Gender, Health, and Sustainable Development

Proceedings of a Workshop held in Nairobi, Kenya, 5–8 October 1993

Edited by Pandu Wijeyaratne, Lori Jones Arsenault, Janet Hatcher Roberts, and Jennifer Kitts
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"Gender and Tropical Diseases: Facing the Challenge"
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Gender and Tropical Diseases in Nigeria: A Neglected Dimension

Uche Amazigo

Introduction

In Nigeria, as elsewhere, inequities exist in health care and policy, and in tropical health programs. These inequities exist between rural and urban residents, between groups with different religions, and between genders. This is largely due to the failure of policy-makers to appreciate the many linkages between women, health care provision, and sustainable development. Within Nigeria’s policy on health delivery and health care financing, gender has not been the central focus, except in fertility/population control and contraceptive programs where women have received significant attention as the vehicle through which specific goals were to be achieved rather than as the primary beneficiaries of the development process (Vlassoff and Bonilla 1992).

Tropical diseases received the attention of health providers in the early 1960s in Nigeria. Since the 1980s, with the economic recession, debt and adjustment policies, tropical diseases, with the exception of malaria and perhaps guinea worm, have lost their position to other health problems. At any given time, however, over one third of Nigerians are suffering from one or multiple parasitic infections, including malaria, intestinal helminths (hookworms, ascaris, trichuris), schistosomiasis (bilharzia), onchocerciasis, or guinea worm.

Gender has been a neglected dimension in tropical health programs in Nigeria, as there is little appreciation that in addition to the general health needs which women share with the rest of the population, women have their own specific health needs. Also, there is scant knowledge about the central role of women in Nigeria in the transmission and control of tropical diseases. Tropical diseases are diseases of neglect and are exacerbated by poverty. Both rural men and women in Nigeria share the consequences of decades of neglect that have left rural communities with limited income-earning opportunities. Rural females are disproportionately more disadvantaged. As a result of poverty, a high proportion of the Nigerian population live under conditions in which parasitic infections thrive. Rural women in particular tend to consider their health problems as "secondary" needs, not as "primary health care" needs.

According to the 1993 World Development Report (WDR 1993), females globally loose fewer disability-adjusted years (DALYs) from premature mortality than men, but the DALY loss from disability is similar for males and females in spite of under-reporting of illness by women. Sex-specific data on tropical parasitic and infectious diseases are higher

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for males than females. Disability-adjusted years lost to parasitic and infectious diseases are also higher for males (763.7) than for females (716.7) in sub-Saharan Africa (see WDR pages 216, 218). These figures are deceptive to a health program planner as they obscure other consequences of tropical diseases. Health cannot be divorced from the everyday lives of men and women and cannot be quantified purely in biomedical terms. The simple fact that women live longer than men masks unquantifiable disability and psycho-social consequences for women of tropical diseases such as leprosy, lymphatic filariasis, onchocerciasis, guinea worm and schistosomiasis. It also masks important qualitative differences in the way parasitic diseases affect the lives of men and women. Since determining gender-based mortality and morbidity has methodological difficulties (Freedman and Maine 1993), this paper shall examine the impact of tropical diseases in Nigeria on women’s social life and self-esteem, on their sexual health, on marriage and family life, and on anemia in women.

**Primary Health Care Program and Tropical Diseases**

With an estimated population of 49 million in 1988 in Nigeria, women and children make up over 50% of the population, and are the most vulnerable to economic hardship and disease. Health For All by the Year 2000 and beyond is the primary goal of Nigeria’s health services and the primary health care (PHC) system, and has been the focus of Nigeria’s Health Policy. While there has been inspiring progress in Nigeria’s Primary Health Care Program, a selective primary health care emphasis on infant mortality and women’s reproductive health has been pursued as the most promising approach to medical intervention. As a result, personnel and facilities for the detection of infections, documentation and treatment of parasitic diseases (with the exception of malaria) among women who attend clinics at the health centres are not provided for within the PHC program in Nigeria.

Women utilize the services provided for under the PHC program, particularly for child health and obstetrics services. In an onchocerciasis hyper-endemic community in Enugu State, women who had come to the only health centre in the community (24,000 inhabitants) were asked on three occasions their reasons for attending the clinic. Of the 53 (16-39 years old) women asked, 47 came because their children were sick, 5 were pregnant, and 1 had fever and diarrhoea. Nevertheless, 20 (38%) of these women had at least one clinical manifestation of onchocerciasis. When asked why they were not presenting their own health needs along with those of their children, a respondent observed, the services here (health centre) are for our children and diseases that affect them (naming poliomyelitis, tetanus, tuberculosis, measles). I am not aware that they (nurses) can treat filariasis. They do not remove nodules and doctors hardly come to our centre (Amazigo 1989, unpublished document).
Diseases that Affect Women’s Social Life and Self-Esteem

Because the dermis and the psyche share the same embryological origin, and are functionally intertwined (Van Moffaert 1992), skin disfigurement generates serious emotional distress in patients, affects their socio-economic activity (Jowett and Ryan 1985), and has an impact on bodily interaction and on sexual contact. The tropical diseases that cause visible disfigurement are guinea worm, leprosy, onchocerciasis, lymphatic filariasis and urinary schistosomiasis. They have strong psycho-social implications. Serious consideration should be given to gender issues in the planning of Nigeria’s training, services and preventive health programs. While these diseases affect the health and social lives of both men and women in Nigeria, the following questions must be addressed: (1) Does the impact of skin disfigurement on the social lives of men and women differ? (2) Do the cultural meanings and the emotional implications of these tropical diseases outweigh the burden of the clinical symptoms for women? and, (3) By paying attention to gender issues, can women’s health and tropical health programs be improved within the existing health services in Nigeria?

Stigma attached to skin disfigurement and disabilities often affect not only the individual, but also her family and friends (Amazigo and Obikeze 1991). In a recent study in Nigeria, Hellandendu (1992) examined how 143 individuals, (83 males and 60 females) coped with disability. Diseases and disabilities affecting the 60 disabled women were recorded as leprosy (UNFPA 1990), blindness (Bradley 1976), epilepsy (Edungbola et al. 1978), and 25 other women had different disabilities including chronic ulcer, paralysis of limbs and vesica-vaginal fistula. Disability affected the women’s chances of staying married depending on the extent to which “disability interferes with execution of household and farming activities”. As many as 43% of the women and only 20% of the men were either divorced or widowed. Disabled men were less prone to exploitation or deception while the disabled women were found to often fall prey to elderly men as husbands because they could not find a husband easily. The following case history illustrates the consequences of skin disfigurement on the marriage prospect and future life of adolescent females in rural Nigeria.

Case: Miss A. is a 23 year-old unmarried girl who has been treated for onchocerciasis by medical and traditional doctors for 13 of her 23 years. She is physically good looking except for the gross elephantiasis legs. In an in-depth interview, Miss A. disclosed that she has never been asked for marriage. This, according to her and others in Akpugoeze, is attributable to her disfigurement. Miss A. now has a three month old baby girl. According to her story, because of the social stigma attached to elephantiasis, and the fear of not being able to have children after a certain age, she fell prey to an old married man and became pregnant from the relationship. It was her decision to carry the pregnancy to term, for according to her, in my condition I thought I may not be able to get pregnant...when I found out that I was pregnant, I still was not sure I will survive the pregnancy (Amazigo and Onwurah, forthcoming).
**Onchocerciasis**

Onchocerciasis is the most economically devastating disease known to man and the second leading cause of blindness (Edungbola 1982). Unfortunately, there are no Nigerian studies examining the social and economic consequences of blindness on women’s domestic and economic roles, particularly among female-headed households. Blindness of a mother may have a disastrous effect on the family. As the demands on the blind mother increase, a daughter is kept from schooling and her domestic responsibilities increase. As a result of onchocerciasis, *the mother’s burden becomes the daughter’s sacrifice - a sacrifice much less frequently demanded of boys* (UNFPA 1990). In a study which examined factors influencing village abandonment, several interconnected factors were implicated but the continual presence of onchocerciasis and its vector was the most important factor (Bradley 1976). The disease was responsible for out-movement but significantly deterred in-movement into affected villages. Studies to examine the impact of village abandonment and of blindness on females, and of village abandonment on schooling and learning outcomes of school-age girls in northern Nigeria, are highly recommended.

In the rainforest endemic communities, blindness is not a common occurrence. However, unsightly lesions from acute and chronic papular dermatitis, lichenified onchodermatitis characterised by pruritic hyperpigmented hyperkeratotic plaques seen in teenagers and young adults of marriage age is shown to have emotional and socio-cultural dimensions of stigmatising illness. In a study to examine the socio-cultural consequences of onchodermatitis among adolescent girls in Nigeria, it was found that unmarried adolescent girls with skin lesions try to conceal their disease condition and shy away from school and social age grade activities (Amazigo and Obikeze 1991). Stigma attached to unsightly skin lesions from onchocerciasis affects the age at which a girl is married, and the types of friends she has, as well as disqualifies her from full social acceptance. In an on-going study in Etteh, Nigeria, exacerbation of skin lesions form papular onchodermatitis in pregnancy has been observed with an increase in gestational age (photographic documentation by Amazigo, 1990 is presented in Brabin and Brabin 1992). Because the interplay between socio-cultural and biological forces is often difficult to identify and quantify in epidemiological studies, in several of such studies done in Nigeria (Edungbola et al. 1978; Edungbola et al. 1983; Dipeolu and Gemade 1983), information on the socio-cultural dimensions of onchocerciasis is lacking; prevalence and intensity of infection have been observed to be higher in males than in females.

Sex differences have been attributed to difference in exposure to the bites of the blackfly vector (Edungbola et al. 1983) and in farming activities which supposedly took men into high transmission areas and for longer periods than women. Contrary to the findings of Remme et al. (1986), 52% of the agricultural labour force in Nigeria are women. In Southern Nigeria, women contribute the most labour to agricultural production (Okonjo 1988), spend more time in the high transmission zone and are certainly as exposed or even more exposed to the bites of tropical diseases vectors than men. Also, Okonjo observed in 1988 that *the responsibility for food production is increasingly being shifted to women as men*
move into lucrative fields (e.g. oil press) and to white collar jobs. Unfortunately, the definition of agricultural production as only cultivation excludes planting, weeding, harvesting, threshing, and winnowing which are predominantly carried out by women but are ignored in assessing exposure to the bites of vectors. Given the high rate of low-birth weight infants reported in studies done in northern Nigeria (Harrison 1985), studies on the effects of mixed infection of malaria and onchocerciasis on low-birth weight are desirable.

Lymphatic Filariasis and Leishmaniasis

In Nigeria, reports of lymphatic filariasis and leishmaniasis (Ukoli 1984) are scant, and differences by gender are not documented. Cases of genital involvement in females have rarely been reported. *Wuchereria bancrofti* is one of the species of filariae that infect men in Nigeria causing some of the most dreaded clinical complications - hydrocele and elephantiasis in which the scrotum and legs assume unsightly deformities of elephantine shape and size. As succinctly observed by Ukoli (Kisekka et al. 1992), while elephantiasis provokes pity from members of the community, hydrocele provokes laughter instead, to the embarrassment of the afflicted. The detrimental effects of lymphatic filariasis to the sexual health of Nigerian women would be difficult to document because of the unwillingness of adolescent females and women to undress for the predominantly male health workers or field researchers in Nigeria - women would likely be unwilling to have, as women in northern Nigeria put it, strange men gazing at their nakedness (Kisekka et al. 1992).

Leprosy

Globally, Nigeria ranks second after India in the number of leprosy cases per year. The disease is hyperendemic and centres are established in six states -- namely Edo, Cross-River, Akwa Ibom, Abia, Niger and Plateau States (Brightmer 1990; Asuquo 1993). The highest prevalence rates are found in communities in Northern Nigeria, where females are more susceptible than males (ratio = 1.5:1), contrary to observations in Southern Nigeria and probably due to cultural disposition of females. According to the results of an on-going study in Nigeria (Asuquo 1993), males contract the disease during interstate and inter-country travels and trading. Occupations most at risk are fishing, farming, and traders who are engaged in the transportation of tobacco to Cameroon.

Women become infected as a result of cohabitation with infected husbands, while adolescent females are exposed due to close association with mothers and grandmothers (Asuquo, personal communication). Multi-drug therapy (MDT) is the recommended treatment approach for patients. According to studies, children and adolescents (5-20 years old) have higher infection rates than adults in Akwa Ibom State. Higher susceptibility in the younger age groups seen in Akwa Ibom State may be due to early exposure to infection or the effectiveness of the State control program in identifying early cases (Brightmer 1990; Asuquo 1993). In any case, the epidemiological situation of leprosy in Akwa Ibom State deserves attention.
Leprosy has a devastating impact on schooling and on the marriage prospects of girls in some communities in Nigeria (Asuquo 1993). In a study in Nigeria, 200 leprosy patients from 6 communities in 3 states (Bendel, Abia and Cross River) were interviewed. The study revealed that leprosy was responsible for higher divorce rates in Ekun and Sapele than in other Nigerian communities. In these same communities, parents threaten to withdraw their healthy children from school if force teachers to expel affected girls and boys. The affected children who are forced to leave school usually take up menial jobs and/or marry early before deformities and disabilities ensue. As a result, affected adolescent girls face a high rate of divorce as soon as their conditions become visible“.

There is a dire need for Nigerian studies that examine depression or anxiety among leprosy patients, similar to studies done in India (Weiss et al. 1992). Studies examining adolescents, and the consequences of leprosy on schooling, cognitive function and academic performance of children are particularly important.

Using onchocerciasis as an example, the problems in controlling tropical diseases that disfigure are summarized in Figure 1.

**Tropical Diseases, Gender and Anemia**

Of the tropical parasitic diseases, malaria has received the most attention with well known published results of longitudinal studies and cross-sectional surveys done in Nigeria (Bruce-Chwatt 1952; Harrison 1985; Weiss et al. 1992). *Plasmodium falciparum* is the dominant parasite. In the Garki study (Weiss et al. 1992) similar parasite rates were reported for male and female children under 4 years old but lower parasite rates and densities were reported for female children above 4 years of age.

Malaria is highly endemic, therefore indigenous women acquire significant protective immunity during adolescence. Unlike most parasitic infections, however, any advantage in parasite clearance gained from continuous exposure to malaria are lost during pregnancy due to immune depression. Perhaps because of its danger and consequences for foetal life, impressive and well documented studies have been conducted in Nigeria on placental malaria, anemia and low birth weight due to malaria in pregnancy (Spitz 1959; Fleming et al. 1984; Obasi 1991). In studies on maternal malaria, reported figures on placental parasitaemia vary between 15-33% (Brabin 1991). Haemolysis in pregnancy stimulates erythroid hyperplasia especially in primigravidae, increasing folate requirement and causing anemia in women (Fleming et al. 1968). In a study of 228 young primigravidae seen at Zaria clinic, Fleming et al. (1984) reported that 43 percent of the women were anaemic (Hb < 11.0 gd-).

Falciparum malaria was present in 28% of the 228 women, but in 40% of the anaemic women. These are risks that men do not face: the risks inherent in pregnancy and childbirth. Further, studies by Harrison (1976) and Harrison and Ibeziako (1973) associated poor foetal

** For more information on leprosy, the reader may wish to contact Dr. M.A. Asuquo, National Institute for Medical Research, P.M.B. 2013, Yaba, Lagos.
nutrition to maternal anemia due to malaria. In spite of these impressive findings, studies on the efficacy and pharmaco-kinetics of antimalarial drugs, such as chloroquine and pyrimethamine, deserve more attention.

Anemia among adolescent females deserves special attention because of early marriage practices, poor nutritional habits of women and the cultural practice of feeding adolescent girls last within the family. Early marriage takes precedence over education among several ethnic groups where marriageability of girls at an early age is desired. School attendance requirements conflict with responsibilities that married girls have, with regard to domestic, outdoor and seasonal agricultural activities (Kisekka et al. 1992). According to the National Fertility Survey (Harrison and Ibeziako 1973), 24.3% of all marriages in Nigeria take place before 13 years of age, 37% by age 14, and 51.8% by the age of 15. More than 80 percent of women in Nigeria marry before the age of 20 years. Early marriage practices result in widespread adolescent pregnancy, high prevalence of anemia, low birth wight and
prenatal death, as demonstrated in the well known and impressive study by Harrison (1985). Therefore, gender issues in health are affected by variables such as education, sex and cultural health practices.

One of the most troubling problem in Nigeria’s policy on malaria control relates to sustainability and effectiveness of the country’s prenatal prophylaxis program. The nagging question is, how do we get pregnant women to accept and comply with prenatal chemoprophylaxis or other forms of preventive measures? How do we get women to our health centres for health education and treatment of malaria given the transportation costs, location of health clinics, as well as cultural restrictions? These persistent problems may be best addressed by adopting a women-centred strategy which would require additional measures such as:

- training more females in health services and in community-based research, and encouraging female community nurses to conduct home visits especially in communities where women are in seclusion for case detection and management, as part of the PHC malaria control program activities;
- encouraging researchers to understand socio-cultural barriers that may affect the delivery of health care, such as religion which may restrict women’s mobility, and intensifying appropriate information campaigns through existing national literacy programs;
- motivating women and women’s groups to participate actively in malaria control and listening to women; and,
- encouraging gender-oriented pharmaco-kinetic studies on antimalarial drugs.

Finally, very little is known about the role of women in the transmission of urban malaria, their perceptions about cerebral malaria, and early referrals in malaria management. The use of permethrin-impregnated curtains, bednets or mats is currently being studied in Nigeria (Salako 1993). Where treated bednets are accepted as a malaria vector control activity, its success will largely depend on compliance and cooperation of Nigerian women, since it is the women who have to bring the nets or curtains for redipping in insecticide.

**Tropical Diseases and Sexual Health of Women**

Of the tropical diseases that affect women’s sexual life, gender issues on schistosomiasis and guinea-worm deserve special mention in this paper.

**Schistosomiasis**

Schistosomiasis (bilharziasis) ranks second to malaria as a major cause of considerable morbidity, mortality and debility in humans. *S. haematobium* is more widely distributed in Nigeria than *S. mansoni* (Cowper 1973; Kisekka et al. 1992), and clinical infections of urinary schistosomiasis in children with visible haematuria has been reported in all parts of the country (Cowper 1973; Anya and Okafor 1986). Several of these studies have shown
that urinary schistosomiasis is widespread, focal and serious. The studies emphasized the rural nature of infection as well as its relationship with occupation. Although studies done in Nigeria show higher prevalence rates in males than females of all ages (Cowper 1973; Anya and Okafor 1986; Tanner 1989), it is difficult to arrive at a reasonable conclusion since there is considerable disagreement about the relationship between the presence of infection, extent of disability and/or development of disease (Tayo et al. 1980).

Studies done in Nigeria lack information on water contact and social risk factors that affect the epidemiology of urinary schistosomiasis, as well as the influence of gender and nutritional factors on morbidity. The only exception is the Malumfashi (Kaduna State) water contact study which found significantly lower infection rates among females than males because exposure rate was lower for females. The authors observed that females in Malumfashi remained secluded in their households and waited for the men to bring them water for cooking, washing...males were responsible for over 98 percent of the activity involving contamination from and exposure to water (Cowper 1963). What is required is a similar water contact study in non-Muslim communities where women are not in purdah, but rather, are as involved in agricultural and water contact activities as men. In Western and Eastern Nigeria, domestic activities keep adolescent girls and women exposed to water and infective cercaria for long hours, while personal water activities, such as bathing, expose boys to infection. For females, it is likely that activities with water would have a linear increase with age.

Clinical complications of schistosomiasis include anemia, cirrhosis, bilateral hydronephrosis (Cowper 1973), genital involvement, obstructive uropathy and hepatosplenomegaly. In chronic cases, schistosomiasis affects work capacity. It causes gross haematuria leading to severe iron loss (Gilles et al. 1965a), as well as anemia, a condition of serious implication for pregnant women. A number of studies in Nigeria have reported the presence of ova of S. haematobium in the genital tracts of females and have associated the disease with infertility and cancer (Olufemi 1967; Kisekka et al. 1992). In a study by Olufemi (1967), schistosomiasis was found responsible for postcoital bleeding, infertility, intermenstrual and postmenopausal bleeding and weight loss among women in Southern Nigeria. It was also reported that 60% of all carcinomas of the bladder seen in the Department of Pathology, University of Ibadan College Hospital, were associated with vesicular schistosomiasis.

Studies on the socio-cultural dimensions of schistosomiasis on adolescent females and women point to significant gender differences in morbidity and disability due to urinary schistosomiasis. In a study in Amagunze, Nigeria (Anago-Amanze, et al. forthcoming), it was found that the community regarded urinary schistosomiasis as a venereal disease. As a result, haematuria adversely affected the marriage prospects of adolescent girls, led to divorce in some cases, affected women's work capacity and their family responsibilities. Similarly, a 56 year-old female respondent in Aguleri, a hyperendemic community in Anambra State, Nigeria, had this to say about her experiences with urinary schistosomiasis during an in-depth interview:
...during your adolescent age when other girls are hurrying out of primary school waiting for suitors, you (the infected girl with haematuria) are busy convincing your parents and eligible male friends (bachelors) that the blood in your urine is not gonorrhoea contracted from a promiscuous lifestyle. When you finally get married, you complain of (postcoital) bleeding and irritation in the vagina. Therefore, you are unable to satisfy the sexual desires of your husband. Imagine your fate. Even when you are innocent, with these symptoms, who will believe you... (Nigerian Fertility Survey).

Because of the cultural meaning of schistosomiasis in this community, childless women and those without male offspring hide disease symptoms to avoid being sent away or being accused by their husbands of sexual misconduct. Social and clinical consequences of urinary schistosomiasis may encourage polygamy and contribute to the high proportion of female headed households. Estimates in Nigeria show that 42.6% of all married women are in polygamous unions, contrary to 56.7% who are in monogamous homes (Kisekka et al. 1991). While gender is given prominence and made the central issue in contraceptive and family planning programs, targeting women as objects of fertility control in the Federal Republic of Nigeria Policy (Nigeria Policy 1992), gender issues are not receiving any attention for diseases like schistosomiasis that leads to infertility. Gender has received no attention in the National Schistosomiasis Control Program.

**Guinea Worm**

The gender issues associated with guinea worm, another loathsome tropical disease, also deserve attention. Studies with impressive data exist in Nigeria on the impact of guinea worm on maternal and child health, primarily on pregnancy, lactation and child care (WASH field report 1988; The News 1993). The report of the Water and Sanitation for Health (WASH) Project in Nigeria provides information on guinea worm and gender. According to the report, guinea worm disease in women worsens in pregnancy, leads to loss of appetite, affects breastfeeding practices due to pain and fever, and adversely affects the quality of child care. Incapacitation due to guinea worm disease also prevent women from doing their work. Furthermore, incapacitation prevents women from taking advantage of antenatal services and taking infants to clinics for immunization (Brieger et al. 1989). In sum, guinea worm disease in a female member of the household affects general family health. Further, guinea worm among female-headed households in Nigeria has an additional impact on child health (The News 1993), and may affect the schooling and academic performance of girls who may have to abandon schooling to assume the role of child care with increased domestic responsibilities (WASH field report 1988). Unfortunately, we know very little about the consequences of guinea worm for females outside the reproductive age, particularly its effects on absenteeism, drop-out rates and learning outcomes of school-age females in Nigeria.

**Conclusion**

Significant gaps exist in our understanding of how schistosomiasis, onchocerciasis, guinea worm, lymphatic filariasis and leprosy affect the overall health status of women
during childhood, adolescence, and after reproductive age. Even the effects of the most prevalent of all tropical diseases, malaria, on the lives of women in Nigeria remain largely unknown. The most fundamental problem facing Nigeria is how to make choices for health care that address those health needs considered significant by the most vulnerable - rural women and women in the informal sector. The sensitivity of the government shown by decentralization of the PHC beyond state and local government to community and village levels, and placing emphasis on maternal and child health, is encouraging. However, this sensitivity should be extended to tropical health programs. This has recently been emphasized by the former Minister of Health, Olikoye Ransome-Kuti: We are not identifying the real problems of the nation and tackling them. You see, we should define our objectives. What do we want to do?...If we want to tackle our problems, then we should write down our problems; measles, whooping cough, polio, diarrhoea, guinea-worm, tuberculosis, leprosy, river-blindness then we say, each of them, how do we set up a system to tackle them...." (The News 1993). Interestingly, of the eight diseases mentioned by the Minister, three are disfiguring tropical diseases which have been targeted by the World Health Organization, and for which gender issues have been a neglected dimension.

There must be a political commitment in Nigeria to the notion that certain tropical diseases (schistosomiasis, guinea worm, malaria, onchocerciasis and leprosy) are still very much around, and cause significant morbidity and disability in females of all age groups; and that alleviating illness among women shall yield high returns for the nation in sustainable development.

**Recommendations**

The Nigerian effort to eradicate guinea worm is a successful example of a cost-effective health intervention program on prevention. With the advent of praziquantel, abendazole and ivermectin, efforts to eradicate schistosomiasis, the common helminths, onchocerciasis and lymphatic filariasis, should be made cost-effective in the following ways:

- Integrating tropical disease drug distribution activities into the PHC program as this would save imposing additional cost related to infrastructure and personnel.

- The design of the PHC services should be made sensitive to the stigmas surrounding diseases that damage the skin.

- Nigeria should, as a matter of urgency, set up a viable school-based health intervention for mass treatment of children with anti-helminths and micronutrient supplementation. In addition, in communities endemic for onchocerciasis and schistosomiasis, ivermectin and praziquantel should be added to the program.

- Praziquantel and other new drugs should be made affordable to women and accessible through other local channels.
The government should make efforts to assume the role of empowering women to help create solutions to women's health problems. A way to achieve this is to encourage dialogue with women's groups. Further, it is important to include instructions on women's health in the national curriculum designed for the female literacy programs. Because we have not been able to design tropical health education programs acceptable to women and women's groups (e.g. Better Life for Rural Women, National Council of Women Societies), to help them appreciate the importance of parasites for healthy growth, interventions aimed at village level grind to a halt when initiators leave.

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The importance of acknowledging local understanding of disease was stressed. Quite often, a proper medical explanation of the particular disease may not be known, but the community may still know what to do. Women often know the symptoms of dangerous diseases. They may nag their husbands to bring the ill household member to the hospital. Mothers also teach their children prevention strategies - for example, they may tell them not to play in lakes. When doing research, it is important to find out the perceptions that the women in the community have about the disease in question, and their suggested solutions.

There are many similarities in perceptions and beliefs, as well as disease patterns, from country to country. One participant pointed out that many of the results from Dr. Anyangwe’s study in Cameroon are very similar to reported results from the coast of Kenya.

It is crucial to identify those who are most likely to be exposed to mosquitoes during peak mosquito-biting periods. Women’s work may predispose them to being bitten more than men during peak biting periods. For example, women may wake up at 2 or 3 a.m. to head off for the market, or they may stay up late at night preparing meals. These activities may put them at a higher risk for disease.

Women are much more affected by malaria than men. If a woman’s child is ill, she is going to lose days at work. If she is ill, it is going to take longer to get her to the hospital, and she will likely go back to work before she is fully recovered.

The male of the household may make crucial decisions with regard to malaria prevention and treatment. For example, he may ultimately decide whether or not there will be a mosquito net. He may also determine when and where to get treatment.

Despite the abundance of clinical and technical information, diseases continue to proliferate. There was considerable discussion on the necessity of fully addressing the socio-economic dimensions of disease. Health recommendations need to be meshed with larger recommendations concerning poverty. Higher rates of certain diseases in women may be related to poverty and weakened immunological status, and not simply because they are women. Also, socio-economic status may be a determinant of the likelihood of exposure.

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This discussion report incorporates comments raised during the discussion period for both Dr. Uche Amazigo and Dr. Stella Anyangwe.
Another fundamental economic issue pertains to the distribution of scarce resources. Often times, there may a complete lack or severe shortage of drugs. There is a need to develop more cost effective interventions.

- There was a call for a change in the epistemology of research, with an increased recognition of crucial gender dimensions. For example, researchers need to identify whether their team of researchers is made up of men, women, or a combination of both sexes. Young girls and women may resist male researchers. It was also noted that teams with females researchers reinforce the notion that women, as well as men, can be researchers.

- There continues to be a problem of disease identification by community members, as well as difficulties in determining what diseases are treatable and how. There is a great deal of biomedical research on malaria and plenty of valuable information concerning prevention and treatment strategies. This information often doesn’t get transmitted to the people/community who most need it. More work is needed with regard to linkages to the community.

- Finally, more attention should be placed on the way in which environmental degradation can impact on women’s lives. For example, tropical diseases are often a sign of ecological damage.