads of Departments and other Academic Colleagues,

Members of Administrative and Technical Staff,

My Lords Spiritual and Temporal,

Members of my Family, Nuclear and Extended,

Distinguish Invited Guests,

Gentlemen of the Print and Electronic Media,

Great Unilorin Students.

Ladies and Gentlemen:

## **INTRODUCTION:**

I feel highly honoured and privileged to be allowed to stand before you to present the 87<sup>th</sup> inaugural lecture of this great University on this day, the 24th of July, 2008.

This honour is even more appreciable when one realizes that one is fortunate to be stepping into the same shoes of my esteemed predecessors (in the college of Medicine) while this is the second in the department of Obstetrics and Gynaecology. The first being that of Professor Olatoye Ogunbode whose topic was on anaemia with more emphasis on the disorder in pregnancy. Professor O. Ogunbode is an eminent Obstetrician and Gynaecologist, my former teacher and head of department.

I am very often intrigued when people ask me “what is Obstetrics and Gynaecology, you are not a physician, and you are not a surgeon”. My usual response is “I am all in all.” Mr. Vice-Chancellor Sir, permit me to say that the discipline of Obstetrics and Gynaecology is known but not well known even among those in the practice.

Obstetrics is the branch of medicine that deals with advanced pregnancy, childbirth and the disorders associated with them, while gynaecology is also another branch of medicine that deals with the scientific study and management of the Medical conditions and diseases of the female reproduction. This definition is not absolute because we sometimes, dabble into males.

The subject of my discussion in this inaugural lecture today “Women Reproductive Health in Africa: A continuing Tragedy” is squarely in the field of Obstetrics and Gynaecology. It is said in the Holy Scripture that when God created mankind he said “Go ye into the World and Reproduce”. One can then understand why the human beings are usually so desperate to reproduce despite the associated hazards. On the other hand, after eating the forbidden fruit, it is also said in the Holy Scripture that God told the woman “I will greatly multiply your pain in childbearing; in pain you shall bring forth children”. So labour pain can be seen as a hereditary curse. Despite this and the other problems associated with childbirth, women are still very eager to reproduce particularly in Africa where there is so much premium put on childbearing.

The reproductive health of women is an important issue throughout the world but is of more concern in the developing countries of Africa including Nigeria. Evidence for this comes from many reports on the subject in News Magazine and some popular press. Gynaecologist and Obstetricians who are interested in the reproductive health of women cannot afford to ignore the problem. In Nigeria, the number of women continually entering the reproductive years exceeds the number of older women checking out of that age span. This phenomenon has its consequences for the individuals and the country as a whole.

Nature has entrusted women with the most critical function of the survival of the human species. This noble task of reproducing and propagating our species has not brought societal rewards to women. Instead it has often led to their

subordination, discrimination and domestication which have exposed them to potential health risks peculiar to them and not shared by men in most cases. The domestication of women is associated with the lack of appreciation of their unpaid labour which is often harder and longer than men's work.

In many societies in the World today with Africa in particular, women are left with no choice in life except to pursue a reproductive career. They are often coerced into childbearing by being denied the means of avoiding unwanted pregnancy and the oppressive society makes children the only goods they can and are expected to deliver. They are often denied any right to family property as they are often considered part of the property to be shared.

The powerlessness of women in our society bestows on them a serious health hazard whose impact goes beyond the individual woman, the family, the society, the country and the whole world. Maternal Mortality is a glaring case of gender discrimination and deserves being designated as the health scandal of our time. The World Health Organization (WHO) has estimated that over 500,000 women continue to die every year from causes related to pregnancy and childbirth. The advent of HIV/AIDS has further compounded this pathetic health situation in Africa, particularly the Sub-Saharan Africa.

In many parts of Nigeria and possibly other African Countries, women are denied the right to partake in decision making pertaining to their reproductive health. It is an accepted fact the world over that reproduction at the two extremes of life, particularly teenage pregnancy, constitutes health hazards. When a teenager becomes pregnant, she is not only at an increased risk of complications

related to the current pregnancy like hypertension, anaemia, pre-eclampsia, eclampsia etc, the impending childbirth is fraught with the risk of prolonged and difficult labour, increased risk of operational delivery, vesico-vaginal and recto-vaginal fistulas. In addition she has to face the long term consequences of physical, social and mental problems which affect her health. Early marriage, which usually results in early pregnancy, is more common in developing than developed countries.

On the other hand, studies have shown that reproduction/pregnancy in the elderly (35 years and above) carry its own peculiar problems of abortion, hypertension, increased incidence of bleeding and operational deliveries.

Many other major factors known to adversely affect the reproductive health of women in Nigeria and other developing countries of Africa will now be taken up in this presentation, discussed and some suggestions will, as much as possible, be proffered for alleviating the carnage.

#### **SEX EDUCATION (FAMILY LIFE EDUCATION):**

During my sojourn in the Kwara State Ministry of Education in the eighties, all efforts to introduce sex education into the educational programme of schools were resisted by many parents and some educational authorities. Subsequent investigation revealed that the opposition was to the words “Sex Education”. Funnily when “Family Life Education” was brought in to replace sex education the idea was more acceptable. Anyway, whether sex education or family life education (FLE), it is very necessary to enlighten our potential mothers on what possibly lies ahead of them in the tedious journey to reproduce their race. Hence,

the need for Family Life Education (FLE) which should be an essential ingredient of the Reproductive Health Programme in Africa.

The objectives of this Family Life Education are:

- (a) To teach reproductive physiology
- (b) To encourage the development of responsible attitude towards sexual behaviour among our youths.
- (c) To inform the youths/adolescents of the risks of and consequences of procured abortion and
- (d) To provide the youths with information on the availability of contraceptive services and to strengthen their motivation in their use if they so desire.

In Nigeria, there are many obstacles to the in-school family life education (FLE) like parental fears of promoting promiscuity, religious resistance, resistance by the school authorities, taboos and customary laws. Despite all these, Nigeria and many other countries are embracing Family Life Education and experimenting it in post-primary institutions and the trend is towards greater acceptance. Another problem facing Family Life Education is reaching the non-school population particularly in the developing countries of Africa where many youths leave school early even without completing their educational career and where adult education programme is not widely spread. Getting information to the rural populace, the major target groups, is an uphill task in these countries. However the government and private family planning agencies have to develop programmes that will reach this large segment of the population. Also the non-

school family life education should be encouraged in factories, business houses, hotels, cinema theatres and other public places. It is advisable that family life education should be entrenched in the educational programme of developing countries.

#### **FAMILY PLANNING (CONTRACEPTION):**

The advent of Family Planning (FP) and its use has had profound effects on the reproductive health of women in both developed and developing countries. Since Family Planning is safer and more effective in preventing unwanted pregnancies which often result in the dreaded procured abortion complications, appropriate family planning methods or agents should be made available to women and adolescents, bearing in mind the relative contraindications of the various methods. Such services should be provided free or heavily subsidized by the Government to encourage and adequately motivate the users.

It has been observed in Nigeria that some family planning service providers, out of ignorance, discriminate against single women and young girls while such clients tend to shy away from such service because they do not want to disclose their interest in sexual activities.

Mass literacy campaign is desirable to enlighten couples and single women/girls on the need for effective contraceptive use to avoid unwanted pregnancy and pregnancy terminations which are more dangerous than any contraceptive method or agent currently in use.

## **ABORTION:**

This is the termination of pregnancy before 24 weeks gestation. This can either be spontaneous or procured (induced) and any can be associated with infection. However procured abortion is much more likely to be associated with infection and other possible complications with very serious adverse effects on the reproductive health of women. Procured abortion has caused a lot of misery and untold hardship on women of child reproductive age. It is a recognized cause of maternal mortality in the world particularly in the developing countries including Nigeria.

The morbidity and mortality associated with it are closely related to the following factors.

- (a) The gestational age – the more advanced the pregnancy, the more difficult it is to terminate, the more the risk of bleeding, the more the risk of uterine perforation and the greater the risk of infection.
- (b) The method used – The use of Laminariatent and the use of non-sterile procedure (which is very common among quacks) is most likely to result in infection which the patient may not survive.
- (c) The age and Parity of the Patient – The elderly and grand-multiparous patients are less likely to survive the complication of procured abortion because of their age and lowered resistance.
- (d) The Skill of the operator – The quack or non-medical abortionist is not usually conversant with the anatomy of female reproductive tract. Hence they are most likely to perforate the

uterus, create false passages and cause more lacerations and provoke more bleeding. They are also most likely to use non-sterile procedures which often result in fatal infections.

- (e) The quality of the Medical Facilities Available for treating the Complications – blood, antibiotics and intervention surgery or resuscitative measures are not likely to be available in substandard environments where very many procured abortions are done and without such facilities the victims of procured abortions are most likely to die or seriously debilitated.

Because of the serious adverse effects of procured abortion on the reproductive health of women in Nigeria/Africa in most cases, some schools of thought are advocating for the legalization of abortion in Nigeria.

#### **ABORTION LEGALIZATION:**

This has often generated controversies in many for a handling the reproductive health of women in Nigeria, whether to be or not to be. It is very necessary to look critically at the issue. In countries where abortion is illegal, complications of botched abortions are reported to result in deaths of more than 100,000 women each year. About 24 – 35% of this is reported to occur in the developing countries particularly in the Sub-Saharan Africa. This is an extraordinary tragedy as these deaths are preventable deaths with the existing technologies; availability of contraceptives to these patients would have prevented these tragedies.

As much as one is aware that abortion legalization has been reported to have greatly reduced maternal mortality rate due to illegal abortions in some countries like Britain, Romania, the United State of America etc, this has been achieved as a result of availability of adequate facilities in terms of human and material resources. On the other hand one is also aware that in some counties like India, Zambia etc, where abortion is legalized but because of inadequate access to safe abortion services, the majority of abortions are still performed unsafely with continued high rates of morbidity and mortality. It is therefore clear that where abortion is illegal or where it is legal but no adequate services available, poorly performed abortions result in the deaths of large numbers of women and temporary or permanent morbidity in untold number of additional women. The legalization of abortion in South Africa came into effect in February 1997 and within five months, 7,000 abortions were performed by the Medical personnel. The consequences of these are yet to be reported.

It should be remembered that the aim of the Medical practice has always been to heal, to alleviate suffering and preserve life. Even part of the International Code of Medical Ethics or rules of Professional Conduct (in Nigeria rules of Professional Conduct for Medical and Dental Practitioners) which all physicians swear to at initiation into the Medical Practice, stipulates that we should preserve life from the time of conception until death. Therefore in a profession so bound by this oath, to condone or legalize abortion is certainly a violation of the ethics of the profession and a crime against humanity. Going by the Hippocratic oath or ethic of the profession, the physicians should not take with

impunity legally or illegally the lives of the defenseless ones (the fetus and unborn child) they have sworn to protect. It is very wrong to think that the license given to physicians to practice also confers on them the right to terminate life at will. It does not.

In Nigeria, procured abortion is abhorred by the society and a country where the Medical services or facilities are grossly inadequate and where very many physicians detest being posted to serve in the rural areas (where most of the populace reside), it will be very naïve to believe that legalization of abortion will reduce the country's already very high maternal mortality rate (1,000 – 1,500 per 100,000 live births). In developing countries, Nigeria inclusive, family planning is a reliable, efficient and safe alternative to the hydra-headed problems of abortion.

About the likely future of abortion in the Sub-Saharan Africa, some observers believe that whatever reform takes place, there is likelihood that there will be a gradual expansion in the grounds for permissible abortion. However widespread resistance, based largely on religious and cultural objections, is likely to continue, including the passive resistance by some Medical Practitioners.

#### **SEXUALLY TRANSMITTED INFECTIONS (STIs):**

These affect both men and women but the burden on the women is much heavier. The World Health Organization (WHO) has ranked STIs as the second major cause of disease burden among women aged 15 – 44 years in developing countries with Africa very high on the list.

For biological and social reasons women are most likely to be infected, are less likely to seek care, are more difficult to diagnose, suffer more disease sequelae and are more subjected to social discrimination and consequences. The most effective method available for protection against STIs, the condom, is controlled by men. The modern contraceptive technology which the women can use without the cooperation of the male partner is saddled with inconveniences and some health risks to the women.

The burden of the first generation STIs like gonorrhoea, syphilis and chancroid has declined in the industrialized countries but has been amply replaced by *Chlamydia trachomatis*, herpes hominis virus, human papiloma virus and the human immunodeficiency virus (HIV). These second generation STIs are more difficult to identify, treat and control. Also they can cause chronic ill-health, disability and death. Both groups of STIs remain major health problems in most developing countries particularly in the rural areas of Africa where facilities for diagnosis and treatment are usually inadequate and some times not available. The HIV which is the late 1970s or early 1980s was mostly the disease of men, is now a major health problem of women and children in the developing countries of Africa. Studies have shown that there is a much higher and efficient transmission of HIV from male-to-female than from female-to-male. The virus load in the ejaculate of an infected male is very heavy particularly if the man is infected with other STIs. Also the use of vaginal astringents or tightening agents or surgery to increase coital pleasure for the male partner (dry sex), prolonged coital

session or inadequate hormonal support for the vagina (in postmenopausal women) are often associated with increased risk of trauma or bleeding.

The World Health Organization (WHO) has estimated that over 15 million women are now infected with HIV, and in Sub-Saharan Africa alone, AIDS has become a leading cause of death among young adult women in some urban areas. Women with HIV infection also run a high risk of passing the virus to their newborns. Studies have shown that at about one year of age between 15 and 40% of babies whose mothers were HIV positive during their pregnancy were themselves infected by vertical transmission through the placenta in utero, during parturition or during breast-feeding period (which is believed to account for about 40% of the vertical transmission).

#### **ECONOMIC AND SOCIO-CULTURAL FACTORS:**

The African women are mostly poorly educated and economically dependent on the males. Women often have very limited legal rights and are culturally expected to be subordinate to the males in house-hold and personal decision-making even pertaining to their health. Their primary roles are those of childbearing and failure to have children is often seen as a social disgrace. Women also have major responsibilities in agricultural production.

The Socio-cultural and economic factors in Africa have kept the African fertility high with the attending high maternal mortality and morbidity. Africa's low levels of economic development and heavy reliance on agriculture have perpetuated several factors that encourage high fertility. This high fertility with its adverse effect on the women is more common among the rural than among the

urban residents and among the less educated than among the more educated women. Some old, outdated harmful cultural practices like female genital cutting, which are unique to Africa, have compounded the female health problems in this region. Another harmful practice in some areas of Africa (Nigeria, Somalia, Zaire) is the insertion of corrosive pessaries per vaginam to procure abortion or for treating infertility, or for narrowing the vagina for the male sexual pleasure (as practiced in Eritrea). These pessaries usually cause vaginal skin ulceration which eventually heals resulting in severe gynetresia (vaginal stenosis) which often results in difficult coitus (dyspareunia) and difficult vaginal delivery during labour.

Generally the African cultural traditions and religion favour large families because children are expected to help their parents financially and to help ensure a kind of familial immortality. For the women in particular, children are also an important form of old-age security for their mothers. Since women often lack inheritance rights or lose the right to use land upon the death of a husband, they want many children, particularly sons, to ensure that someone cares for them in their old age.

#### **CANCER:**

This is a menace to human life in both developed and developing countries of the world apart from infectious diseases (including HIV/AIDS), malnutrition and cardio-vascular diseases. Of all cancers, genital and breast cancers constitute the major health problem of women. While the prevalence of breast and

endometrial cancers are rising in Europe and the USA, cervical cancer remains the most frequent cancer in women in developing countries.

There are many risk factors associated with cancer in women.

- (a) Breast Cancer – Ovariectomy (oophorectomy) reduces the risk, nulliparity and obesity are predisposing factors. The protective influence of early pregnancy, prolonged breastfeeding, increased parity are valid, while oestrogens act as a promoting factor.
- (b) Cancer of Cervix – This is closely associated with sexual activity. Early age at first intercourse and multiple sexual partners are important risk factors. Human papilloma virus DNA (HPV 16 or 18 DNA) is heavily incriminated. STIs have strong links with the cancer of cervix. Prolonged use of oral contraceptives is also a suspected risk factor.
- (c) Corpus uteri cancer – low parity believed to be associated with anovulation or luteal defects is a predisposing factor. The promoting role of oestrogens is valid particularly postmenopausal hormonal replacement therapy (HRT), obesity is a risk factor due to the extragenital oestrogens from adipose tissue which produce unopposed effect on the endometrium.
- (d) Chorion Cancer- Hydatidiform mole or molar pregnancy is the strongest risk factor. Normal pregnancy or ectopic pregnancy is predisposing factors. Cystic teratoma (dermoid cyst) of the ovary has been incriminated in the risk factor.

- (e) Ovarian Cancer – Family history is the strongest risk factor. The incidence seems reduced in women with one or more full-term pregnancies and questionably by prolonged use of oral contraceptives. Presently prolonged use (over six months) of clomiphene citrate (clomid) is a recognized predisposing factor.

Generally cancer is very malicious as it starts silently, eats up the life in stages, progresses uncontrollably and mercilessly if left to its natural course and brings with it the process of painful destruction which is usually slow enough to allow for short periods of hope of losing the struggle. It eventually ends the victim, in most cases, a miserable wretched creature. This sums up in a nutshell the course of cancer.

As a result of this gloomy picture and the fact that the reward for cancer treatment is poor in most cases, prevention should therefore be the overriding strategic goal in any medical campaign against cancer. Therefore there should be screening of every woman above the age of 35 years for the cancer of cervix, above the age of 45 years for breast cancer and above the age of 55 years for the cancer of the endometrium and ovary and to continue the screening procedure annually until the age of 65 or 70 years.

**SAFE MOTHERHOOD INITIATIVE:**

This would have had a profound impact on the reproductive health of women in Nigeria. The programme was vigorously pursued in the eighties and early nineties. The tempo appears to be dying down. The programme needs to be sustained. The news media, the religious leaders and politicians should be

actively involved in the Safe Motherhood campaign. The World Health Organization (WHO) has ranked Maternity (the means by which the human species are propagated) as the number one health problem in young adult women (aged 15 – 44 years) in developing countries. It is estimated that about 99% of maternal deaths take place in the developing countries.

While the Maternal Mortality is about 10 or less per 100,000 live births, in Western and Northern Europe, it is about 1,000 or more in some rural areas of Africa and it could be as high as 1 in 20 in some parts of Africa compared with about 1 in 4,000 in Northern America.

The maternal mortality rates in some African countries are as shown in Table 1.

**TABLE 1: MATERNAL MORTALITY RATE (MMR) IN AFRICA**

<b>Country</b>	<b>Maternal Mortality Rate (Deaths per 100,000 Life Births)</b>	<b>Country</b>	<b>Maternal Mortality Rate (Deaths per 100,000 Life Births)</b>
Algeria	160	Libya	220
Benin	990	Madagascar	490
Botswana	250	Malawi	560
Burkina Faso	930	Mali	1,200
Burundi	1,300	Morocco	610
Cameroon	550	Mozambique	1,500
Central African Republic	700	Namibia	370
Chad	1,500	Nigeria	1,000
Congo Democratic Republic	810	Rwanda	1,300
Ivory Coast	810	Senegal	1,200
Egypt	170	Sierra Leon	1,800
Eritrea	1,400	Somalia	1,600
Ethiopia	1,400	South Africa	230
Gabon	500	Sudan	660
Gambia	1,100	Tanzania	770
Ghana	740	Togo	640
Guinea	1,600	Tunisia	170
Guinea Bissau	910	Uganda	1,200
Kenya	650	Zambia	940
Lesotho	610	Zimbabwe	570
Liberia	560		

Source WHO Release 1999

The alarming figure from Africa is not surprising. At the beginning of the 21<sup>st</sup> century only about 55% of women in developing countries enjoy the simple privilege of having a trained birth attendant during delivery. This does not

mean a qualified midwife, a qualified obstetrician or a qualified physician. The trained birth attendant means any health worker who has received enough training to provide support to women during labour or delivery (a critical time in a woman's life). Each year by the end of the 20<sup>th</sup> century, it is reported that about 80 million babies were born at home and between 55 and 60 million of such deliveries were by untrained traditional birth attendants or family members and in some cases the mother and the baby were completely alone.

In the developed countries, on the other hand, all births take place in the presence of a doctor or a Midwife who are trained delivery attendants and about 95% of such births take place in a hospital or maternity institution while only about 37% of deliveries take place in health institutions in developing countries. Also in developing countries less than 60% of pregnant women receive antenatal care compared with about 98% in developed countries. This clearly reflects to some extent the tragedy of the reproductive health of women in Africa.

Generally the World Health Organization (WHO) has identified four main fundamental strategies that support the Safe Motherhood initiative. These are Family Planning, Antenatal Care, Clean/Safe Delivery and Essential Good Obstetric Care. Family Planning helps women to avoid unwanted pregnancies and abortions. It also helps women to avoid high-risk births in very young women, births at less than two years apart and births to older women with already many children.

Certain contraceptive methods, particularly condoms, help to prevent the spread of sexually transmitted infections (STIs), including HIV/AIDS, while

Antenatal and Obstetric Care help to improve women's overall health and nutrition and prevent complications. Such health care can help identify and treat complications and risks before and during pregnancy and after delivery. Clean and safe delivery practices can help to recognize and respond to complications during childbirth.

Safe Motherhood is therefore an important policy initiative that recognizes the existence of high levels of maternal mortality and morbidity and identifies strategies for reducing them. It is therefore necessary to put more resources into women's health to reflect how much the society values the life of women and to enhance the possibility of achieving the tenets of Safe Motherhood initiative. However in Africa where the societies invest less in girls than boys and underestimate the economic contributions of women and where only few women are in positions of decision-making, it should not be surprising that in resource-poor setting like ours, low priority is often given to the necessary resources to save the lives and health of women

It is highly desirable to provide more up-to-date facilities and communication system in our health care delivery set-up. Old out-dated and harmful traditional practices, particularly female genital cutting which are supposed to attenuate sexual desire and preserve girls fidelity, should be discouraged and vigorous campaign mounted to stamp them out. Also the society should be re-orientated to be putting more resources into women health programmes instead of burial ceremonies. One is often amused by the expensive and sensational obituaries in our News papers like "The evil ones have done their

worst, rest in peace until we meet to part no more” One often wonders and keeps on asking when will the good ones do their best?. It is now time for the good ones to do their best to match or even surpass those of the evil ones.

### **OBSTETRIC FISTULAS:**

Obstetric fistulas (Vesico-vaginal fistula VVF and recto-vaginal fistula RVF) are rarities in developing countries but they are still prevalent, alive and kicking fine in the developing countries particularly in the Sub-Saharan Africa including Nigeria. They usually result from the criminal neglect of prolonged obstructed labour and difficult delivery in the rural areas. The lesion occurs when the fetal head compresses the anterior vaginal wall and the bladder against the pubic bone and the posterior vaginal wall and the rectum against the sacral promontory for a long time. The compressed maternal tissues undergo ischaemic necrosis which eventually sloughs off after the obstruction is released. Thus resulting in the formation of the fistulas which in turn result in the continuous leakage of urine and or faeces per vaginam.

The disorder usually confines the afflicted women into social oblivion, psychologically traumatized and often deserted by relations and husband. Though the disorder is amenable to surgery, it is better prevented by observing the tenets of Safe Motherhood initiative particularly the prevention of high risk pregnancies and childbirths in very young girls/women. Also good Antenatal Care and Labour supervision would have detected those patients incapable of safe vaginal delivery and would have been offered a safe alternative delivery by Caesarean Section.

In obstetric fistulas, it is usually necessary to wait for about 2 – 3 months after causative agent, before the surgical repair. This is to allow the tissue oedema to subside, to allow the dead tissues to slough off, to allow infection to clear, to allow the tissues to revascularise and in some cases, if the fistulas are small they can close spontaneously without any surgical intervention. After a successful repair or closure of the fistulas the afflicted patients deliveries in subsequent pregnancies would have to be by elective caesarean sections to avoid recurrence.

#### **INFERTILITY:**

This is another major reproductive health problem in the developing countries of Africa, Nigeria inclusive and in most cases, it is the after math of procured abortion, STIs and pregnancy related infections. It accounts for more than 60% of cases seen in Gynaecology clinics in Nigeria. Although infertility is not a disease in the classic sense, it is a health problem for many couples and the Medical Profession. It is a health problem with very definite psychological, emotional, physiological and social implications. It is a health problem with a stigma which often leads to mental disharmony, matrimonial disharmony, divorce and ostracism. At this juncture, Mr. Vice-Chancellor please permit me to highlight the necessary requirements for fertility in the couple and what can impair them. These are outlined in Table 2:-

**TABLE 2: REQUIREMENTS FOR AND IMPAIRMENT OF FERTILITY IN A  
COUPLE**

**A. MALE**

	<b>Requirements</b>	<b>Functions</b>	<b>Impairment (Lesion)</b>
1	Hypothalamus	Produces Gn RH for the Anterior Pituitary Gland	Tumour, infection
2	Anterior Pituitary Gland	Produces LH, FSH, Prolactin, ICSH, TSH	Tumour, Hypopituitarism (hypogonadotropic hypogonadism)
3	Thyroid Gland	Produces Sex Hormone binding globulin (SHBG), T <sup>3</sup> , T <sup>4</sup>	Tumour, hyper-or hypothyroidism
4	Liver	Regulates Metabolism of Endogenous and Exogenous Sex Hormones	Cirrhosis
5	Adrenal Glands	Produce Androgens and Corticosteroids	Tumour, adrenal hyperplasia or insufficiency
6	Testes	Spermatogenesis, produce androgens and little oestrogens	Infection (viral/bacterial), cryptorchidism, sclerosis or atrophy or seminiferous tubules as in Klinefelters syndrome, aplasia
7	Vas deferens	Convey sperm from the testes	Ligation, occlusion by infection, congenital absence
8	Prostate Gland	Produces acid phosphatase and fibrinolysin for liquefaction of seminal fluid.	Infection
9	Seminal Vesicles	Produce seminal fluid in which the spermatozoa respire	Congenital absence, infection
10	Penis	Deposits sperm in the vagina	Hypospadias, phimosis urethral stricture from STIs erectile dysfunction.

## B FEMALE

	Requirements	Functions	Impairment (Lesion)
1.	Hypothalamus	Produces GnRH for the Anterior Pituitary Gland, Thyrotrophin	Inflamation, toxicity and tumour
2	Pituitary Gland	Produces FSH, LH, Prolactin, TSH	Adenoma (prolactin producing), Necrosis
3	Thyroid Gland	Produces, T <sup>3</sup> T <sup>4</sup> and SHBG	Thyrotoxicosis and hypothyroidism
4	Liver	Regulates Metabolism of Endogenous and Exogenous Sex Hormones	Cirrhosis
5	Adrenal Glands	Produce Androgens and some oestrogens	Hyperplasia causing hirsutism and masculinization
6	Ovaries	Produce Ova, oestrogen progesterone and some androgens	Congenital absence, polycystic, infection (viral/bacterial) adhesions from infection or endometriosis
7	Fallopian Tubes	Collect and convey ova to uterus, site of fertilization, convey fertilized ovum to uterus	Congenital absence, blockage by infection, endometriosis and ligation.
8	Uterus	Sustains conceptus and expels it at term	Congenital absence, subseptate, didelphis, ashermans syndrome, fibroids, adenomyosis
9	Cervix	Produces mucus, retains uterine contents	Poorly developed, hostile mucus to sperm, mucus sperm antibodies, infection, incompetent OS
10	Vagina	Site of sperm entry and depot	Congenital absence, infection, inperforate hymen or membrane, vaginismus, gynetresia

Table 2 gives an insight into the possible causes of infertility generally but in Africa the commonest causes of infertility as earlier said are STIs, Procured

abortion and Pregnancy Related Infections, while Azoospermia, Oligospermia and erectile dysfunction are incriminated in males. According to the World Health Organization (WHO), infertility is defined as the inability of a couple of child reproductive age to establish a pregnancy within a period of 1 year despite regular and unprotected sexual intercourse. It is conservatively estimated that about 60 – 90 million people globally may be experiencing Primary or Secondary infertility at the present time with about 30 – 50% occurring in the Sub-Saharan Africa where Pelvic Inflammatory disease (PID), STIs and Pregnancy Related Infections are most prevalent.

The responsibility for infertility is commonly but unequally shared by the couple with the female having the greater share. Hence the successful management of infertility should involve the man and his wife (wives).

The investigation of infertility in the female partner is much more elaborate and associated with more inconveniences and risks, while the burden of treatment also falls mostly on the female partner. In Africa, a woman's status is often linked with her fertility and failure to have children is often seen as a social disgrace or a cause for divorce. Presently the hope of successful therapy for infertility is shifting to assisted Reproductive technologies like invitro fertilization (IVF), gamete intrafallopian transfer (GIFT), intra cytoplasmic sperminjection (ICSI), artificial insemination and even human cloning etc which are expensive, cumbersome and associated with low success rate compared with the efforts and resources put into them. Again the burden of these treatments also falls on the female partner.

It is surprising the extent which women can go to achieve conception. This desperation appears to have been on since the advent of mankind; in the Holy Scripture it is states “And when Rachael saw that she bore Jacob no children, Rachael envied her sister; and said unto Jacob. Give me children, or I die”. Some people may wonder whether it is appropriate for us to continue to worry about the problem of infertility in view of the possible problem of population explosion on our hands. With the present harsh economic climate, the adoption of a small family size through the use of modern contraceptive techniques to induce voluntary infertility should be more pressing. On the other hand if couples are encouraged to widely space or postpone pregnancies, it is only fair enough to assist them to achieve pregnancy whenever they so desire.

In the developing countries of Africa where infertility is mostly associated with infections, it is advisable that clinicians and researchers should aggressively fight the spread of STIs and common pathogens that cause PID and tubal disease. With this aggressive approach and with the recent advances in assisted reproductive technology, it should be possible to make great strides in solving the problem of infertility in Africa and other developing countries of the world.

#### **CONCLUDING REMARKS:**

Mr. Vice-Chancellor Sir, distinguished gentlemen and ladies, the travail of Female Reproductive Health in Africa has evoked a lot of concern because of the psychological and physical suffering that it causes and also the economic

consequences it has for the couples and the society as a whole. The endowment of women, by nature, with the function of Reproduction for the propagation or survival of human species should be cherished.

Improving the literacy level, women's economic power enhancement, embracing sex education, family planning when necessary, avoiding unsafe procured abortions and upholding the tenets of safe motherhood initiative will go a long way in reducing the carnage of Reproductive Health among the women. Intensifying the campaign on the appropriate measures to be taken against sexually transmitted infections including HIV/AIDS will be of much help.

It is certainly no cheap propaganda saying that it is necessary to invest more resources in women's health. With all hands on deck for the benefits of all, it is my very strong believe and fervent hope that the reproductive health of women in Africa would be a thing of joy in future.

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**CLOSURE:**

Mr. Vice-Chancellor Sir, distinguished gentlemen and ladies, we now know better that the noble task of Reproducing and Propagating Human species to avoid possible immortality has brought on the women unnecessary or avoidable morbidity and mortality. A very positive societal action to invest more resources in women to positively improve their health are needed to significantly reduce this

carnage of Reproductive Health and the injustice done to them particularly in Africa. May God soften our heart to make our women better off for the benefit of mankind.

Here I finally rest my case. I thank you all for your attention and patience.

## **REFERENCES**

Abeler UM and Berle E (1992): Carcinoma of the Endometrium in Norway: A histopathological and prognostic survey of a total population. *Int. J Gynaecol Cancer* 2, 9 – 22.

Abou Zahir C and Royslon E (1999): Maternal Mortality: A Global Factbook, Geneva: World Health Organization.

Anate M (1993): Adolescent Fertility: A Panoramic view of the problems. *Niger Med. Pract.* 25, 3 – 9.

Anate M, Awoyemi O, Petu O, Akure AT and Raimi CM, (1997): The continuing problem of procured abortion in Ilorin, Nigeria: The way out. *Niger J. Med.* 6, 106 – 111.

Anate M (1989): Vaginal Trauma at Sexual Intercourse in Ilorin, Nigeria: An analysis of 36 cases. *West Afr. J. Med.* 8, 217 – 222.

Anate M and Ismaila O (1996): Cervical Ectopic Pregnancy: A case report. *West Afr. J. Med.* 15, 123 – 125.

Anate M (1996): Transient Cortical Blindness in Gestational Hypertension. *Niger Med. J.* 30, 142 – 144.

Anate M and Akeredolu O (1996): Pregnancy Outcome in elderly Primigravidae at the University of Ilorin Teaching Hospital, Ilorin, Nigeria. *East Afr. Med. J.* 73, 54 – 57.

Anate M (1998): Uterine Rupture at Spontaneous Vaginal Delivery at the University of Ilorin Teaching Hospital, Ilorin, Nigeria. *Ilorin Doctor J.* 3, 30 – 31.

Anate M and Adetoro OO (1988): Family Planning Practice among Nigerian Student Midwives. *Int. J. Gynaecol. Obstet.* 27, 415 – 420.

Anate M (1984): Cervical Ligation for incompetent cervix in Pregnancy. *Niger Med. Pract.* 7, 88 – 89.

Anate M and Akeredolu O (1996): Surgical Management of Female Infertility: The Ilorin Experience, Nigeria. *Niger Med. Pract.* 32, 39 – 43.

Anate M (1991): The Infertile couple problems. Role of Family Planning Clinics. *Niger Med. Pract.* 21, 26 – 32.

Anate M and Akeredolu O (1994): Attitude of Male Partners to Infertility Management in Ilorin, Nigeria. *Niger Med. Pract.* 27, 46 – 49.

Anate M (1993): Secondary Infertility due to broken end of Karman Cannula: Case report. *Niger Med. J.* 26, 59 - 60

- Anate M (1994): The Value of Chemotherapy in Infected Semen: A Prospective Study in Ilorin. *Medicare Journal*. 5, 3 – 7.
- Anate M (1995): Factors Influencing Family Planning use in Ilorin, Nigeria. *East Afr. Med. J.* 72, 418 – 420.
- Anate M (1997): Relieving the Agony of Labour Pain: A review *Niger Med. J.* 6, 63 – 72.
- Anate M and Olatinwo AWO (1999): Genital Prolapse in Childbearing age, Manchester repair and Subsequent Reproductive Function. *Niger Med. Pract.* 37, 47 – 51.
- Anate M, Olatinwo AWO and Abdul IF (2001): Premature Rupture of Membranes: A review. *Sahel Med. J.* 4, 13 – 19.
- Anate M (2001): Endometriosis with Infertility, Dydrogesterone Treatment: A case report *Niger Med. Pract.* 42, 43 – 45.
- Anate M, Abdul IF and Olatinwo AWO (2002): Infertility in Africa: A review. *Sahel Med. J.* 5, 20 – 29.
- Anate M (2003): The effect of reversible contraceptive use on subsequent fertility. *Niger Clinical Review*. 7, 13 – 18.
- Anate M (2004): Abruptio Placenta in Lokoja: A study of 36 cases. *Niger Clinical Review*. 8, 9 – 16.
- Anate M (1993): Primary Postpartum Haemorrhage in Ilorin: A retrospective Survey. *Niger Med. J.* 24, 97 – 100.
- Akande EO (1987): Problems of Infertility in Sub-Saharan Africa. *DOKITA* 16, 23 – 27.
- Bennett MJ and Dewhurst CJ (1983): The use of Ultrasound in the Management of Congenital Malformations of the genital tract. *Pediatr Adolescence Gynecol.* 1, 25 – 28.
- Briggs ND (1992): Safe Motherhood Initiative Nigeria 1990. *Contemp. Review Obstet. Gynaecol.* 4, 127 – 131.
- Brown RC, Brown JE and Ayowa OB (1993): The use and Physical effects of Intravaginal Substances in Zairan Women. *Sex Transmit Diseases*. 20, 96 – 99.

- Carballo M (1975): Social Factors in Adolescent Use of Contraception. Paper Presented at the WHO consultation on Contraception in Adolescence. Geneva 8 – 10, October 1975.
- Canistra SA (1993): Cancer of the Ovary. *N Eng. J. Med.* 329, 1550 – 1554.
- Cates E Jr, Rolfs RT Jr, Oral SO (1990): Sexually Transmitted Diseases, Pelvic Inflammatory Disease and Infertility: An Epidemiologic Update. *Epidemiol. Rev.* 12, 199 – 220.
- Cates W, Farley TMM, Rowe PJ (1985): World Wide Patterns of Infertility: Is Africa different? *Lancet* Sept. 14, 596 – 598.
- Chalmers I (1989): Evaluating the effects of care during Pregnancy and Childbirth. In: Chalmers I, Enkin M and Keirse MJNC (eds) Effective Care in Pregnancy and Childbirth. Oxford. Oxford University Press. PP 3 – 38.
- Chantler E (1992): Vaginal Spermicides some current concerns. *J. Family Planning.* 17, 118 – 122.
- Chukudebelu WO (1995): Maternal Mortality. *Trop. J. Obstet. Gynaecol.* 12, 1 – 3.
- Collaborative Group on Hormonal Factors in Breast Cancer (1966): Breast Cancer and hormonal Contraceptive: Collaborative reanalysis of individual data on 53,297 women with breast cancer and 100,239 women without breast cancer from 54 epidemiological Studies *Lancet.* 39, 785 -788.
- De Bruyn M (1992): Women and AIDS in Developing Countries. *Soc. Sci. Med. J.* 34, 149 – 252.
- Edward JNT (1982): Principles of Management of Vesico-Vaginal Fistula. *S. Afr. Med. J.* 62, 989 – 990.
- Fathalla MF (1992): How much are mothers worth? In: The Proceedings of the xiii World Congress of Gynaecology and Obstetrics (Teoh Es, Ratnam s, Macnaughton E (eds). Vol. 6,pp. 203 – 211, Parthenon Publishing, Lances, UK.
- Fathalla MF (1992): Society and Human Reproduction. In: Armas OR, Baungartner A and Burgos L (eds). Fertility and Sterility – Progress in research and Practice. The official proceedings of the XIV World Congress on Fertility and Sterility, Caracas, November 1992. Parthenon Publishing Lances, UK.
- Fathalla MF (1994): Women's Health: An overview. *Int J. Gynaecol Obstet.* 46, 105 – 118.

- Faundes A (1994): Reproductive Tract Infections. *Int. J. Gynaecol Obstet.* 46, 181 – 187.
- Friedlander M, de Souza P and Segelov E (1992): Risk factors, Epidemiology, Screening and Prognostic Factors in Female Genital Cancer. *Curr. Opin. Oncol.* 4, 913 – 917.
- Goliber FJ (1997): Population and Reproductive Health in Sub-Saharan Africa. *Population Bulletin* 52, 2 – 43.
- Hannoun A and Abu – Musa A (1998): Gamete Intrafallopian Transfer (GIFT) in the treatment of severe male factor infertility. *Int. J. Gynaecol Obstet.* 61, 293 – 295.
- Hillis SD, Joesoef R, Machbanks PA, Wassebeit JN and Westrom L (1993): Delayed care of Pelvic Inflammatory Disease as a risk for Impaired fertility. *Am. J. Obstet. Gynaecol.* 168, 1503 – 1505.
- Hunter DJ (1993): AIDS in Sub-Saharan Africa: The epidemiology of Heterosexual Transmission and the Prospects for Prevention *Epidemiology* 4, 63 – 67.
- Lande R (1993): Controlling Sexually Transmitted Diseases. Population reports series L, No 9. Baltimore, John Hopkins School of Public Health, Population Information Program. June 1993.
- Lawson JB (1978): Management of Genito-Urinary Fistulae. In: Stanton SL (ed) Clinics in Obstetrics and Gynaecology. WB Saunders (Publisher), London.pp. 200 – 206.
- Ludwig H (1994): Women and Cancer: *Int J. Gynecol Obstet.* 46, 195 – 202.
- London I (1992): The Transformation of Maternal Mortality. *Br. Med. J.* 305, 1557 – 1560.
- Ladipo OA (1980): Semen analysis in fertile and Infertile Nigerian Men. *J. Nat. Med. Ass.* 72, 785 – 789.
- McIndoe WA, McLean MR, Jones RW and Mullins PR (1984): The invasive Potential of Carcinoma in situ of the Cervix. *Obstet Gynaecol.* 64, 451 – 458.
- Mehta S (1994): Contraception and Women's Reproductive Health. *Int. J. Gynaecol. Obstet.* 46, 165 – 171.
- Montgomery TL (1976): Adolescent Sexually and Paramarriage. *Am. J. Obstet. Gynaecol.* 124, 818 – 823.

- Monaghan JM (1999): Malignant Diseases of the Ovary In: Edmonds DK (ed) Dewhurst Textbook of Obstetrics and Gynaecology for Postgraduates 6<sup>th</sup> Edition, Blackwell Science, London PP 590 – 601.
- McVeigh E (1998): Assisted Fertility: *Postgraduate Doctor Africa*. 20, 82 – 88.
- National Policy on Population for Development, unity, progress and self reliance (1988). Department of Population activities. Federal Ministry of Health, Ikoyi, Lagos, Nigeria.
- Nigerian Demographic and Health Survey report 1992. Federal Office of Statistics, Federal Ministry of Health and Human Resources, Lagos, Nigeria.
- Nwabuisi C and Onile BA (2001): Male Infertility among Sexually Transmitted Diseases Clinic Attendants in Ilorin, Nigeria. *Niger J. Med.* 10, 68 – 91.
- Olatinwo AWO and Anate M (1999): Induction of Ovulation: A review. *Niger J. Med.* 8, 93 – 98.
- Olatinwo AWO and Anate M (2001): Anovulatory Infertility: A report of four cases in Ilorin and Literature Review. *Niger J. Med.* 10, 85 – 91.
- Olatunji AO and Abudu OO (1996): A review of Maternal Mortality in Lagos University Teaching Hospital (1976 – 1985), *Niger Med. Pract.* 31, 2 – 6.
- Okaro JM, Umezulike AC, Onah HE, Chukwuali LI, Ezugu OF et al (2001): Maternal Mortality at the University of Nigeria Teaching Hospital, Enugu, before and after Kenya. *Afr. J. Reprod. Health.* 5, 90 – 97.
- Otolorin EO (1987): Management of Female Infertility. The Tubo-Peritoneal Factor. *DOKITA* 16, 13 – 19.
- Padian NS, Shiboski Sc and Jewel NP (1991): Female-to-Male Transmission of Human Immunodeficiency Virus. *J. Am. Med. Assoc.* 266, 1664 – 1669.
- Population Reports (1983): Issues in World Health Infertility and Sexually Transmitted Diseases: A public health challenge. Population reports Vol. XI, L113 – L152, July.
- Person E (1994): The threat of AIDS to the Health of Wlomen. *Int. J. Gynaecol. Obstet.* 42, 189 – 193.
- Roth DM and Mbizvo MT (2001): Promoting Safe Motherhood in the Community: The case for strategies that include men. *Afr. J. Reprod. Health.* 5, 10 – 21.

- Sciarra J J (1994): Infertility: An International Health Problem. *Int. J. Gynaecol. Obstet.* 46, 155 – 163.
- Schildkraut JM and Thomson WD (1988): Familial Ovarian Cancer: A Poluplation based case – control study. *Am J. Epid.* 128, 456 – 460.
- Senanayake M and Ladjah M (1994): Adolescent Health: Changing needs. *Int. J. Gynaecol. Obstet.* 46, 137 – 143.
- Shaker AG, Anderson M and Kitchener HC (1991): An outpatient approach to the Management of Post-menopausal bleeding. *Brt. J. Obstet. Gynaecol.* 98, 488 – 490.
- Stein IF and Leventhal ML (1935): Amenorrhoea associated with bilateral polycystic ovaries. *Am. J. Obstet. Gynaecol.* 29, 181 – 191.
- Sutton CJG (1993): Minimal invasive surgical approach to endometriosis and adhesiologysis. In: Studd S and Jardine Brown C (eds) Yearbook of the Royal College of Obstetricians and Gynaecologists. London RCOG Press pp. 117 – 125.
- Soutter WP (1999): Malignant Disease of the uterus. In: Edmonds DK (ed) Dewhurst's Textbook of Obstetrics and dGynaecology for Postgraduates, 6<sup>th</sup> Edition, Blackwell Science, London pp. 560 – 571.
- Tahzib F (1983): Epidemiological Determinants of Vesico-Vaginal Fistulae. *Brt. J. Obstet. Gynaecol.* 90, 387 – 391.
- Turmen T and Abouzahr C (1994): Safe Motherhood. *Int. J. Gynaecol. Obstet.* 46, 145 – 153.
- Williams EA (1964): Congenital Absence of the Vagina. A Simple Operation for its relief. *J. Obstet. Gynaecol. Brt. Commwlth.* 71, 511 – 517.
- World Health Organization (WHO) (1987): Infections, pregnancies and infertility; perspectives on prevention. *Fertil. Steril.* 47, 964 – 966.
- Wood C and Trounson A (1982): Invitro fertilization and embryo transfer. In: Bonnar J (ed) Recent advances in Obstetrics and Gynaecology No. 14, Churchill Livingstone (Publisher), London pp. 259 – 282.
- WHO (1989): Programme on the diagnosis and treatment of infertility. *Int. J. Andrology.* 12, 254 – 264.

World Bank (1993): World Development Report 1993 Investing in Health. Oxford University Press, New York, 1993, PP. 215 – 226.

WHO (1992): Implementation of the Global Strategy for Health for all by the year 2000. Second evaluation and eight report on the World Health Institution. WHOA45/3. WHO, Geneva, 1992.

World Health Organization, Division of Reproductive Health (Technical Support), Maternal Health and Safe Motherhood Programme: Progress Report 1993 – 1995. WHO Conference, Geneva 10 – 11<sup>th</sup> September, 1996.

Wren BG (1994): Hormonal therapy following Female Genital Tract Cancer. Int. J. Gynaecol. Cancer 4, 217 – 224.