

**NEGLECT OF ELDERLY SEXUALITY - A RISK FACTOR FOR
HIV AND OTHER SEXUALLY TRANSMITTED INFECTIONS
IN KENYA AND BEYOND: A REVIEW**

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Abstract

Currently, there is a global trend in increased longevity in Kenya and beyond compared to any other period in history. This has culminated in continued social life including sexual activity with ageing. However, there is little information in the scientific literature concerning HIV and other sexually transmitted infections (STIs) that is specific to those aged 50 years and above. People in this age-group are often excluded from studies as researchers and policy makers focus on young people. Consequently, assumptions are made on the epidemiology as well as sexual behavior of those aged 50 years and above. The exclusion of older people from national programs is on the assumption that older people are sexually inactive, resulting in their omission from major STI policy initiatives despite the physiological changes that occur with age. Thus, policy makers and stakeholders need to address socio-demographic factors that are associated with the prevalence of HIV and STIs in the elderly and to promote further research on this subject in this segment of the population for evidence-based decision making for improved health in the population.

Key words: Elderly, sexuality, HIV, sexually transmitted infections, Kenya

1.0 Introduction

Most people have the potential to remain sexually active later in life, sexual activity often being considered central to overall well-being. For a long time, the 50 years and over segment of the population has been neglected in many developing countries, resulting in mismatched policy in health care planning and implementation (WHO, 2001).

The global report on the elderly population aged 50 years and above projected at over 200 million in 2050 had risen to 606 million in 2002 and is expected to bypass the one billion mark by the year 2050, with the African population expected to double by then! In the history of mankind, the elderly population is expected to outweigh the children's global population that is projected to decrease from 30% to 21% between 2000 and 2050, elderly trends increasing from 10 %to 21% in same period (UN, 2003b).

1.1 Sexually Transmitted Infections (STIs)

Sexually transmitted infection (STI) also known as sexually transmitted disease (STD), or venereal disease (VD), is an illness that has a significant probability of transmission between humans or animals by means of sexual contact, including vaginal, oral and anal sex (Shafer and Moscicki, 2006). Global data estimates by the World Health Organization (WHO) show that 340 million new cases of curable sexually transmitted diseases (STIs) occur annually in men and women aged 15-49 years, with the over 50 years old population being excluded (WHO, 2001). This is so despite the fact that STIs and their complications rank in the top five disease categories for which adults seek health care, causing significant loss of years of healthy productive life in developing countries (Over and Pirot, 1993). For instance, *Herpes Simplex Virus -2*, with its asymptomatic presentation and its tendency to increase with an increasing number of life sexual partners, is a potential portal for HIV infection through their lesions, (Clutterbuck, 2004). Syphilis, a curable but important disease caused by a bacterium, *Treponemapallidum*, has also been found to be positively correlated with ageing. Venereal syphilis is transmitted through a sexual encounter in 50% of the contacts. Clinical manifestations are diagnosed in various distinct stages, including primary, non-reactive or latency and tertiary stages (Clutterbuck, 2004).

1.2 HIV/AIDS and STIs

There is substantial evidence demonstrating that the presence of other STIs increases the likelihood of both transmitting and acquiring HIV (Fleming andWasserheit, 1999; Grosskurth, 1995). Studies have shown that the absence of an STD has a 0.1% risk of HIV transmission, (Nicolosi *et al.*, 1999), and its presence increases HIV risk of spread by between 2-25 fold (Fleming and Wasserheit, 1999). The presence of an untreated STI can enhance both the acquisition and

transmission of HIV 10-fold. Thus, STI treatment is an important HIV prevention strategy in the general population (UNAIDS, 1998).

The extent of HIV impact and its accompanying heterogeneity in a population is explained by trends in behaviors, sexually transmitted infections (STI), lack of male circumcision, poverty, urbanization, wars and the subordinate position of women (Avert *et al.*, 2005; Buvéet *et al.*, 2002; Fleming and Wasserheit, 1999; Schaible and Kaufmann, 2007; UNAIDS, 2002a).

The objective of STI prevention and care is to reduce the prevalence of STIs by interrupting their transmission, reducing the duration of infection and preventing the development of complications in those infected. Primary prevention, which is concerned with the entire community, curbs the acquisition of infection and the attendant illness. It can be promoted through health education that involves practices such as safer sex behavior, use of condoms, and abstinence from sex. Primary prevention messages apply equally to HIV and other STIs, while secondary prevention involves treating infected people. Except for HIV and viral STIs, treatment cures the disease and interrupts the chain of transmission by rendering the patient non-infectious, (UNAIDS, 1998)

2.0 Ageing and sexuality misconception

Most people have the potential to remain sexually active into very late life with sexual activity often considered central to overall well-being, even among the very elderly (Marsiglio and Donnelly, 1991). There is some documented evidence of misconception of HIV infections of other immunodeficiency syndromes in this old age cohort (UN, 2003a). Often, older persons present with multiple age-related conditions masking HIV and STI infections risks. A review of hospital records in some study has documented that people over 50 years or older fall into the same high risk categories as did those in other age group (Scura and Whipple, 1990).

The delay between symptom recognition and presentation for healthcare is a feature of STI related illness behavior. This behavior among individuals with suspected STIs is age specific, with longer latency periods experienced by people over the age of 50 years (De Hertough, 1994; Gott, 1999).

Recent studies have shown that with the availability of ARV drugs, more and more people are living with the virus, posing challenges to the long term effect on unchecked sexual behavior practices. Many of the earlier infected persons are still sexually active. They include many Injection Drug Users who continue to survive, posing a great risk to future generation, (Kalichman, 2000).

Risky sexual behavior practices including unprotected sex are manifest in 33% of the HIV infected posing an untold risk of STI and HIV co-infections, (Kalichman,

2000). This attributed to the fact that PLWHAs (People Living With HIV and Aids) rely on the ART 'treatment optimism' phenomenon (Hardon, 2005). In UK, widespread use of ART did not reduce HIV incidences (Murphy *et al.*, 2004).

3.0 Cross-generational Sex and Elderly

Since over 30 years ago when HIV was reported and the advent of ARVs, cross-generational sex, (for money or gifts), between young women and old men, in the prevailing global economic crisis especially in poor resource constrained countries, has become rampant (UNICEF *et al.*, 2002). This is also the case with old and young men, (Barker, *et al.*, 1992; Calvès *et al.*, 1996). Coupled with the fact that young women are more concerned about being associated with relationships with older men than the use of condoms, risks for STIs and HIV are enhanced (Silberschmidt and Rasch, 2001).

Orlando *et al.*, (2006) in his article on the elderly indicated that complications in management of HIV/AIDS is as a result of their inherent physiological changes due to ageing- increased risk of infection, reduced immuno-competence and the appearance of several age related co-morbid conditions. This is likely to render the older age vulnerable to faster progression of HIV infection and reduced lifespan after diagnosis with AIDS (Adler, *et al.*; 1997; Operskalski, 1995; Perez and Moore, 2003; Phillips *et al.*, 1991; Skiestet *et al.*, 1996; Sutin *et al.*, 1993). This has been established by a research carried out in Italy alluding to a higher rate of HIV transmission through heterosexual contacts (52.8%) in older patients compared with younger controls (20%) (Suligoi, *et al.*, 2005)

4.0 HIV Disclosure

There is documented evidence of a strong linkage between sexually transmitted diseases (STDs) and sexual transmission of HIV infection. Presence of an untreated STD can enhance both the acquisition and transmission of HIV by a factor of up to 10 (UNAIDS, 1998). Disclosure of status of HIV in itself is known to potentially improve well-being, provide informed choice, and protect life of PLWHAs (Sullivan, 2005). It ensures protection to others, reaffirmation of self, increased social support, desire to educate others, seeking help, desire to test someone's reaction, being in a close or supportive relationship, and a mechanism for dealing with the disease (Derlega *et al.*, 2002; Holt *et al.*, 1998; Parsons, *et al.*, 2004; Serovich and Mosack, 2003; Wolitski, *et al.*, 2003).

In general, there has been ample literature pertaining to individual disclosure of HIV infection to others. However, studies continue to show that seropositive men and women are more likely to inform intimate lovers, spouses and close friends than to tell casual sexual partners, immediate family members or co-workers. For instance, gay and bisexual individuals tend to reveal their HIV status to fellow gay or bisexual partners than to heterosexuals and co-workers or when their physical

health deteriorates (Chervenak and Weirs, 1989; Hays *et al.*, 1993; Marks *et al.*, 1992 and Mason *et al.*, 1995).

Many studies carried out concur with a Reasoned Action Perspective (Fishbein and Ajzen, 1975) which indicates that a person's perception of the social, psychological and material consequences influences decisions of whether one would disclose his/her status to others, (Mason *et al.*, 1995). This can have a ripple effect through the individual's social network irrespective of the risk activity associated with infection as well as the potential to create stress for all family members (Miller *et al.*, 1994).

Some individuals fail to disclose their HIV status, due to fear of stigmatization, rejection by sexual partners, need for privacy, threats to loss of income and personal wellbeing, substance use or difficulty in communicating, HIV denial, perception of low viral load, type of sex, location of sexual encounter, legal reprisal (fear of arrest) and condom use, resulting these in non-disclosure, (Carr and Gramling, 2004; Derlega *et al.*; Garbacht *et al.*, 2004; Parsons *et al.*, 2004 and Serovich and Mosack, 2003).

5.0 Condom Use Perception

Apart from abstinence, use of condoms is an effective way to prevent unwanted pregnancy, a matter that is of no concern to old people (Gollub, 2000), despite the fact that there is ample knowledge about the use of condoms (Gardner, *et al.*, 1999; NMHSS, 1995). While condoms were once inaccessible to most people especially in developing countries a decade ago, they are now readily available and at affordable prices in most countries (Meekers *et al.*, (2001).

Although it is acknowledged that STIs predominantly affect younger age groups, it has been demonstrated that older people's behavior may also put them at risk of acquiring STIs. Indeed, it may be argued that older people are more susceptible as they are less likely to use condoms than younger people. There is a need to extend the age range of national surveys so that the sexual health needs of older people can be included (Murphree and DeHaven, 1995). It is also recognized that introduction of drugs to counter erectile dysfunction has altered the quality of life and sexual experience of older individuals. These drugs have the potential to increase sexual activity in older people and this, combined with the infrequent use of condoms, may contribute to increased risk of STIs (Potts *et al.*, 2004).

Studies have shown that changes in social and behavioral patterns may also have contributed to the increase in STIs seen among older people who are increasingly likely to be single or undergoing relationship changes (for example, divorce, separation or widowed) and are at increased risk of STIs considering that they are less likely to consistently use condoms (Jaleel, *et al.*, 1999). It is recognized that

young people have multiple and at times concurrent sexual partners and that these include older people (Ford *et al.*, 2002). Current evidence indicates that the greater the difference in age between sexual partners, the more likely it is that risky sexual behavior will occur as condoms are less likely to be used during sexual encounters (Darroch, *et al.*, 1999).

Condom use by most people is intertwined in social, cultural and context issues especially among old people (Hart *et al.*, 1999). Witte *et al.*, (2003) has shown that embarrassment, judgmental attitudes of condom providers, and lack of confidentiality is reason to low condom use even among the educated elites in Africa. In Uganda, major concerns over their use have been in their safety, reduced sexual pleasure and partner dominant control of their use (Pool *et al.*, 2000; Hart *et al.*, 1999). The same phenomenon has been noted with studies in Namibia by Fox (2002) and LeBeau *et al.*, (1999) showing that an improper and inconsistent use of condom is attributed to the dominant male decision makers. Research shows that males only use condoms with casual and unknown sexual partners and not with regular partners or wives. In a study carried out by Pempelani, (2005), condom use in marriage is not common as it implies unfaithfulness in marriage. Increasing divorce rates among older people (Marriage and Divorce Statistics, 1996) and changing attitudes to sexual, may increase the risk of HIV and STI infection in this population, (Marshall, 1997; Pointon, 1997). Since sexual activity among older people is unlikely to result in pregnancy, condoms and spermicides, of vital importance in the prevention of HIV infection, are unlikely to be used. Even if older people consider using condoms, they may be too embarrassed to purchase them (Marshall, 1997). With increasing use of effective therapies for sexual dysfunction, and in particular successful medical treatment of erectile dysfunction, some genitourinary physicians fear a further increased risk of sexually transmitted diseases in the older generation. In addition, older women may be at greater risk of acquiring HIV infection by sexual transmission than younger women as the lining of the vagina becomes atrophied after the set in of menopause. Safe-sex advice needs to be incorporated into health education literature for older people (Marr, 1994). In the USA, there has been recent concern over the numbers of older intravenous drug-users at risk of AIDS (Scura and Whipple, 1990; McCormick and Wood, 1992).

6.0 HIV/AIDS –STI and Socio-economic implications

In developing countries, poverty, unemployment and lower educational levels as well as lack of socio-economic resources are consistently linked to poor health (Adler *et al.*, 1994, Link and Phelan, 1996). Comparable to men, women live in poverty with low social status and jobs paying salaries averaging 30–40% less than their counterpart (US Bureau of the Census 1997 and Thomas, 1997). Limited resources often result in increased exposure to risks, and are associated with greater morbidity that is assessed by caregivers in terms of depression and

physical health status (Bergman-Evans 1994; Leblanc *et al.*, 1997; Lieberman and Fisher 1995; McNaughton *et al.*, 1995; Meshefedjian *et al.* 1998; Pakenham *et al.*, 1995; Russo *et al.*, 1995). Studies of AIDS and ARD (Age-Related Dementias) have shown that lower income, education and fewer support services are associated with greater care giving demands and burden on the caregiver (Cefalu *et al.*, 1996; Cox, 1995; Turner and Catania 1997; Wight *et al.*, 1995). In turn, care-related demands are associated with poor physical health and/or depression in the caregivers (Cefalu *et al.*, 1996, Leblanc *et al.*, 1997, Meshefedjian *et al.*, 1998). There is a wide believe that social factors as well as "behaviors" or "lifestyles" contribute to increased risk of HIV and STI infection, (Oppenheimer, 1992; WHO, 2007 and Oppenheimer, 1998).

7.0 Conclusion

With little information in the scientific literature concerning STIs that is specific to those aged 50 years and above, there is little evidence in the public domain on sexuality issues pertaining to this age group. Often, they are excluded from studies as researchers and policy makers focus more on the younger population, (UNAIDS, 1998). Despite some knowledge on cultural relevance of health interventions in various cohorts (UNAIDS, 2008), not enough work has been done on inherent socio-demographic factors associated with the prevalence of HIV and STIs in this age group. Equally, there is a gap in evidence regarding correlation between HIV and AIDS and other STIs in the elderly. This is the case despite recognition that health promotion activities, including STI and HIV and AIDS care is the cornerstone of healthy ageing (UN, 2003a). While much in health promotion has been done amongst the youth in terms of HIV and safe sexual practices, failure to target the elderly poses a great risk through inter-generational relationships in the population, (UNAIDS/WHO, 2009). In view of the foregoing, there is need to mainstream issues of the elderly in HIV and STI research in Kenya and beyond. Findings of such studies will inform current HIV and AIDS and STI status in the elderly and also impact policy on possible evidence-based interventions targeting the elderly, especially in poor-resource countries hard hit by HIV and AIDS and STI, (Coates 1990; Darbyshire, 2000; Gott 1999a; Wellings *et al.*, 1994).

References

- Adler N. E., Boyce T., Chesney M. A., Folkman S., Syme S.L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychology*, 49, pp 15-24
- Adler W. H., Baskar P.V., Chrest F. J. (1997). HIV infection and aging: Mechanisms to explain the accelerated rate of progression in the older patient. *Mech Ageing Dev*, 96, pp 137–155.
- Auvert B., Taljaard D., Legarde E. (2005). Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risks: The ANRS 1265 Trial. *PLoS*
- Barker, Gary Knaul and Susan Rich. (1992). "Influences on adolescent sexuality in Nigeria and Kenya: Findings from recent focus-group discussions." *Studies in Family Planning*, 23(3), pp 199–210.
- Bergman-Evans B. (1994). A health profile of spousal Alzheimer's caregivers. Depression and physical health characteristics. *Journal of Psychosocial Nursing and Mental Health Services*, 32, pp 25- 30.
- Buvéet, A., Bishikwabo-Nsarhaza K. and Mutangadura G. (2002). The spread and effect of HIV-1 infection in sub-Saharan Africa. *Lancet*, 359, pp 2011–2017.
- Calvès Anne-Emmanuèle Gretchen T. Cornwell and Enyégué P. E. (1996). *Adolescent Sexual Activity in Sub-Saharan Africa: Do Men Have the Same Strategies and Motivations as Women?* Population Research Institute, University Park, PA, pp 6-8.
- Carr R. L. and Gramling L. F. (2004). Stigma: A health barrier for women with HIV/AIDS. *Journal of the Association of Nurses in AIDS Care*, 15(5), pp 30–39.
- Cefalu C. A., Ettinger W. H., Espeland M. (1996). A study of the characteristics of the dementia patients and caregivers in dementia-nonspecific adult day care programs. *Journal of the American Geriatrics Society*, 44, pp 654 659.
- Chervenak J. L. and Weirs, S. H. (1989). *Sexual Partner Notification: Attitudes and Action of HIV Infected Women*. Paper presented at the 5th International Conference on AIDS, Montreal, Quebec, Canada.
- Clutterbuck D. (2004). Sexually Transmitted Infections and HIV- Specialist Training. Edinburgh; London, 139-141.

Coates T. J. (1990). Strategies for modifying sexual behavior for primary and secondary prevention of HIV disease. *Journal of Consulting and Clinical Psychology*, **58** (1), pp 57–69.

Connor N, Catchpole M, Rogers P A. (1997). Sexually transmitted diseases among teenagers in England and Wales. *Commun Dis Rep CDR Rev*; 7:R173–8.

Cox C. (1995). Comparing the experiences of black and white caregivers of dementia patients. *Social Work*, **40**, pp 343- 349.

Darbyshire J. (2000). Therapeutic interventions in HIV infection - a critical view *Tropical Medicine & International Health*, **5** (7), A26–A31.

Darroch J. E, Landry D. J, Oslak S, (1999). *Age differences between sexual partners in the United States. FamPlann Perspect*, **31**, pp 160–7.

De Hertough D. A. (1995). Sexually transmitted diseases in the elderly. *Infect Med*; **11**, pp 361–3.

Derlega V., Winstead B., Greene K., Serovich J. and Elwood W. N. (2002). Perceived HIV-related stigma and HIV disclosure to relationship partners after finding out about the seropositive diagnosis. *Journal of Health Psychology*, **7**(4), pp 415–432.

Finer LB, Darroch JE, (1999). Singh S. Sexual partnership patterns as a behavioral risk factor for sexually transmitted diseases. *FamPlann Perspect*, **31**, pp 228–36.

Fleming D. T. and Wasserheit J. N. (1999). From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to HIV transmission. *Sex Transm Infect*, **75**, pp 3–17

Ford K., Sohn W., and Lepkowski J. (2002). *American adolescents: sexual mixing patterns, bridge partners, and concurrency. Sex Transm Dis*, **29**, pp 13–19.

Fox T. (2002). "The cultures of AIDS – the cultural analysis and new policy approaches in Namibia", In: Winterfeldt, V., Fox, T. and Mufune, P., eds, *Namibia Society Sociology*. University of Namibia Press.

Garbach P. M., Galea J. T., Aman B., Shin A., Celum C., Kerndt P. (2004). Don't ask, don't tell: Patterns of HIV disclosure among HIV positive men who have sex with men with recent STI practising high risk behaviour in Los Angeles and Seattle. *Sexually Transmitted Infections Journal*, **80**, pp 512–517.

- Gardner R., Blackburn, R., and Upadhyay, U. (1999). Closing the condom gap. Population Reports, Series H, No. 9. Baltimore, MD: Johns Hopkins University School of Public Health.
- Gollub E. (2000). "The female condom: A tool for women's empowerment", *American Journal of Public Health*, **90**(9), pp 1377–1381.
- Gott C. M. (1999a). Sexual risk-taking in later life. *Reviews in Clinical Gerontology*, **9** (1), pp 139–150.
- Hardon A, (2005). Confronting the HIV/AIDS epidemic in sub-Saharan Africa: policy versus practice. *International Social Science Journal*, **57** (186), pp 601-608.
- Hart G., Pool R., Harrison S., Nyanzi S., Green G., and Whitworth J. (1999). "Women's attitudes to condoms and female controlled means of protection against HIV and STDs in South-Western Uganda", *AIDS Care*, **11**(6), pp 687–699.
- Hays R. B., McKusick L., Pollack L., Hilliard R., Hoff C. and Coates, T. J. (1993). Disclosing HIV seropositivity to significant others. *AIDS*, **7**, pp 425–431.
- Holt R., Court P., Vedhara K., Nott K. H., Holmes J., and Snow M. H. (1998). The role of disclosure in coping with HIV infection. *AIDS Care*, **10**(1), pp 49–60.
- Jaleel H, Allan S, and Wade AAH, (1999). Sexually transmitted infections in the elderly. *Sex Transm Inf*, **75**, pp 449.
- Johnson A. M, Mercer C. H Erens B. (2001). Sexual behaviour in Britain: partnerships, practices, and HIV risk behaviours. *Lancet*, **358-1835**, 42.
- Kalichman, S. C. (2000). HIV Transmission Risk Behaviors of Men and Women Living With HIV-AIDS: Prevalence, Predictors, and Emerging Clinical Interventions, *Clinical Psychology: Science and Practice*, **7** (1), pp 32-47.
- LeBeau D., Fox T., Becker H., and Mufune P. (1999). Taking risks – taking responsibility: An anthropological assessment of health risk behaviour in Northern Namibia.
- Leblanc A. J., London, A. S., Aneshensel C. S. (1997). The physical costs of AIDS caregiving. *Social Science and Medicine*, **45**, pp 915-923.
- Lieberman M. A. and Fisher L. (1995). The impact of chronic illness on health and well-being of family members. *Gerontologist*, **35**, pp 94-102.

Link B. G. and Phelan J. C. (1996). Understanding sociodemographic differences in health – The role of fundamental social causes. *American Journal of Public Health*, **86**, pp 471-473.

Marks G., Bundek N., Richardson J., Ruiz M., Maldonado N. and Mason H. (1992). Self-disclosure of HIV infection: preliminary results from a sample of Hispanic men. *Health Psychology*, **11**, pp 300–306.

Marr J. (1994). Nurs Stand, The impact of HIV on older people, **8**(47), pp 25-27.
Marriage and Divorce Statistics. (1996). Series FM2 no 22, 1994, England and Wales. HMSO, London.

Marshall T. (1997). Infected and affected: HIV, AIDS and the older adult. *Generations Rev*, **7**(4), pp 9-11.

Marsiglio W. and Donnelly D. (1991). Sexual relations in later life: a national study of married persons. *Journal of Gerontology*, **46** (6), S338–S344.

Mason H. R., Marks G., Simoni J. M., Ruiz M. S. and Richardson J. L. (1995). Culturally sanctioned secrets? Latino men's nondisclosure of HIV infection to family, friends and lovers. *Health Psychology*, **14**(1), pp 6-12.

McCormick W. C, Wood R. W. (1992). J Am Geriatr Soc. Clinical decisions in the care of elderly persons with AIDS, **40**(9), pp 917-21.

McNaughton M. E., Patterson T. L., Smith T. L., Grant I. (1995). The relationship among stress, depression, locus of control, irrational beliefs, social support, and health in Alzheimer's disease caregivers. *Journal of Nervous and Mental Disease*, **183**, pp 78- 85. *Med*; 2:e298.

Meekers D., Ahmed G. and Molatlhegi M. (2001). "Understanding constraints to adolescent condom procurement: the case of urban Botswana", *Aids Care*, **13**(3), pp 297–302.

Meshefedjian G., McCusker J., Bellavance F., Baumgarten M. (1998). Factors associated with symptoms of depression among informal caregivers of demented elders in the community. *Gerontologist*, **38**, pp 247- 253.

Miller R., Goldman E. and Bor R. (1994). Application of a family systems approach to working with people affected by HIV disease – two case studies. *Journal of Family Therapy*, **16**, pp 295–312.

Murphree D. D., DeHaven M. J. (1995). Does grandma need condoms? Condom use among women in a family practice setting. *Arch Fam Med*, **4**, pp 233–238

Murphy G., Charlett A., Jordan L. F., Osner N., Gill O.N. and Parry J. N. (2004). HIV incidences appear constant in men who have sex with men despite wide spread of effective antiretroviral therapy. *AIDS*, **18**, pp 265-272.

Nicolosi A., Leite M. L. C., Musicco M. (1999). The efficiency of male to male and female sexual transmission of HIV: A study of 730 stable couples. *Epidemiology*, **5**, pp 570-575.

NMHSS-Namibia Ministry of Health and Social Services. (1995). Trends in youth sexual knowledge, attitudes and practices: 1994 to 1995. Windhoek, Namibia.

Operskalski E. A., Stram D. O., Lee H. (1995). Human immunodeficiency virus type 1 infection: relationship of risk group and age to rate of progression to AIDS. Transfusion Safety Group. *J Infect Dis*, **172**, pp 648–655.

Oppenheimer G. (1998). In the eye of the storm: the epidemiological construction of AIDS. In *AIDS: the Burdens of History*. E.Fee&D.M.Fox, Eds.: 267–300 University of California Press. Berkeley

Oppenheimer G. (1992). Causes, cases, and cohorts: the role of epidemiology in the historical construction of AIDS. In *AIDS: the Making of a Chronic Disease*. E.Fee&D.M.Fox, Eds.: 49–83. University of California Press. *Berkeley*.

Orlando G., Meraviglia P., Cordier L, Meroni L., Landonio S., Giorgi R., Fasolo M., Faggion I., Riva A, Zambelli A., Beretta, R., Gubertini G., Dedivitiis G., Jacchetti G., Over M and Piot P., (1993).HIV infection and sexually transmitted diseases. In DT Jameson, Mosley W. H, Measham A. R, Babadulla J. L, eds. *Disease Control Priorities in Developing Countries*, New York; Oxford University Press, pp 445-529.

Parsons, J. T., VanOra, J., Missildine, W., Purcell, D. W., and Gomez, C. A. (2004). Positive and negative consequences of HIV disclosure among seropositive injection drug users. *AIDS Education and Preventionm*, **16**(5), pp 459–475.

Pempelani Mufune. (2005). Myths about condoms and HIV/AIDS in rural northern Namibia *International Social Science Journal*, **57**(186), pp 675–686.

Perez, J.L., Moore, R.D. (2003). Greater effect of highly active antiretroviral therapy on survival in people aged >50 years compared with younger people in an urban observational cohort. *Clin Infect Dis*, **36**, pp 212–218.

Phillips A.N., Lee, C.A., Elford, J. (1991). More rapid progression to AIDS in older HIV-infected people: the role of CD4⁺ T-cell counts. *J Acquir Immune Defic Syndr*, 4, pp 970–975.

Pointon, S. (1977) Myths and negative attitudes about sexuality in older people. *Generations Rev.*, 7(4), pp 6-8.

Pool, R., Hart, G., Harrison, S., Nyanzi, S., Green, G., and Whitworth, J. (2000). "Men's attitudes to condoms and female controlled means of protection against HIV and STDs in South-Western Uganda", *Culture, Health and Sexuality*, 2(2), pp 197–211.

Potts A, Grace V, Gavey N, (2004), "Viagra stories": challenging 'erectile dysfunction'. *SocSci Med*, 59, pp 489–99.

Rees M, Mander T, Mahar F, Sherrard J, (2005). Sexually transmitted infections. In: Rees M, Mander T, eds. *Sexual health and the menopause*. The Royal Society of Medicine.

Russo J., Vitaliano, P.P., Brewer, D.D., Katon, W., Becker, J. (1995). Psychiatric disorders in spouse caregivers of recipients with Alzheimer's disease and matched controls: a diathesis-stress model of psychopathology. *Journal of Abnormal Psychiatry*, 104(1), pp 97-204

Schaible U. E., Kaufmann, S. H. E. (2007). Malnutrition and infection: complex mechanisms and global impacts. *PLoS Med*;4:e115.

Scura, K.W and Whipple, B. (1990) *J GerontolNurs*. Older adults as an HIV-positive risk group, 16(2), pp 6-10.

Serovich J. M., and Mosack, K. E. (2003). Reasons for HIV disclosure or nondisclosure to casual sexual partners. *AIDS Education and Prevention*; 15(1): 70–80.

Shafer M. A and Moscicki A. B. (1986). Sexually Transmitted Infections, *Intern Med*;105 :189-196.

Silberschmidt M. and Rasch V. (2001). "Adolescent girls, illegal abortions and 'sugar-daddies' in Dar Es Salaam: Vulnerable victims and active social agents." *Social Science & Medicine*, 52, pp 1815–1826.

Skiest D. J., Rubinstien E., Carley N. (1996). The importance of comorbidity in HIV-infected patients over 55 a retrospective case-control study. *Am J Med*, 101, pp 605–611.

St. John E. (2007). Facing the Challenges of HIV/AIDS and STIs- Gender based approach.

Suligo B., Boros S., Camoni L., Lepore D., (2005). Aggiornamento dei casi di AIDS notificati in Italia e delle nuove diagnosi di HIV al 31 Dicembre. *Not Ist Super Sanità*; 18(Suppl. 1).

Sullivan K. M. (2005). Male self-disclosure of HIV-positive serostatus to sex partners: A review of the literature. *Journal of the Association of Nurses in AIDS Care*, **16**(6), pp 33–47.

Sutin D. G., Rose D. N., Mulvihill M. (1993). Survival of elderly patients with transfusion-related acquired immunodeficiency syndrome. *J Am Geriatr Soc*, **41**, pp 214–216.

Thomas S. P. (1997). Distressing aspects of women's roles, vicarious stress, and health consequences. *Issues in Mental Health Nursing*, **18**, pp 539-557.

Turner H. A. and Catania J. A. (1997). Informal care giving to persons with AIDS in the United States: Caregiver burden among central cities residents eighteen to forty-nine years old. *American Journal of Community Psychology*, **25**, pp 35- 59.

UN (2003a) Political Declaration and Madrid International Plan of Action on Ageing: Second World Assembly on Ageing, Madrid, Spain, 8th -12th, 2002, pgs 9-28.

UN (2003b). Political Declaration and Madrid International Plan of Action on Ageing: Second World Assembly on Ageing, Madrid, Spain, 8th -12th, 2002, pgs. 34.
UNAIDS, (1998). The public health approach to STD control- The Technical Update.

UNAIDS, (2002a). Report on the Global HIV/AIDS Epidemic, Geneva.

UNAIDS, (2008). Report on the global AIDS epidemic. Preventing new HIV infections: the key to reversing the epidemic.

UNAIDS/WHO. (2009). Aids Epidemics Update, pg 6.

UNICEF, (2002). Joint United Nations Programme on HIV/AIDS (UNAIDS), and World Health Organization(WHO). *Young People and HIV/AIDS: Opportunity in Crisis*. New York: UNICEF.

US Bureau of the Census. (1997). Resident population of the United States by race, and Hispanic origin, September 30, 1997. Department of Commerce, Washington DC.

Wellings, K., Field, J., Johnson, A.M., Wadsworth, J. (1994). *Sexual Behaviour in Britain the National Survey of Sexual Attitudes and Lifestyles*. Penguin, London.

WHO (2007). *Global strategy for the prevention and control of sexually transmitted infections: 2006–2015*. Geneva: World Health Organization.

WHO, (2001). Global prevalence and incidence of selected curable Sexually Transmitted Infections. Overview and estimates.

Wight, R.G., Leblanc, A.J., Aneshensel, C.S. (1995). Support service use by persons with AIDS and their caregivers. *AIDS Care*, **7**, pp 509- 520.

Witte, K., Coleman, P., Schoemaker, J., and Lazell, C. (2003). HIV/AIDS life styles, knowledge, attitudes and practices: A baseline study of Greater Windhoek youth in Namibia. Baltimore, MD.

Wolitski, R. J., Bailey, C. J., O'Leary, A., Gomez, A. and Parsons, J. T. (2003) Self-perceived responsibility of HIV-seropositive men who have sex with men for preventing HIV. *AIDS and Behavior*, **7**(4), pp 363–372.