

NEED FOR POPULATION CONTROL IN AFRICA

– EMPHASIS ON MALE INVOLVEMENT

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SUMMARY

Population control through family planning, a culturally sensitive topic in Africa is discussed with relevant comparison with what obtains in other parts of the world. Other highly populated developing economies of the world like China, India and Japan which have established adequate and accepted policies for successful population control are highlighted. For population control to be possible, contraception is needed. Male acceptance/involvement in contraceptive use in general and how this could be improved upon in the African society is the main focus of this paper which expresses the hope that creating awareness and intimating men with various methods to choose from may improve their attitude and involvement. Thus, currently available

male contraceptives and their level of acceptance/practice are presented together with those under investigation and their limitations.

KEYWORDS: Contraception, Population Control, Reproductive Health, Male sex.

INTRODUCTION

The World population is rising at an alarming rate especially in the developing countries. In 1975 C. Jones recorded the assumption of the United Nations population projection that 825 million people will be added to the world population during the following decade and that 705 million of them will come from the developing countries¹. Looking at the 1978 & 1998 demographic characters of WHO record in Table 2 (which spans 2

decades), it clearly shows that 2 decades have added more than twice what was predicted in 1975, i.e. an increase of 1604 million is recorded in world population from 1978 -1998. The table indicates the contributions of different categories of countries, for instance China and India contributed 284 & 321 million respectively; Africa contributed 254 million while N. America 155 million, Europe contributed just 83 million.

In Nigeria, like in many other developing countries of the world, there has been a progressive increase in the population. The national census conducted in 1991 in Nigeria put the total population of Nigeria at 89 million², while the WHO figure for 1998 is 106 million, an increase of 17 million in 7 years.

Table 1:- Total Midyear Population for The World 1960 – 2020³

Year	Population (Million)
1960	3,040
1970	3,708
1980	4,454
1990	5,285
2000	6,085
2010	6,812
2020	7,510

Looking at the population figures for years 1998 and 2001 as shown on Table 2, the added figures for all the regions in focus decreased appreciably except Africa and Nigeria whose added figures remain almost the same i.e. the figures added in 3 years (1998 – 2001) almost

Table 2:- Population of the World Regions⁴

POPULATION IN MILLION

REGIONS	1978	Added	%	1998	2001	2025 Projected
WORLD	4,281	+ 1,604	0.37	5,885	+252	6,137
EUROPE	787	+ 83	0.11	870	-143	727
N. AMERICA	250	+ 55	0.22	305	+11	316
AFRICA	348	+ 254	0.71	602	+216	818
INDIA	661	+ 321	0.49	982	+51	1,033
CHINA	972	+ 284	0.30	1,256	+17	1,237
NIGERIA	81	+ 25	0.31	106	+21	127

equal what was added in 20 years (1978 – 1998). This implies that while all other regions in focus were making concerted effort to check/control their population, African countries were progressively adding to theirs. Population size has been shown to be

one of the significant factors that influence the wealth of a nation as depicted by the GDP (Table 3). GDP is Gross National Income divided by mid year population.



Table 3:- Population figure (million) compared to G D P⁴

	1978 - GDP(\$)	1998 - GDP (\$)	2001 - GDP (\$)	2025 (projected)
WORLD	4,281	5,885	6,137	7,818
1. EUROPE	784 - 10.207	870 - 13.081	727 - 14.970	717
2. N. AMERICA	250 - 15.266	305 - 17.788	316 - 31.260	382
3. AFRICA	348 - 01.524	602 - 01.261	818 - 01.790	1,268
4. INDIA	661 - 00.882	982 - 01.282	1,033 - 02.230	1,363
5. CHINA	972 - 00.823	1,256 - 01.493	1,273 - 03.550	1,431
6. NIGERIA	81 - (Not available)	106 - (Not available)	127 - 00.770	204

Almost all industrialized countries provide planning services and more than 65 countries comprising nearly 95% of developing country's population have officially adopted family planning policies. Despite this gain in family planning acceptance at the governmental level, there is still a wide gap between the population in

need of and demanding such services and those actually practicing it. Excluding the People's Republic of China, it is estimated that only 19% of married women of reproductive age in developing countries are currently using contraceptives⁵ to varying degrees. In 1977, 4% of Kenya's married women of child bearing age

used contraceptives; the figure for Pakistan was 6%, 19% for Indonesia, 21% each for Mexico & Egypt, 34% for Malaysia and 64% for Hong Kong (6). For U.S.A., Sweden and United Kingdom, the corresponding figures are between 70% & 80%.

Table 4: World's Largest Countries⁷

2001			2004			2050		
Rank	Country	Population (millions)	Rank	Country	Population (millions)	Rank	Country	Population (millions)
1	China	1,273	1	China	1,300	1	India	1,628
2	India	1,033	2	India	1,087	2	China	1,437
3	United States	285	3	United States	294	3	United States	420
4	Indonesia	206	4	Indonesia	219	4	Indonesia	308
5	Brazil	172	5	Brazil	179	5	Nigeria	307
6	Pakistan	145	6	Pakistan	159	6	Pakistan	295
7	Russia	144	7	Russia	144	7	Bangladesh	280
8	Bangladesh	134	8	Bangladesh	141	8	Brazil	221
9	Japan	127	9	Nigeria	137	9	Congo	181
10	Nigeria	127	10	Japan	128	10	Ethiopia	173

Focusing on Table 4, Nigeria is the only African country appearing on the list of 10 most populated countries of the world and occupied the 10th position in 2001; she had identical population of 127 million with Japan which is in the 9th position. In year 2004, Nigeria became the world's 9th largest country with a population of 137 million, an increase of 10 million in 3 years while Japan dropped to 10th with a population of 128 million, just an increase of 1 million in the same span of 3 years. The projected figures for year 2050 will see Nigeria ascending the list of world's largest countries from position 9 (137 million) to position 5 (307 million) while Brazil that has maintained 5th position will drop to the 8th. Japan (Nigeria's

contemporary in 2001) will be totally off the list while two African countries (Congo & Ethiopia) hitherto absent on the list will now appear to replace Russia & Japan.

Japan, with an economy comparable to those of the European nations, was the first developed country in modern times to initiate a birth-control programme. In 1948, the Japanese government formally instituted a policy using both contraception and abortion to limit family size. In fighting the alarming growth of population, there is legislation on childbirth in China. A couple can only give birth to a child. It is only if the child is a female that the couple has the right to apply for a second child. A couple that loses the

only child can also apply for permission to give birth to another one⁸.

Though much importance is placed on family planning in Nigeria, there is no strict regulation on the number of children a couple can have. At different times, different governments advocated for four children per woman (not per couple) which shows the insincerity of such governments. There are differences of opinion on the reasons for the gap between the need for family planning and its practice. Some consider that the gap could be bridged by a better birth control technology, i.e. the development of a wider range of effective, safe and acceptable contraceptives. Others point to the inadequacy in service



infrastructure. Yet others recognize the short-coming of both technology and the services and their interdependence hence they point out that family planning demands a delivery system suited to reaching very large proportion of the population as well as suited to local circumstances.

DIFFERENT CONTRACEPTIVE METHODS

Men and women are equal partners in conception, unfortunately not so in contraception; 80% of the world's contraceptive users are females⁹. This inequity is reinforced by most contraceptive research and family planning programs which focus mainly on the female methods. Only a few methods are available for men hence they generally assume little contraceptive responsibility. The fact that 70% of couples using one form of contraception or the other rely on a female method¹⁰ may be due in part to the limited contraceptive choices available to men. A number of surveys have shown that the majority of men believe they should be jointly responsible for birth control with their wives, and many have expressed the willingness to use methods that are still hypothetical, such as a pill for men^{11,12}.

Contraceptive Methods for Men

Apart from the methods which require the participation of both partners like rhythm or withdrawal method, the following methods exist for men.

a) The Condom.

The condom is the only reversible contraceptive method for men and it has prevented births for more than 250 years. Recently the spread of AIDS prompted studies on its acceptability and prevalence of use¹³. The condom is used by 75% of Japanese couples using contraception and in no other country does its use exceed 40% though it is the most effective of the natural methods which require male participation¹⁴. The acceptability of condom is limited by its reported decrease in tactile sensation and inconvenience in use¹⁵. However its use has increased due to the risk of sexually transmitted diseases and AIDS in particular. Efforts to improve the acceptability of condom have produced two new types of novel non-

latex materials made from synthetic alternatives to latex. Both are allergen-free, less susceptible to oxidative damage than latex and can be manufactured in thinner sheaths than latex thereby increasing sensitivity and acceptability. The slippage and breakage studies for these new products are underway and their use-effectiveness studies are in plan¹⁵.

b) Vasectomy.

This is a permanent surgical method which has been known for more than a century. It is used by about 5% of couples of reproductive age worldwide. Its prevalence exceeds 10% in Australia, China, Korea, the Netherlands, N. America and the U.K. but it is still largely unknown in Africa¹⁴. Cultural factors appear to be one of the sensitive issues affecting the acceptability of vasectomy. However the impediment the culture presents may be overestimated if the effects of education, counseling and peer support are not explored. The propagators of new ideology to a community are the leaders, headmen, politicians and religious leaders especially in the Muslim communities. 'Machismo' was presumed to be the limiting factor in the acceptance of vasectomy in Latin America, but research pointed instead to inadequate information, education and accessibility^{16,17} as well as lack of previous user's support. The awareness that someone known had undergone the procedure without problem is important to an acceptor's decision. People typically learn about a new method through communication with a close associate like spouse, friend, relative etc. For surgical methods like this, confidence in the skill and competence of the provider is of paramount importance. Researchers found out in Mexico that the lack of training in vasectomy surgery limited access to this method; an increase in the trained providers increased the number of its acceptors in Mexico as well as in Brazil and Colombia¹⁸. In Turkey, training providers to counsel men about vasectomy has successfully increased the number of acceptors of this method¹⁹. While many may not reject vasectomy as a possibility for the future, both the difficulty of reversal and the surgical nature of its procedure put many men off.

c) Hormonal Methods.

Due to growing demand for shared contraceptive responsibility between male and female partners, research on methods for men that are comparable to what is offered to women explored the avenue of the hormones. Combinations of androgens and progestogens given as injection or implants were most promising for short term use²⁰. These hormones suppress spermatogenesis by inhibiting LH and FSH secretion. Progestogens act synergistically with androgens to shorten the time required for azoospermia or oligozoospermia, (sufficiently low sperm count as to be functionally infertile, e.g. < 3 million sperm/ml)²¹.

Between 1987 and 1994, WHO conducted a phase II trials of an androgen injection (testosterone enanthate) in about 700 men who received the injection weekly to achieve and maintain infertility. These trials demonstrated that the androgen had a high contraceptive efficacy and was completely reversible²². Several other hormonal methods are under investigation and these contraceptives are designed to work by inhibiting hormones that regulate sperm production or viability while protecting the loss of potency, libido and secondary sex characteristics.

d) Other Methods for Men.

Scientists particularly in the over populated developing countries like China and India are working to expand the range of available male contraceptive choice. Their search for new, safe, effective and reversible contraceptive methods for men has led to vas occlusion. This involves injecting into the vas deferens substances that block the passage of sperm. Injections of liquid silicone, polyurethane, neem-oil and n-butyl-cyanoacrylate mixed with phenol are being tested in China and India with some good results²³.

Also many miscellaneous non-steroidal compounds have been discovered to have antifertility activity in men or male animals; they include alkylating agents, anti-metabolites, antibiotics, sulphha derivatives, fungicides, trichomonocides, amebicides, alpha



blockers, anti-malarials, coumarins, and carbohydrate derivatives.

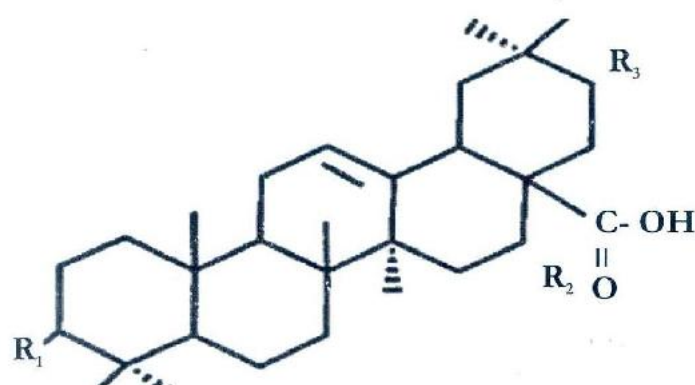
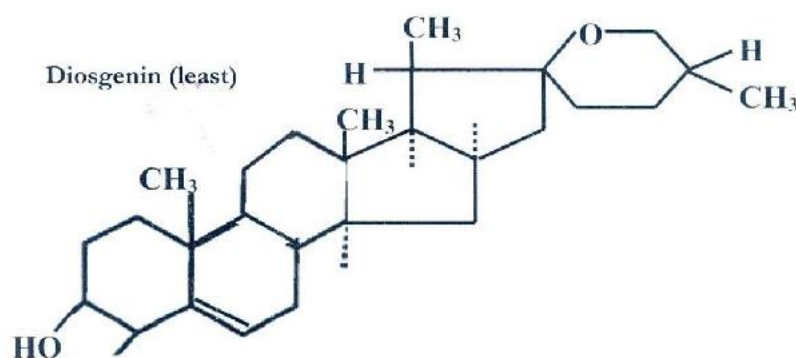
Various plant constituents and extracts have been screened and found promising. Gossypol, a plant constituent went through clinical studies as anti-fertility agent on more than 8,000 Chinese men, but its use for contraception was halted due to high incidence of irreversibility and serious side effects such as hypokalemia²⁴. The

Tipterygium wilfordii glycosides are, however, showing bright promise²⁴. Many saponins isolated from plant sources have been evaluated for in vitro spermicidal activity against human spermatozoa²⁵; of these acacic acid from *Acacia coninna* bark and a mixture of oleanolic and proceric acids from *Albizia procera* seed were most potent while diosgenin from *Balanites roxburghii* fruit was the least active (Table 5).

Table 5: Spermicidal activity of isolated compounds from some plants²⁷.

Plant Name	Family	Part used	Isolated compound	100% spermicidal concentration
<i>Acacia concinna</i> Wall cat	Mimosaceae	Stem bark	Acacia acid	0.0040%
<i>Albizia procera</i> 3enth	Mimosaceae	Root	Oleanolic acid	0.0080%
		Seed	Oleanolic acid & Proceric acid	0.0040%
<i>Anagallis arvensis</i> Linn.	Primulaceae	Whole plant	Anagalligenone	0.0080%
<i>Balanites roxburghii</i> Blanch	Balanitaceae	Fruit	Diosgenin	0.0500%
<i>Blightia sapida</i> Kohig	Sapindaceae	Fruit	Hederagenin & Oleanolic acid	0.0125%
<i>Madhuca latifolia</i> Jmel	Sapotaceae	Seed	Bassic acid	0.0300%
<i>Opithocotibium dulce</i> Robx	Mimosaceae	Seed	Oleanolic acid & echinocystic acid	0.0300%
<i>Pinosporum nighevense</i> Night & Arn	Pittosporaceae	Whole shoot	Pittoside A or B	0.1250%

Structure of some of the isolated saponins



	R ¹	R ²	R ³
Acacic acid	OH	OH	OH (most active)
Oleanolic acid	OH	H	H
Proceric acid	OH	H	OH
Echinocystic acid	OH	OH	H

Acacic acid which has 3 hydroxyl substituent is the most active (0.0040), oleanolic acid alone with only one hydroxyl group (R₁) has half of the activity of acacic acid, while a combination of oleanolic and proceric acid where the two hydroxyl groups R₁ and R₃ are present compliment the single hydroxyl of oleanolic acid to present like acacic acid a similar activity (0.0040). On the other hand the combination of oleanolic acid and echinosystic acid where the two present hydroxyl groups are R₁ and R₂ did not show high activity as the oleanolic and proceric combination. This shows the importance of the hydroxyl groups of R₁ and R₃ for maximum activity which may be based on the relatively free space location whereas the carboxylic group adjacent to R₂ has formed a shield on the R₂ hydroxyl group in echinocystic acid hence the activity recorded is less.

CONCLUSION

All these efforts to provide men with more contraceptive methods to choose from may not actually close the gender gap if the men do not cooperate. Too little research has been conducted on male's attitudes towards contraception. One study in Germany showed a sizable increase over the last two decades in the number of men who found the concept of male hormonal contraception acceptable, from 14.8% in 1977 to 56% in 1991. Although this study's result cannot be generalized to men in all societies; it reveals that men's attitudes toward male contraception can change. Society can encourage this change by supporting research on male contraception as well as reproductive health education programs, family planning programs, and population policies that regard men and women as being equally responsible for their sexual relationships. Such efforts may face resistance from religious and cultural forces that oppose contraception in general and where these efforts are not thwarted, they could go a long way towards increasing male contraceptive responsibility and thereby influence population control.

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