

# Situation of Sexually Transmitted infections (STIs) in Sudan

**Keywords:** genital herpes, contraceptive pills, pregnancy, curative measures, disease, gonorrhoea, blood products, neisseria gonorrhoea, condoms, HIV transmission, sharing foods, sexual intercourse, rural women, perinatal deaths

**Abbreviations:** STIs, sexually transmitted infections; RTIs, reproductive tract infections; PIDs, pelvic inflammatory diseases, NGU, non-gonococcal urethritis; SNAP, Sudan national AIDS program, UNDP, United nations development program

## General information

Sudan is a vast country in sub-Saharan Africa with a total population of around 39.2 million persons. Of the total population, rural population formed about 63.2%, urban 29.8% and nomads 7%.<sup>1</sup> Sudan has a prominent diversity in, culture, religion, languages and ethnicity. Sudan has experienced long-term ethnic and political conflicts; some of them are still ongoing in Dar Fur, South Kordofan and the Blue Nile states. Sudan is bounded by nine countries, some of them having a high prevalence of HIV infection and acquired AIDS. Due to political instability and conflicts in some of the Sudan neighboring countries, Sudan currently hosts around two million refugees reside in the eastern and southern parts of Sudan, some of them engaged in the labour forces. This situation makes Sudan at risk for an increase in the prevalence of STIs including HIV/AIDS. The first case of HIV/AIDS in Sudan was reported in 1986 and in 2002 the total number of cases reported had increased to 4004, representing a seropositive prevalence of 1.6%. The main mode of HIV transmission is heterosexual accounting for 97% of HIV positive cases.<sup>2</sup> STIs are a major public health problem in all regions of the world. WHO estimated in 2005 that about 448 million curable infections occur every year worldwide in adult men and women.<sup>3</sup> Sexually transmitted infections (STIs) are defined as infections that spread primarily through person-to-person sexual contact. However, other infections, in particular HIV/AIDS, syphilis and hepatitis B, can also be transmitted via mother-to-child-transmission during pregnancy, childbirth and lactation, blood products and tissue transfer. There are more than 30 different sexually transmitted bacteria, viruses and parasites responsible for STIs.<sup>4</sup> STIs should be distinguished from reproductive tract infections (RTIs). RTIs are defined as infection of the genital organs and include endogenous infection such as bacterial vaginosis and vulvovaginitis candidiasis. These two infections are mostly not sexually transmitted and they can occur in women who have never had a sexual relationship. Some factors may increase the risk of endogenous infections e.g. intake of antibiotics or contraceptive pills; pregnancy; uncontrolled diabetes or low immunity system.<sup>5</sup>

STIs and their complications are among the most important causes of illness and death for women in the developing countries. STIs are associated with an increased risk of both acquisition and transmission of HIV. Untreated chlamydia infection is estimated to be the cause of at least a third of female infertility. Also, women who have had pelvic inflammatory diseases (PIDs) are six to ten times more likely to have an ectopic pregnancy than those who have not had one. Untreated maternal syphilis infection may lead to stillbirth and neonatal deaths. Up to 35% of pregnancies among women with untreated gonococcal

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infection result in spontaneous abortions, premature deliveries, and up to 10% of perinatal deaths.<sup>4</sup> In some women, gonorrhoea symptoms are so mild that they go unnoticed. Many women with gonorrhoea discharge think they have a yeast infection and self-treat with medications purchased over the counter. Because vaginal discharge can be a sign of a number of different problems, it is best to always seek the advice of a doctor to ensure correct diagnosis and treatment.<sup>6</sup> Gonorrhoea may also be spread by contact with infected bodily fluid, so that an infected mother can pass on the infection to her newborn during childbirth. Once the gonorrhoea bacteria come into contact with the eyes of the newborn, the process may end with acute conjunctivitis.<sup>7</sup> In addition many people are infected with non-curable STIs, mainly viral diseases such as HIV/AIDS, hepatitis B or genital herpes. About 536 million people aged 15-49 were estimated to be living with herpes simplex virus type 2 worldwide in 200.<sup>8</sup>

## Knowledge and modes of transmission of STIs in Sudan

Information available on STIs in Sudan is very limited. The social stigma attached to these diseases, prevents proper dissemination of basic knowledge about the disease. Information was sought on knowledge of ever-married women on HIV/AIDS, and two symptoms of other STIs.<sup>5</sup> The survey sought to know whether women have heard of these conditions, and their knowledge about mode of transmission, preventive and curative measures. Overall, 43% of women have heard of AIDS. The awareness of AIDS is particularly poor among rural women, only 28% of them have heard of AIDS. There are also large differentials in knowledge by education, 95% of women with secondary education and above have heard about AIDS compared with 22% of illiterate women.<sup>9</sup> 91% of women who have heard about AIDS reported sexual intercourse as the main mode of transmission. An overwhelming majority 83% has reported that AIDS could be avoided by having only one sexual partner. 94% suggested use of disposable syringes, and 37% use of condoms as methods of STIs prevention.<sup>9</sup> Only 30% of women heard about genital ulcer. With regard to mode of HIV transmission, 59% of women reported sexual intercourse as a main mode.<sup>5</sup>

### Quite a few women had misconceptions about the mode of HIV transmission, such as contaminated toilet (24%), contact with AIDS patients (17%).

51% of women reported awareness of abnormal vaginal discharge. 42% of rural women are aware about abnormal vaginal discharge compared with 66% of urban women.<sup>9</sup> A survey conducted in 2006 shows 70% of women age 15-49 years heard about AIDS, awareness about AIDS is low among illiterate women compared with educated ones, 49.6% vs 90.5%.<sup>6</sup> Regarding mode of HIV transmission 51.5% admitted sexual intercourse, 39.7 through contaminated blood transfusion and 38.8 through injectable. Only 7.5% of women mentioned use of condoms protects HIV transmission, 12.9% mentioned insect bite can transmit HIV and 1.6% stated that sharing foods and eating with people affected by AIDS can help HIV transmission. 54% of women are aware about HIV vertical transmission. Awareness of vertical HIV transmission is 29.7% among illiterate women vs. 85% among literate ones.<sup>10</sup> 87% of men age 15-24 years has heard of HIV/AIDS which is similar to men age 15-49 years, and the comprehensive knowledge about HIV prevention is 11% for men age 12-24 and 12% of those age 15-49 years.<sup>11</sup> A cross-sectional study on knowledge of AIDS was carried out in 2007 among a census of dental students in six dental faculties in Khartoum, the capital of Sudan. Lectures and Radio/TV were the most frequently reported sources of information related to HIV/AIDS as reported by 61% and 44% of the students. 47.6% of students confirmed a need for further education across topics related to HIV/AIDS. 97% of students mentioned HIV transmission through contaminated blood transfusion. About half the students recognized condoms use as a safe method of preventing transmission of HIV.<sup>12</sup>

### The epidemiology of STIs in Sudan

Although STIs cause much morbidity, mental ill-health and social problems, yet they are currently being neglected in many developing countries. There are few facilities for correct diagnosis and treatment. In Sudan case, there are no adequate statistics and enough studies, have been done to determine the dimensions of STIs status. To estimate the prevalence of STIs among women in a Sudanese community, 338 women with ages ranging from 15 to 69 years were randomly selected and studied. The results showed that trichomoniasis was found in 7.7%, gonorrhoea in 1.2%, HIV in 1.2% and syphilis in 0.9% of the subjects.<sup>13</sup> A study was conducted in two venereal diseases clinics in Khartoum (the capital of Sudan) to assess the STIs in Sudanese males. Out of the total 138 patients referred to the clinic with a referral diagnosis of STIs, 61 patients (47.1%) were found not to be suffering from any STI. Among male adult patients, non-gonococcal urethritis (NGU) was the commonest STI encountered (35.1%), next came gonococcal urethritis (25.9%). Syphilis accounted for only 1.3% of the cases investigated. Most of the patients with STIs were in the age range 20-39 years. Of the infected patients 49.3% had their infections from prostitutes. Nearly half of the patients examined and found infected with STIs were in the low-paid socioeconomic group; and 71.4% of them were single.<sup>14</sup> Underprivileged pregnant women attending antenatal clinic for routine checkups in displaced camps, a women's prison and several peripheral health centres were clinically and laboratory screened for STIs other than HIV/AIDS. A total of 426 women with an age range of 14-45 were included. Clinical data, blood, cervical and vaginal swabs were collected. All attendees were HIV/1/2-negative. The prevalence of trichomonas vaginalis was found to be 7.8%, chlamydia trichomatis 49%, Neisseria Gonorrhoea 0% and

treponema pallidum 5%. Although vaginal discharge, among other symptoms, is known to be the most significant indicator for STIs, in this study the authors stated that their identified predictive value was only 14.1%. They concluded that the use of syndromic approach for diagnosing and treating attendees of antenatal settings is of low clinical value and many easily curable STIs will be overlooked.<sup>15</sup> The number of HIV infected cases is reported to have risen to more than 7,245 in 2000 of which there are 3,638 AIDS cases.<sup>9</sup> In all these cases, heterosexual activity accounts for more than 95.5%. The possibility of further increase of STIs in Sudan is higher as Sudan shares border with nine African countries, 6 of which have the highest prevalence of STIs/ HIV/AIDS.

### STIs Prevention and Control

The government of Sudan includes STIs in RH top priorities since 1990s. Currently due to unexplained reasons the government is focusing mainly on HIV/AIDS issues and to some extent hepatitis B virus and syphilis. The Sudan national AIDS Program (SNAP) is the technical body with the responsibility for national policy, planning and coordination. With a focus on reducing HIV transmission and HIV mortality, and under SNAP control and with support of the United Nations Development Program (UNDP), by the end of 2011, there were 144 VCT centres; 30 ART centres and 80 PMTCT sites.<sup>16</sup> The services in all these sites are free and based on WHO guidelines and recommendations. Considering the relative advantage of reaching the community, since 1996 the NGOs in Sudan are involved in the HIV activities, particularly raising awareness and conducted selected outreach interventions for HIV key and vulnerable populations. In spite of these efforts, recent research suggested that HIV/AIDS continues to spread in Sudan with prevalence likely to reach 1.2 per cent of the population by 2015, almost double what it was in 2009.<sup>17</sup> Other than HIV/AIDS, the most widely known STIs are gonorrhoea, syphilis, chlamydia and trichomoniasis. The relation between HIV and other STIs makes it even more urgent to prevent and control curable STIs. Syndromic case management is consistently applied at any first-level health facility, such as health centre, rural hospital or STIs clinic. The result of integrating the management of STIs in the primary health care and adoption of syndromic case management, the number of STIs treated cases increased from 35,263 in 2009 to 89,625 in 2011.<sup>16</sup>

### Conclusion

The number of HIV infected cases and AIDS cases are lower in Sudan, comparing with the neighbouring African countries, but are expected to increase in spite of the efforts the government shows in the prevention and treatment aspects. This assumption is based on the political and security instability in Sudan and its neighbouring ones. High influx of refugees from the neighbouring countries, engagement in the workforce and contact with the local populations can worsen the status of STIs in Sudan. There are high differentials in knowledge and attitudes towards HIV/AIDS between urban and rural, literate and illiterate populations. The exact magnitude of the STIs burden in Sudan is unknown, as the data is inadequate and not always reliable. Moreover, only part of the symptomatic populations seeks health care. In many Sudanese communities with a high illiteracy among women, the social stigma that usually associated with STIs may result on people seeking care from alternative providers or not seeking care at all. The result of such attitudes is that the most serious complications and long term consequences of untreated STIs tend to

be in women and their newborns. The most prevalent STIs in Sudan, other than HIV/AIDS, are gonorrhoea, trichomoniasis, chlamydia and syphilis. The most frequent transmission mechanism of STIs is heterosexual relations. Under SNAP control and with support from UNDP many VCT and ART centres were established. The national NGOs are involved in community mobilization to raise awareness in prevention of STIs including HIV/AIDS. The present findings of STIs might serve as a wakeup call for the concerned bodies, and stimulate researchers to explore further how to enrich the STIs data and hence, improve the STIs status in Sudan.

## Acknowledgements

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## Conflict of interest

The author declares there is no conflict of interest.

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