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Knowledge of HIV/AIDS and Risky Behaviour in Young People

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Abstract

Given the current state of bio-medical science and the alarming rates of the HIV/AIDS pandemic in sub-Saharan Africa (SSA), the only workable way of successfully managing the disease is through prevention. Prevention includes educational and information strategies as well as appropriate behaviour emanating from such knowledge. In contrast to other diseases such as malaria, which is spread by intermediate vectors, or TB, spread by causal interpersonal contacts, a sexually transmitted disease (STD) such as HIV/AIDS implies a voluntary activity subject to control by rational individuals. Thus, a welfare-improving government intervention can be well established for the first two diseases, while STDs, including HIV/AIDS, behavioural science insights alongside epidemiological dynamics are needed for effective public interventions. In SSA, this knowledge has not been transformed into adequate behavioural change. Some insights from behavioural science can explain this gap and is the general thrust of this paper.

Introduction

Since the identification of Acquired Immune Deficiency Syndrome (AIDS) in June 1981, seventeen million sub-Saharan Africans have succumbed to the disease. Although the impact of AIDS is worldwide with 40 million people infected (UNAIDS 2002), the figures for sub-Saharan Africa (SSA) are alarming, with 28.5 million infected and 2.2 million deaths in 2001.

The cause of such differences between SSA and the rest of the world is the seamless web of interrelationships between the poverty levels and the resultant lack of development. One of the reasons why Africa has a much higher infection rate than any other region in the world is the relationship between poverty and poor health. One of the determinants of poverty is the low health status of poor people and lack of access to health facilities, including HIV/AIDS treatment.

In fact, given the financial resources needed to meet health needs and current poverty levels in SSA, where nearly 50% of the people live on less than \$US 1 a day, domestic resource mobilization is seriously limited and foreign aid is not forthcoming in adequate amounts (ADF, UNECA 1999). The current level of foreign aid combined with domestic resources is not sufficient to deal with the health crisis facing the continent. Thus, the so far elusive cure for AIDS and the present cost of treatment render SSA countries particularly vulnerable.

However, a closer look at available data provides some hope for managing the devastating effects of HIV/AIDS on SSA economies. First of all, at the global level, treatment of HIV/AIDS is both through the provision of care for the infected and prevention programmes for the population in general. Although the prevalence rates are high in SSA (8-10%), approximately 90% of the population is not infected.

Thus, prevention of the spread of the disease is the most cost-effective strategy to pursue. Prevention strategies should particularly target young people, as they are the most vulnerable to infection. The prevention strategies are usually knowledge and education oriented, adapted to country-specific needs and involving partnerships both with local civil society and international organizations (UNAIDS 2002). The prevention strategies combine society-wide programmes with particular focus on those parts of the population most at risk. An important element suggested by UNAIDS (UNAIDS 2002) is that whatever the extent of the spread of the disease, complacency is never productive and a focus on young people is a necessity since most infections occur just after adolescence.

In this context, condoms are key to preventing the spread of HIV/AIDS. The US National Institute of Health and the US Center for Disease Control and Prevention conducted an extensive review of available studies and confirmed that condoms are an effective means of control of sexually transmitted diseases, including HIV/AIDS. Without access to condoms, education and behavioural change lose much of their potential effectiveness. An estimated 6-9 billion condoms are distributed annually and estimated supply should be 8-24 billion per year.

To overcome this supply gap, the United Nations in partnership with public and private donors is trying to bridge the gap. The estimated costs will increase from \$US 239 million in 2000 to \$US 577 million in 2015 (UNAIDS 2002). The key word is access¹ and in SSA the condom gap has been estimated at 2-13 billion per year. For an effective prevention strategy, either through “political” costing or free of charge, condoms are a necessary corollary of education and knowledge dissemination.

However, and this is the point of this paper, supply of condoms is not the only determinant of non-risky sexual behaviour. There is need for a “comprehensive” package that includes education, training, marketing as well as counseling for those infected and for the young population at large. The transformation of risky sexual behaviour to non-risky behaviour is not only dependent on the availability and use of condoms, especially in young people, but on the ability to make a rational choice based on a trade-off between short-term benefits and long-term costs.

In this respect, little research has been done on the lack of behavioural change, given the present knowledge of how HIV/AIDS is transmitted. Behavioural studies have yielded some insights on why “knowledge” is not necessarily transformed into appropriate action. This has been done for a variety of human activity, including sexual behaviour, although little work has been applied to SSA.

The rational-based model most often used to explain behavioural patterns is the framework used in this paper. The first section is an empirical analysis of the characteristics of HIV/AIDS prevalence in SSA and a concise review of applied behavioural models in the same region. The second section is a review of the rational-model as explanatory of risky behaviour and gives the limits of such a model. The third section proposes policy recommendations emanating from the discussion.

1. Empirical Data on Risky Sexual Behaviour in SSA

It is important that although most programmes are country-specific, a set of measured behaviours is comparable across locations. There have been attempts to standardize indicators, yet not to the extent of risk-level comparability across countries (UNAIDS 2002). Besides the “classical” trio of indicators, namely number of sexual partners, condom use, and age of sexual inception, knowledge that a healthy person can be infected has been added. These indicators, although not comprehensive in any way, give a number of insights that capture behaviour trends across time and can monitor impact of prevention strategies.

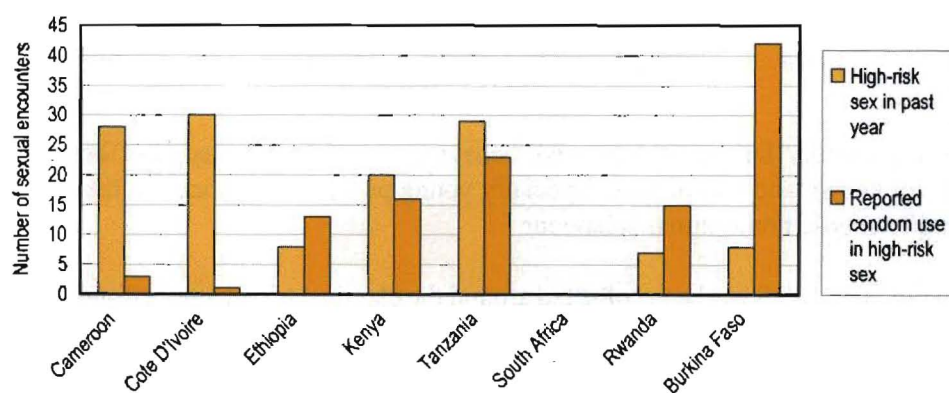
The “classical” trio are important since the age of sexual inception determines the age at which exposure to risk is first noted. The number of sexual partners and the use of condoms determine potential exposure

1 Here, “access” is an all encompassing concept, which includes education, cost and logistics.

to the HIV virus, whilst knowledge of the existence of healthy yet infected people tries to capture a more complex cognisance of how the disease can be transmitted even if physical symptoms are not present and of the resultant risks in stable partnership relationships.

Table 1 gives data on women between 15 and 49 who reported a high sexual risk encounter in the past year against data on condom use in high-risk encounters. There seems to be risk-taking activity by women (15-49) independent of the variation in HIV prevalence rates across countries. The exception seems to be Burkina Faso and Ethiopia where condom use is high, showing some effect on behavioural change of the prevention strategies used there. For any meaningful analysis, these figures must be placed within the context of knowledge of transmission of the virus in these countries.

Table 1: High-risk sex against condom use in selected SSA countries (Women)



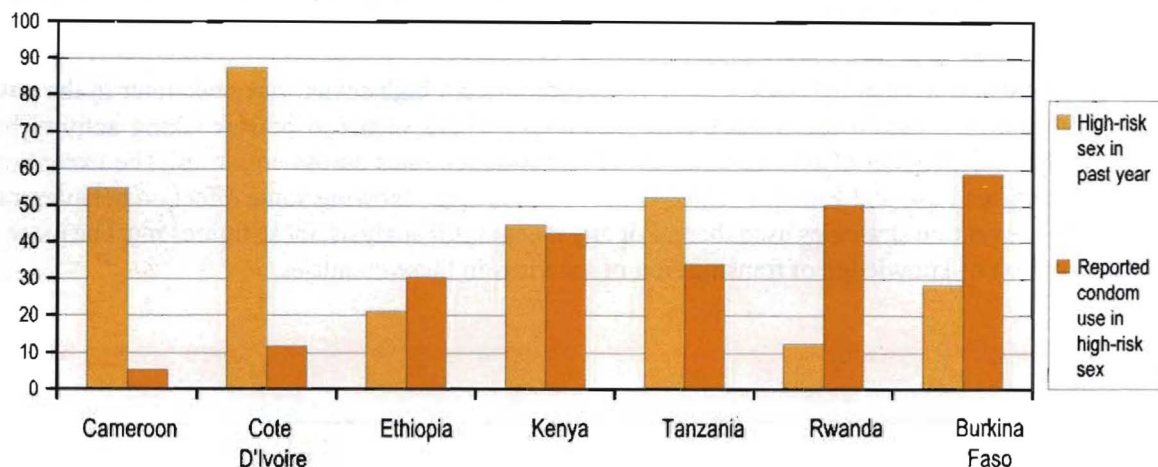
Source: UNAIDS 2002

Some studies show that women are the most vulnerable group affected by HIV/AIDS because they lack negotiating power in sexual transactions. This is further exacerbated by the poverty level of women, the majority in SSA populations, making them more likely to have risky² sex, notwithstanding knowledge of transmission (Booyesen 2002).

If the same figures are plotted for men (15-49), the picture does change but not substantially. In fact, table 2 has a similar pattern for the same countries again with the exception of Burkina Faso, Kenya and Rwanda. Men seem to be more conscious of the risk and are more proactive in negotiating use of condoms in high-risk sexual activity, but the point still remains that high-risk behaviour is still common for both males and females in SSA.

² Risky behaviour can be defined as the situation wherein, despite knowledge of the dangers of certain human activity, the pattern of human action follows the dangerous path rather than the path of expected non-risky behaviour.

Table 2: High-risk sex against condom use in selected SSA countries (Men)

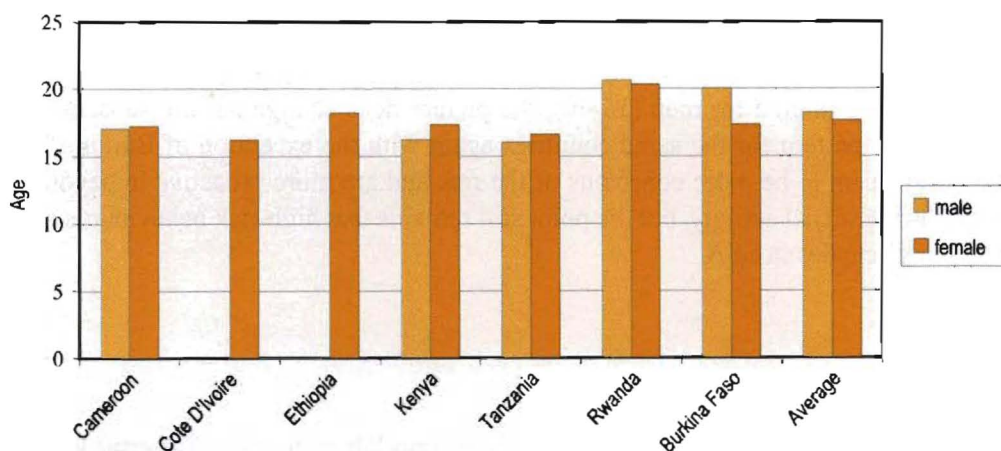


Source: UNAIDS 2002

Two possible explanatory factors for high-risk behaviour are that knowledge of how HIV/AIDS is transmitted is not known and that people, especially young people, do not act in a rational manner and seemingly tend to choose non-optimal behaviour.

Knowledge about HIV/AIDS has been collected around the classical trio mentioned above, and is shown in table 3 for selected SSA countries. Again, using the same countries for comparability purposes, the age of sexual inception in the selected SSA countries does differ but not significantly from Western Europe or Eastern Europe. The approximate average is 18 years for men and 18.5 for women (see table 3) although there are a large number of adolescents who begin at a younger age (UNICEF 1998-2001).

Table 3: Median age at first sexual encounter

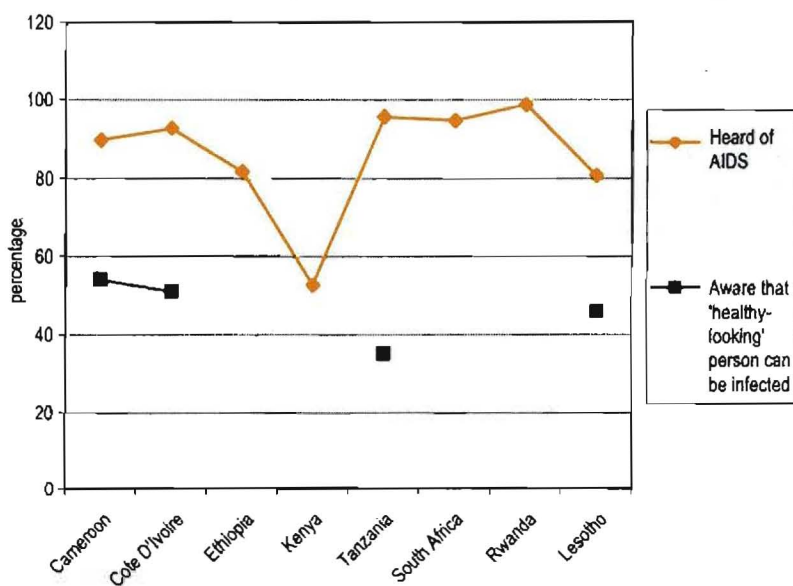


Source: UNAIDS 2002

If knowledge about HIV/AIDS is taken into account for the same countries, with the addition of Lesotho, then the picture becomes clearer. As stated by UNAIDS (UNAIDS 2002), knowledge is not enough to have behavioural change. A more profound knowledge of how HIV/AIDS is transmitted, operationalized through awareness that a healthy-looking person can be infected, is also plotted against the countries selected. As can be seen, the percentage again reveals high cognizance of the disease and its transmission.

As can be seen from table 4, the knowledge of HIV/AIDS among young women is very high and, although awareness is much less, it is still relatively high. The question still remains that if knowledge, and to a lesser extent, awareness is high, why has this not transformed into behavioural change, given the efforts in dissemination and information taking place in SSA?

Table 4: Knowledge indicators on HIV/AIDS in 15-24 years group (female)



Source: UNAIDS 2002

A recent United Nations publication (UN 2002) shows that although there are a number of African countries where female respondents do not know ways of avoiding AIDS, the general knowledge of transmission is relatively high. Condom use and monogamy were the most often cited safe behaviour. Yet, this awareness of condom use was not equivalent to their use and the discrepancy between the reported level of knowledge of condoms and the spontaneous references to AIDS prevention suggested that women use condoms primarily as contraceptives rather than prophylactics. Fewer than 8% of women in all countries surveyed reported that they use condoms and among married women the percentages were particularly low.

Thus, the gap between knowledge and behavioural change remains a key area of investigation. In practically all the countries surveyed, including those in which HIV prevalence is high, at least two-thirds of women and 8 out of 10 males said that they are either not at risk at all or take only a small risk.

Seemingly, many young people do not link knowledge and risk perception with behaviour. In more rigorous terms, understanding “coping strategies” by young people faced with risk is crucial, if HIV/AIDS as a disease intimately linked to risk, is to be prevented. The “rational choice” model attempts to answer queries on how behaviour is linked to risk aversion and utility maximization.

2. The Rational Choice Model

Because HIV/AIDS transmission is propelled by behavioural factors, theories about how individuals change their behaviour provide the foundation for most HIV-prevention strategies.

The major theories have been:

- Health belief model.
- Social cognitive model
- Theory of reasoned action
- Stages of change model
- AIDS-reduction model

Firstly, the overall thrust of these models was developed in the West, without particular attention to SSA where higher prevalence rates exist. Secondly the lack of studies applied to SSA does not fully explain why some populations or groups within populations have higher prevalence than others, nor the interaction between contextual/environmental factors and individual responses.

As is to be expected, there is some overlap between the different models. This paper will emphasize the theory of reasoned action and the AIDS- reduction model. This is because the main insights and issues raised by recent research on risky behaviour in adolescents have applied the rational model of reasoning³. Both models derive their conclusions from well-being and utility functions, which are appropriate to the analysis used in this paper.

The transmission of HIV/AIDS through risky sexual behaviour cannot be solely attributed to erratic behaviour. It is more likely that rational people incorporate some form of trade-off between the extra satisfaction from having unrestrained sex and the associated costs of risk bearing in their decision-making process. The analysis of sexual behaviour incorporates three factors: inducement, risk and transmission. The inducement factor is a positive instantaneous utility differential between risky and risk-free sex.

3 Thaler (1992); Camerer (1995) and Rabin (1998) give a general overview of topics studied by behavioural economists.

In other words, the disutility associated with the deterioration in quality of life rises with the prevalence of infection in the peer group of the decision maker. The risky behaviour falls when the close peer group has a high prevalence rate, which is observable to the decision maker (A. Levy 2001).

The care and prevention strategies applied and the research that has been done has, by and large, focused on the risk and transmission factors rather than the inducing aspects. The drugs developed so far against the AIDS virus slow deterioration in the quality of life and increases the life expectancy of people living with AIDS. The consequences have benefited a small rich fraction of the population in SSA, and led to complacency on the inducement and transmission factors.

The inducement factor, which opens up an array of policy implications, is crucial, especially among young people, and even more so among young people in SSA. Risky or risk-free sexual behaviour by young people, although following the utility-maximizing principles, does have a number of peculiarities that give further insights into which the inducement factor outweighs, to a certain extent, the risk and transmission aspects.

In terms of utility maximization, the assumption is that a person's overall well-being is determined by adding up aspects of well being at each moment. In formal terms, this can be represented as follows:

$$W^t = \sum_{T=t}^T \left(\sum_{s \in S_t} p_T(s) u_T(s) \right) \dots\dots\dots(1)$$

W^t is overall well-being from the perspective of period t and for $s \in S_t$ $p_t(s)$ and $u_t(s)$ are the probability of state s and instantaneous utility function in state s respectively.

This is a general situation for making rational decisions when assessing individual behavioural paths. There are two elements that have to be taken into consideration in applying the well being formula. The first is that of discounting future consequences of present actions where the summation of instantaneous utility is rather limited.

This leads to a distinction between marginal costs and benefits over a life span of "well being". There is a probable lack of distinction in costs and benefits instantaneously. Yet, over a period of time, the cost could be high and therefore discount rates over a long period become crucial. The second is that psychological profiles of adolescents in general, and in SSA in particular, give further insights into the rational choice model.

The evidence of the literature shows that adolescents are similar to adults in terms of their ability to carry out decisions. What does seem to differ between adults and young people is how they value the consequences of decisions taken. The psychological factors that best represent adolescents are identity formation, including sexual identity, and establishing autonomy and independence.

Many studies have found that youths tend to score higher than adults on sensation-seeking and risk-taking behaviour.⁴ In terms of our well-being model, if a young person engages in some risky behaviour to prove his identity and/or to please his peers then he/she has positive marginal utility from such behaviour.

The choice between risky and risk-free sex involves a trade-off between the short-term sexual pleasure and the long-term cost. For example, to smoke cigarettes involves the short-term benefits of consumption and the long-term costs to future health. Since we consider behavioural patterns as reflecting rational choices of maximizing utility, then we need to introduce the concept of discounting in our basic model. A discount function often serves as a useful reduced form to capture uncertainties, for example, the probability of death or severe illness.

The formalization of the above can be shown as follows. Suppose the only uncertainty that matters is whether a person is alive or dead. Suppose further that the probability of dying between periods T and $T+1$ is q . From the perspective of period 1 , the probability of being alive in period T is $(1-q)^T$. Thus, the above equation 1 can be written as:

$$W^1 = \sum_{T=1}^T \delta^T u_T(\text{alive}) \text{ where } \delta \equiv 1 - q \dots\dots\dots(2)$$

While the above formulation assumes time-inconsistent preference for immediate gratification in the trade-off between short-term and long-term consequences, young people tend to satisfy immediate needs in a way that they do not like from a long-term perspective. In other words, young people are unable on a moment-by-moment basis to behave in their own long-term interest.

This in turn implies a time-inconsistent taste for immediate gratification. Young people engage in some indulgent behaviour at the present moment, while at the same time they would prefer not to engage in the same behaviour in the future.

A critical point of this model is the discount rate applicable in estimating the trade-off between short-term actions and long-term consequences. The discount rate for adults and adolescents is intuitively different, given personal and peer pressures. Youths and adults might indulge in risky behaviour, but adolescents might perceive greater benefits due to secondary considerations particular to young people such as peer pressure and group identity. Also, youths and adults face different opportunity sets with professional and personal constraints. Thus, risky behaviour such as drugs and/or unprotected sex does not have the same inducement factor.

The discounting factor is very difficult to calculate, because of its time specificity and the political environment in which such decisions take place. There is no doubt that a discount rate for an adult is totally different from that for an adolescent, given the adult's life expectancy and the stable political environment. An adult is generally psychologically more stable and has job, family and societal

4 See Zuckerman, Eyseneck and Eyseneck (1978) and Arnett (1994).

constraints that render long-term consequences of any action much closer to present action. This obviously has implications in the discount rate for imputing trade-offs between current activity and long-term costs, for any activity including risky behaviour.

In SSA, the discount rate is further affected by the generally low life expectancy, which intuitively has a large impact on assessing the long-term consequences of current risky behaviour. The low life expectancy in SSA of 48.8 years (UNDP, 2002) gives a low perspective of long-term costs. This in turn can affect the discount rate, in other words, increasing the rate because of the low perspective. For example, a new car that has to be sold in 3 years has a higher depreciation rate than the same car over a 10-year period. It is the same for risky behaviour; the discount rate is affected by the envisaged life span of the individual engaged in such behaviour.

Secondly, the possible effect is that the summation of instantaneous well being over time is the rationale for all types of behaviour, including risky behaviour. In other words, given the perceived low life span of young people in SSA, the probability of not considering long-term effects when living day-to-day becomes the overall pattern. There are limits to the model specified above in dealing with the environmental impact of low life expectancy on discount rates or the very consideration of long-term costs. This could be one of the reasons for knowledge of HIV/AIDS not being transformed into behavioral change. In this respect, more research has to be done on the model specification to fit SSA patterns.

3. Conclusions and Policy Recommendations

This paper has tried to answer the seemingly glaring contradiction of why knowledge of HIV/AIDS is high yet risky sexual behaviour continues. The paper tries to place the rational of such activity within behavioural science insights.

There is no doubt that young people are more vulnerable than other socio-economic groups both from the psychological aspect and from the higher propensity for risky behaviour. There is a general tendency for young people worldwide to base their actions on factors of identity, autonomy and peer pressure. This in turn gives rise to assessing short-term rewards against long-term consequences of actions. Thus, any prevention strategy should take into account this fact, if it is to be effective.

This points to a need to personalize prevention strategies more carefully in SSA, where the identification of target groups at risk also means adaptation of the information itself. One of the key elements would be for policymakers to reward short-term optimal behaviour. For example, providing a tax-free, up-front payment of a proportion of smoking-related health costs as a disincentive to start risky behaviour in the first place. Although there are practical limits to such a policy option, it is an interesting area of possible policy intervention to better align perceived immediate incentives with actual long-term goals.

The above aspect also points to the lack of studies on the "inducement" factor. Besides the cost-benefit analysis of present behaviour against future consequences, there is the choice of risky but more

satisfying behaviour. For HIV/AIDS, the satisfaction differential between risky and risk-free sex is high and very little research has been done in this area. Much more effort should be invested in developing and obviously distributing a sensually less restraining condom. This will reduce the inducement factor and hence, the intensity of attraction to risky sexual behaviour. Simulations have shown how the effect of an improvement in the quality of condoms that reduces the inducement factor from 1.2 to 1.1 may lower the AIDS prevalence rate by 51%. If the inducement factor drops from 2.00 to 1.50, the AIDS prevalence rate may drop by 35% (A. Levy, 2001).

Another issue brought to the forefront in this paper is the “emergency” nature of HIV/AIDS, especially in SSA. The pledge by the international community to halt the spread of the virus and halve the prevalence rate, one of the Millennium Development Goals (MDGs), has focused on the devastating effect of the disease. This in turn has squarely placed the treatment and prevention of the disease on the political agenda, but on an emergency list. The resources made available and/or harnessed by African States is the confirmation of the ‘emergency’ nature. Yet, the prevalence rate in Africa is approximately 10% and it is more cost-effective to prevent the spread of the disease to the whole population. In Africa, prevention strategies are especially crucial.

Closely connected to the non-emergency nature of treatment and care of HIV/AIDS are the general health conditions in SSA. The high mortality rates in Africa and the resultant low life expectancy have effects on behavioural patterns. If life expectancy is low, the discount rate in assessing future costs takes a different connotation. The fact that adulthood is relatively a much shorter period in Africa and the probability of dying with a mortal disease is much higher, shifts emphasis on instantaneous rewards. The prevalence of risky behaviour, notwithstanding the knowledge of HIV transmission, could be explained by the short life span perceived by young people in SSA.

Another point that emerges from this general discussion is that women are generally severely constrained by inequitable power relations and economic dependence. Thus high-risk behaviour is also a reflection of general societal power relations. The proportion of married women who use condoms is 1% in SSA. Their lower dependent status and limited negotiating power to have safer sex is one of the reasons why adequate behaviour is not adopted.

This is further compounded by the high fertility rate and the view that condoms are seen as contraceptives rather than prophylactic instruments. In fact, married women consider condoms primarily as contraceptives and, within the range of contraception available, prefer other forms of family planning. This in itself points to a possible weakness in the rational choice model, although more research should be attempted in this area. (UNAIDS 2002).

The general status of health indicators in SSA is dismal not only because of HIV/AIDS but because of a series of communicable diseases. The treatment of these diseases, through environmental as well as medical, brings about better living conditions and a higher life expectancy. The probability of higher life expectancies could reduce risky activity in general and risky sexual behaviour in particular.

Since the prevention strategies so far implemented are based on knowledge and education, the educational policies enacted become crucial. In this regard, the success story of Uganda does show some possibility of stemming and reducing the spread of HIV/AIDS through education, but the general point still remains of how elusive the link between information and change in risky behaviour can be.

The distinction between severity of bad outcomes and the likelihood of such outcomes is a case in point. Our model is based on the probability of long-term costs of current behaviour and the educational underpinnings to prevent risky current behaviour must be based on severity rather than likelihood of outcomes. For example, to discourage young men from smoking, the State of California used a poster depicting a cigarette drooping, thus linking smoking to sexual dysfunction, rather than lung cancer, as a severe outcome. In this way, the target was enlarged and the message was not based on the likelihood of contracting lung cancer.

On the other hand, if the emphasis is on likelihood - the probability of bad outcomes - then the effect on current risky behaviour will be less severe. The importance of likelihood is connected to the self-control mechanisms in young people. The feeling of invulnerability of young people can result in a lack of self-control and a moderate amount of risky behaviour. Thus, if the likelihood of contracting AIDS is based on the number of sexual encounters and the educational policies are based on this fact, then moderate high-risk sexual activity might be the rational choice of young people.

In fact, what has been called the "extension neglect" has an important role to play in determining successful educational policies for halting the spread of HIV/AIDS. In general, people form probabilistic beliefs that are too insensitive to the number of times that activity occurs and underestimate the risk of encounters irrespective of frequency (Kaheman 1994).

The policy implications of this paper can be summed up as follows:

- Prevention strategies are the kingpin for a successful anti-HIV/AIDS campaign. The prevention strategies can be further divided into two - physical and educational. The physical barrier to transmission is the female or male condom. Although policies on access and costing have been implemented, an area to be investigated is the quality of these artificial barriers i.e. an analysis of the reduction in the inducement factor through enhanced sensitivity. The educational strategies that are to be implemented or those already implemented should focus on severity of outcomes regardless of the frequency of the risky activity rather than the probability of consequences if risky behaviour is continued.
- The other major area is the general health situation, particularly for Africa. Besides the fact that the general health situation should improve, given the high infant and maternal mortality rates, management of the HIV/AIDS pandemic should follow similar lines. The general lack of water and sanitation in Africa leads to a variety of communicable diseases and HIV/AIDS is brought to the forefront in these conditions. It is not a sole emergency, but is part of a plethora of poverty-induced diseases that need a forceful commitment. The objective is increasing the

life expectancy for the whole population and this in turn diminishes the perception of short life spans in the assessment of risky behaviour.

- Another interesting area of development is the female condom and microbicides. These products have the double effect of empowering women in deciding on protection measures themselves rather than negotiating with the men. Secondly, the female condom protects against the transmission of STDs including HIV/AIDS. The microbicides hold great promise and some versions in the clinical trial stage should be on the market in 3-5 years. The disadvantage of both seems to lie in the perception by women in SSA, of considering them as contraceptives rather than prophylactics, following the same pattern as with the male condom.

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