REASONS FOR HIV TESTING IN A HETEROSEXUAL SAMPLE;
THE ROLE PLAYED BY AFFECTIVE FACTORS AND
CONSTRUCTS FROM THE HEALTH BELIEF MODEL

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Psychology (PsychD)
in Clinical Psychology (conversion programme)

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SECTION ONE: Professional Audit

PERSONAL STUDY PROGRAMME

PsychD IN CLINICAL PSYCHOLOGY:

CONVERSION PROGRAMME

Name: TOMAS CAMPBELL
Date of Registration: JANUARY 1994

1. OVERALL AIMS AND OBJECTIVES

i) To attain greater professional competence in order to enhance the contribution of clinical psychology to health care.

ii) To produce a portfolio of study, practice and research that will demonstrate increased competence in each of these three areas.

iii) A two year personal study programme tailored by audit to professional needs and demands.

2. Academic

2.1 Aims

Prime aim:

To enhance academic competence in three specialist areas of clinical psychology so as to develop the services offered by the department or the profession.
Additional aims:

i) To enhance academic knowledge in clinical psychology about HIV and how different groups of peoples are affected by it in different settings and cultures.

ii) To critically evaluate the theoretical bases underlying interventions aimed at preventing or mitigating the effects of HIV in different peoples and cultures.

iii) To identify theory-practice gaps and, where possible, to explore the further development of theoretical models or theory based interventions.

2.2 Objectives:

Prime Objective:

To complete three critical reviews, one for each of the three specialist areas.

Additional Objectives:

i) To disseminate such knowledge through publication and presentations and the development of appropriate protocols/policies within the HIV/AIDS service.

ii) To use such information as the basis for interventions within the HIV/AIDS service.

iii) To use the information as the basis for future research within the HIV/AIDS service.
2.3 Rationale

The Tudor Wing is the base for HIV/AIDS services in The Hillingdon Hospital NHS Trust. The Trust provides services to an urban/semi rural and multi-cultural population to the west of London. HIV is largely concentrated within the gay population but a significant minority of service users originate in African countries and are mainly heterosexual. The clinical psychology service is a specialised resource which offers a clinical service to infected/affected individuals, couples and families. Additionally, the service contributes to the training and supervision of other clinical staff. The disseminated reviews will help the multi-disciplinary team to deal with individuals with complex issues and difficulties. The reviews will serve as a knowledge base and will further help the clinical psychology service in the development of appropriate protocols and policies.

2.4 Plan

Three academic reviews will be presented as follows:

i) AIDS related death; a review of how bereaved gay men are affected.

ii) How might condom use for HIV prevention be increased in Africa?


3. Clinical Practice

3.1 Aims

Prime aim:

To develop the services offered by the profession or department.
Additional aim:

i) To develop clinical psychology input to services for people with HIV and AIDS prevention within an African context.

3.2 Objectives:

Prime Objective:

To provide a dossier on clinical activity which will describe such a development and the theoretical and cultural framework within which it was undertaken.

Additional Objectives:

i) To develop a more thorough understanding of the role clinical psychology theory and practice can play in HIV prevention in an African country with a high HIV prevalence.

ii) To identify the theoretical, cultural and philosophical difficulties of applying clinical psychology theory and practice in a country with a different understanding of illness and psychological distress.

3.3 Rationale

The theory and practice of clinical psychology has been used in many aspects of the HIV pandemic e.g. to guide treatment interventions, to alleviate HIV related psychological distress, to help partners and families come to terms with the illness and death of a loved one. However, the application of clinical psychology as a body of knowledge has been usually restricted to developed countries. There are many reasons for this including the lack of training institutions, the lack of trained personnel to make interventions, a lack of understanding on the part of policy makers of the usefulness of clinical psychology and a narrowness of focus on the part of clinical psychologists working in developed countries. However, HIV infection has disproportionately affected sub-Saharan African countries. Psychological interventions to either reduce
the distress caused by the infection or interventions to help people identify and change those sexual behaviours which place them at risk for HIV are rare.

3.4 Plan

To establish, facilitate and critically evaluate a group counselling intervention in an African country (Zambia) to help already HIV infected people identify and change sexual behaviours which place them at further risk for HIV or other infections.

4.0 Research

4.1 Aims

Prime aim:

Either to increase research competence so as to develop the services offered by the department or profession, or to increase the knowledge available to the department or profession.

Additional aims:

i) To examine the role of some of the factors identified by the literature as important in a group of heterosexual people attending for a HIV test.

ii) To operationalise the constructs of the health belief model.

iii) To consider the role of affective factors in the group attending for a HIV test.
4.2 Objectives

Prime objective:

To develop a research dossier, part of which will be the original MSc dissertation, which will either make evident increased research competence or will present a contribution to knowledge.

Additional objectives:

i) To update and further develop skills in research design and methods and statistical analysis.

ii) To use the research findings to further develop the services offered by the HIV/AIDS services.

iii) To disseminate the findings through publication and presentations at scientific meetings.

iv) To use the research findings as the basis for further research.

4.3 Rationale

Attendees for HIV testing at the Tudor Wing Sexual Health Centre (where the HIV/AIDS services are based) are mainly heterosexual and white. Most people with HIV attending the clinic are either gay men or have originated in African countries. Thus, the incidence of HIV in the white heterosexual population is very low but they make up the bulk of those attending for testing. Little is known about HIV testing in this group and it seems they are unnecessarily concerned about HIV. The research aims to identify a profile of reasons for HIV testing, will consider the role played by health belief constructs and will explore the role played by the affective factors of anxiety and depression in the population attending for HIV testing. To this end the study will operationalize all the health belief model constructs. This model is widely used to explain and predict health behaviours
4.4 Plan

Data will be collected over a six month period from 70 attendees at the Tudor Wing for a HIV test (and no other tests or investigations). They will be given a paper which explains the study and asked to participate. Signed consent will be obtained. The assessment will include:

i) A structured interview regarding their current and past sexual behaviour,

ii) administration of the Hospital Anxiety and Depression Scale, an AIDS knowledge scale and the operationalize constructs of the health belief model

iii) identification of the reason(s) for testing,

iv) the identification of their sources of information about HIV.

The results will be analysed using SPSS for Windows. The results will be used in the development of protocols to identify attendees who use HIV testing because of other psychological difficulties.

5.0 Portfolio outline

The portfolio will contain three dossiers made up of the academic, clinical and research requirements of the programme. The general theme of the portfolio is reactions to, and effects of, HIV in different populations and the response that clinical psychology can make.

6.0 Suggestions for training events

6.1 Lectures/seminars

i) discourse as a research method

ii) adult survivors of sexual abuse
iii) the psychological management of pain

iv) couple therapy with same sex couples

6.2 Workshops

i) writing funding proposals

ii) clinical audit
RECORD OF CONTINUING PROFESSIONAL DEVELOPMENT

PsychD conversion programme: January 1995-December 1996

The programme was a component of continuing professional development (CPD) to which approximately one session per week was allocated. Other CPD activities carried out during the period of registration included:

i) attendance at SPSS workshops run by the Department of Psychology at the University of Surrey,

ii) attendance and presentations at local and national conferences organised by the BPS Division of Clinical Psychology HIV/AIDS Special Interest Group (SIG),

iii) attendance and participation in National DCP committee meetings,


v) attendance at the IXth African AIDS conference in Kampala, Uganda (December, 1995) at which the following poster was presented;


vi) The following papers were published during the period of registration;


vii) Attendance at the XIth International AIDS Conference in Vancouver, Canada (July 1996) at which the following posters were presented:

T. Campbell, D. Shaw, S. Estreich, & C. Twigger-Ross (1996) What are the psychological factors associated with having a HIV test?

C. Rosensvard & T. Campbell (1996) A review of sexual behaviour change studies from sub-Saharan Africa: what lessons can we learn for the future?

viii) The following papers/presentations have been accepted for publication/presentation during the period of registration:


SECTION TWO: academic dossier

REVIEW 1

HOW MIGHT CONDOM USE FOR HIV PREVENTION BE INCREASED IN AFRICA?
INTRODUCTION

Sub-Saharan Africa has been seriously affected by the AIDS pandemic. Accurate rates of HIV prevalence are difficult to establish because of problems associated with under-reporting, lack of resources to carry out epidemiological surveys, and reporting inconsistencies within countries. Data from different groups such as pregnant women are used as a guideline for general rates of prevalence as are more general serological surveys. Figures range from 14% in Kenya (US agency for International Development AIDSCAP/Family Health International, 1996), 33% in Rwanda (Ladner et al, 1993), 0.6%-24.2% in Tanzania (Lwihula et al, 1993), 24%-35% in Uganda (Muller, 1992), 13.1%-33.6% in Zambia (Msiska, 1992).

More than 16 million African people have been infected since the beginning of the epidemic out of a global total of 25 million (Kallings, 1996) which represents over 60% of infected people world-wide. In terms of the long term implications for these countries it is estimated that by the year 2010 life expectancy will fall from 66 to 33 years in Zambia, from 70 to 40 years in Zimbabwe, from 68 to 49 years in Kenya and from 59 to 31 years in Uganda (Cohen & Trussell, 1996).

Condom use has proved to be an effective strategy for prevention of HIV (Centres for Disease Control, 1993). However, studies from sub-Saharan Africa suggest that in places where there are good levels of knowledge about HIV/AIDS transmission this knowledge has not resulted in consistently effective and appropriate sexual risk reduction practices, specifically condom use (Campbell & Kelly, 1995; Muller et al, 1992; Wilson et al, 1990). This is not a problem peculiar to Africa and has also been reported in many developed countries (Salt et al, 1990; Becker & Joseph, 1988; Hastings et al, 1987) but the factors implicated in this seem to be different from those
factors in developed countries. There seems to be a complex interaction of psychological, cultural, economic and situational variables involved in the use of condoms which is not well understood (Campbell & Kelly, 1995) and which has resulted in different interventions with varying degrees of success. It is important to state from the outset, however, that most African interventions either to promote condom use for HIV prevention or, more generally, sexual behaviour change have not, for the most part, been theory driven. Rather, interventions have relied on unsophisticated beliefs of health promotion and behaviour change and as a result intervention outcomes have not been systematically tested or evaluated (Rosensvard & Campbell, 1996). It is ironic that in the very countries where high quality theory based interventions are most needed that interventions have been based on speculation, limited or dated knowledge and inappropriate theoretical assumptions.

Little research has focused on the evaluation of condom promotion interventions in Africa and how they influence condom using behaviour (Cohen & Trussell, 1996). Schoepf (1991) reports that sexual practices in Africa have not changed substantially as a result of mass information campaigns and Lwanga (1992) has speculated that this is because of a lack of understanding of the meaning of sex and sexual practices in an African context. Many of the messages communicated have been vague and do not address specific sexual risk behaviours. These interventions are information based health education campaigns (Cohen & Trussell, 1996) and have relied on exhorting people to use condoms pointing out the consequences of unprotected sex. Poster messages like "AIDS kills" and "your family depends on you" have been used. The effects of such interventions have not been evaluated but as African countries have not seen a significant decrease in incidence of HIV it is reasonable to conclude such interventions have had limited effectiveness.
This paper starts with an examination of the factors identified from psychological theories as important in promoting health behaviour change and explores African interventions within this context. The paper will consider the socio-cultural context in which the interventions are being made and will argue that to ignore the culture and beliefs of the population to whom the intervention is being directed will reduce its effectiveness. The paper concludes with some suggestions about what might be the components of more effective interventions.

PSYCHOLOGICAL MODELS OF BEHAVIOUR CHANGE

Psychological models have been used to explain health behaviour change (Becker, 1974; Fishbein & Ajzen, 1975; Fisher & Fisher, 1992) and share common features in that they propose that change occurs when the individual realises that current behaviour might result in a threat to health, are able to adopt new behaviours and they possess beliefs about the positive outcome of their change in behaviour. Thus, the models (e.g. health belief model, behavioural self-regulation model, self-efficacy model) assume that sexual behaviour is a reasoned and intended behaviour and that individuals have control over it. While this does not always seem to be the case given the incidence of unwanted pregnancies, abortions and STD's in developed countries (Aggleton, 1996; Salt et al., 1990) the models do provide a framework within which interventions can be designed, delivered and evaluated.

Fisher & Fisher (1992) in a review of HIV/AIDS risk reduction interventions in developed countries concluded that interventions which are based on formal psychological theory, and also based on elicitation research to assess community
needs, sensitivities and culturally appropriate intervention strategies are more likely to be successful than those which are not. They propose a 3 stage model to facilitate sexual behaviour change. Firstly, accurate information about HIV transmission and prevention is necessary for people to make a personal vulnerability assessment and to identify what personal changes need to be made in order to prevent HIV infection. Secondly, motivation to change is an essential part of any change process. It seems that this is difficult to stimulate unless an accurate assessment of personal risk is made and many studies report that people consistently underestimate their risk. Factors which prevent motivation seem to be related to attitudes toward prevention (e.g. condom use) and prevention related social norms (e.g. a woman may think that to ask a man to use condoms implies that she has many sexual partners or that she mistrusts him). Thirdly, it seems that behavioural skills (e.g. assertiveness and negotiation skills) are necessary to implement risk reduction strategies. The author could find no reports of the application of this approach in African countries but it does offer a structure into which the needs, expectations and cultural backgrounds of different peoples and communities might be considered and allowed for when HIV risk reduction interventions are being planned and implemented.

How then might we begin to understand condom use for HIV prevention using psychological models? The next part to the paper will consider results from African HIV studies and campaigns and will explore how the findings increase our knowledge about what does and does not work within an African context.
KNOWLEDGE OF, AND FEELING VULNERABLE TO, HIV.

It seems that possessing accurate knowledge about HIV and how it can be prevented is a pre-requisite to change the sexual practices which place the individual at risk of HIV (Fisher & Fisher, 1992). Many studies in African countries have focused on the levels of HIV/AIDS knowledge within populations but have not consistently measured intention to change risky sexual practices (through condom use or other method) or perceived personal vulnerability for HIV infection.

Zambian studies have generally found that levels of HIV awareness are high. Mkumba & Edwards (1993) reported that 75% of 195 university level students had received some previous HIV/AIDS education and that levels of knowledge regarding transmission routes were good. Mulwila et al, (1993) reported that 75.9% of an urban population (n=473) were knowledgeable about HIV/AIDS. Baggaley et al (1993) reported that knowledge about HIV and transmission routes among 211 urban women was high with 98% being able to identify unprotected intercourse as a mode of transmission.

Wilkins et al (1989) found that knowledge about HIV/AIDS was extremely variable, with knowledge levels in Gambian urban males (<80%) being better than rural males (<60%). A similar pattern was shown for urban females (<45%) and rural females (<20%). There was a strong association between more years of education and knowledge of HIV/AIDS. The urban/rural difference may be in part explained by the ways in which resources are targeted. As urban populations are concentrated it is easier to provide information to large numbers of people. In countries where resources
are limited this strategy may seem more cost efficient than providing information to rural populations which may be costly in terms of resources.

In urban Kinshasa (Zaire) Bertrand et al (1991) found that awareness of AIDS was very high (99% of men and 96% of women; n=6625). However, only 50% correctly identified that mosquitoes do not transmit HIV and apart from diarrhoea, relatively low percentages of the respondents were able to identify any symptoms of HIV infection.

Neequaye et al (1991) showed that 99% of their sample of 267 in Ghana had heard of AIDS and 93% knew it was transmissible through sex. Preventive strategies identified by respondents included stopping indiscriminate sex (52% of men and 28% of women), staying with one partner (18% and 50% respectively) and condom use (9% and 10% respectively).

While there are high levels of correct information regarding HIV transmission there are widespread erroneous beliefs about casual transmission (Ingham, 1995). In a multi-site sub-Saharan survey (Central African Republic, Cote d'Ivoire, Guinea Bissau, Togo, Burundi, Kenya, Lesotho, Tanzania and Zambia) respondents were asked to identify routes of transmission of HIV (n=2467). Beliefs that HIV can be spread through sharing food, clothes or cooking utensils with people with HIV/AIDS (PWHIV/PWA) were held by between 19-74% of respondents, touching a PHIV/PWA (40-88%) or through mosquito bites (11-51%).

Existing models of health behaviour would predict that accurate HIV information is an essential component in leading people to make an accurate assessment of their personal vulnerability to HIV (Becker, 1974; Fisher & Fisher, 1992) and in general it seems that
knowledge rates are good. Cleland (1995) found that levels of reported personal vulnerability to HIV was high among men and women in a multi-centre survey. However, the survey did not reveal a clear or consistent relationship between feeling vulnerable, reported risky sexual practices and beliefs about HIV transmission. Feelings of vulnerability were high even in sub-samples of men who said that that had been sexually abstinent in the preceding 12 months. These confusing results might be explained to some extent by erroneous beliefs of transmission through casual contact with PHIV/PWAs or mosquito bites. There was a clearer link between feeling more vulnerable and an increased number of sexual partners (including those partners who were paid for sex). However, substantial proportions of sexually active men, ranging from 18% in Cote d'Ivoire to 50% in Zambia, did not perceive themselves to be at higher risk. Generally, older people felt more vulnerable than younger people and married women felt more vulnerable than never married women (which may reflect high rates of extra marital sexual relationships among their husbands). Thus, it seems that even when people possess accurate knowledge about HIV transmission this is not automatically translated into an accurate assessment of their risk to HIV. Additionally, in a context where death from HIV is common and prevalence is high it seems that many sexually active people do not accurately judge their sexual activity may place them at risk.

More recent applications of psychological models of behaviour change have stressed that while knowledge is an essential component of change it has to be accompanied by other factors or behavioural skills in order for a meaningful and long-term change to take place. The next sections will explore what these factors might be. The studies reported here seem to lend wight to the proposition that HIV/AIDS information
campaigns alone are not effective in generating substantial or sustainable sexual behaviour change.

SEXUAL BEHAVIOUR, CONDOM USE AND HIV TESTING

HIV testing has been advocated as an important component in sexual behaviour change (Baryarama et al, 1996) because it is supposed that the test result will lead to a change in risky sexual behaviour. For example, it has been suggested that if people have an HIV negative test result they will be concerned to remain HIV- which may require change to their current sexual practice. Conversely, if they have a HIV+ result it has been argued that they will wish to prevent HIV being transmitted to their sexual partners which may also required sexual behaviour change. The studies which have explored these issues have yielded mixed and sometimes contradictory results. Baggaley et al (1993) reported that of 500 attendees for HIV antibody testing and counselling in Lusaka, Zambia only 32.7% of those tested positive and 26% of those who tested negative bought condoms at the time of post-test counselling. In Uganda, Muller et al (1992) found that reported intentions in response to a negative HIV antibody test result (n=872) were marriage or monogamy (77%), intention to ask the sexual partner(s) to take the HIV antibody test (28%), to abstain from sex (16%) and to use condoms regularly (6%). Reported intentions in response to a positive HIV antibody test were marriage (81%), monogamy (17%), and to use condoms regularly (2%). Returned clients after 6 months reported that condom use had increased to 19%. Gumisiriza et al (1996) in a study of young Ugandan people (>20 yrs) attending for HIV testing found that a steady decrease in HIV prevalence between 1992 and 1995 (19% to 7% in females; 5% to 3% in males). Young people were more likely than adults to report consistent condom use in the preceding three months than adults (14%
vs. 8%) and were more likely than adults to attend as a couple (46% vs. 23%). This indicates that there is a high level of HIV awareness among young people, that they are talking more about their sexual practices and that they wish to know their HIV status pre-maritally. Allen et al (1992) report that condom use rose from 7% to 22% after a combined HIV testing and educational intervention in urban Rwandan women (n=1458). They found that HIV+ women rather than HIV- were more likely to use condoms after 1 year. An independent predictor of condom use in HIV+ and HIV-women was HIV testing and counselling of the male partner.

In most of these studies it is unclear why people attended for testing as research also indicates that low percentages of sexually active people feel at risk for HIV. It is also unclear what their intentions were about their test results. Many of the studies do not show a clear relationship between a negative test result and the behaviour necessary (e.g. condom use) to remain HIV negative. It seems that HIV testing in itself has been assumed to change sexual practices and that testees will have the necessary skill to change their sexual behaviour and maintain it in the long term. Interestingly, skills training to change risky sexual behaviours as part of the counselling and testing experience has not been identified as important by any of these reports. While attendance for HIV testing may be indicative of a personal perception of vulnerability to HIV people may also be attending for other reasons as indicated by the Gumisiriza et al (1996) study. This information indicates that while HIV testing campaigns may have some success in creating a sense of vulnerability to HIV it seems that people do not acquire the behavioural skills necessary to generate sexual behaviour change simply by attending for HIV testing. This raises the interesting possibility of attaching a skills training component to HIV testing programmes in order to maximise the motivation
shown by the individual who has a concern about HIV (however strong). Such an intervention would clearly fit into the Fisher & Fisher (1992) model.

CONDOM USE FOR HIV PREVENTION

Theories of health behaviour change suggest that a change to a health behaviour only occurs when there is a perceived threat to health and that the change is achievable and realistic. Within this framework condom use is the obvious health strategy to employ as their use is highly effective in preventing transmission of HIV. However, it seems that condom use for either contraception or HIV prevention is inconsistent and usually infrequent. Gaisie et al (1993) report that only 2% of Zambian married women rely on condoms either as a contraceptive or for HIV prevention. Bertrand et al (1991) found that 8% of married men and 7% of married women in Zaire reported current condom use with their spouse although less that 2% reported consistent use (n=6625). Wilkins et al (1989) reported that less than 8% of interviewees in The Gambia had used condoms in the preceding year. In Tanzania, Borgdorff et al (1994) found that in a mixed sex sample of 1096 factory workers that 15% of men and 18% of women had ever used a condom. However, only 3% of both sexes had used a condom in the preceding month. Mnyika et al (1995) reported that in their study 55.3% of the Tanzanian sample stated that condoms were used for family planning, 24.1% stated that they were for HIV/AIDS prevention and the rest (20.5%) mentioned both family planning and HIV prevention. However, the perceived function of condom use was not significantly related to consistent use which was generally low. These data, however, indicate that the message that condoms can prevent HIV transmission has reached some people at least and further indicates that people can change their minds about the function of condom use. Bandawe & Foster (1996) in their sample of sexually active
Malawian students found that 60% had used condoms during sexual intercourse. Interestingly, females reported that a higher incidence of partner's use (70%) than did males (52%).

In an attempt to make condom messages more salient Wilson and Lavelle (1992) used peer educators to disseminate information and reported that it seemed to be an effective way of raising awareness of HIV and prevention of transmission. Community level interventions e.g. drama groups seem to have been useful in increasing acceptance and use of condoms and addressing some of the issues faced by people with HIV/AIDS (e.g. Helquist & Seales, 1990). Msiska (1994) who has identified the vulnerability of women to HIV because of their economic reliance on men reported that when women fish traders were helped to form co-operatives to make them more independent financially a dramatic decrease in the level of sex work carried out by the women was observed. While this study was not a direct health intervention it does demonstrate that economic circumstances play a role in determining sexual behaviours. Women sold sex to supplement their livelihoods and when they had the opportunity to earn additional income from non-sexual activities their sex work became less economically important.

These studies identified a number of factors associated with increased condom use and included extramarital sexual activity (Bertrand et al, 1991), a negative HIV test result (Muller et al, 1992), easy access to condoms, being an older male (Wilkins et al, 1989), HIV counselling and testing of a male partner, having a monogamous relationship and believing that condoms are not dangerous (Allen et al, 1992). Other factors point to a link with educational level. Better educated people (men in particular) seem more likely to use condoms than less well educated men and women.
(Siziya et al, 1996; Borgdorff et al, 1994; Wilkins et al, 1989). There also seems to be an urban/rural divide but studies show conflicting results. Some studies report that rural people less likely to use condoms than urban people (Borgdorff et al, 1994; Wilkins et al, 1989) but Bandawe & Foster (1996) found lower reported use in young Malawian city males than small town males.

Identified barriers to condom use are not having heard of condoms (Mehryar, 1995), negative attitudes to condoms e.g. believing that they remain in the vagina after intercourse, that they diminish sexual pleasure and that they tear during intercourse (Kalyebara, 1996; Bertrand et al, 1991), lack of negotiation skills to implement condom use (especially women), desire for children (Kalyebara, 1996; Campbell et al, 1995), perception that one is at low risk for HIV (Ole-Kingori et al, 1996) and the unequal power relationships between men and women (de Bruyn, 1992).

The studies reported here indicate a variable though generally low and inconsistent use of condoms in a situation where most people have at least heard of HIV/AIDS and most know that HIV is spread through unprotected sexual intercourse. Many also believe that HIV is transmitted through other routes such as mosquito bites and casual contact with a PHIV/PWA. This may be important in terms of sexual behaviour change campaigns as people may put more effort into avoiding mosquito bites than into acquiring and using condoms. However, it is clear that condom use as a strategy to avoid HIV infection is inconsistent and infrequent. Condom use among HIV+ people who are aware of their status has not been adequately researched but indications are that condom use among this group is not high (Campbell & Phiri, 1996). Models of (sexual) behaviour change stress that while information about HIV is a necessary component of successful change it is not sufficient if not accompanied with motivation
and the necessary behavioural skills. If motivation to change is dependent on a positive attitude toward the prevention strategy (i.e. condom use) then it is understandable why sexual behaviour has not changed on a widespread or consistent basis in Africa where many studies have pointed to negative attitudes toward condoms (Bertrand et al., 1991) the presence of conflicting desires such as desire for children (Campbell et al., 1995; Chabala et al., 1995) and cultural factors e.g. female sexual compliance as a means of ensuring economic status (Campbell & Kelly, 1995).

Thus, clear and unambiguous information is required about HIV transmission and prevention (Fisher & Fisher, 1992). This points to the need for a co-ordinated approach by the various agencies involved in the prevention of HIV from the Ministry of Health to traditional healers. Local access to condoms in outlets used by both men and women is also vital. Community leaders could be used as mechanisms for attitude change toward condoms. The use of this multi-layered approach clearly fits the Fisher & Fisher (1992) model in which information needs, motivation and behavioural issues are addressed.

ARE THERE OTHER FACTORS ASSOCIATED WITH INCONSISTENT CONDOM USE?

It has been observed that unsafe sexual behaviour and non-use of condoms is not simply a function of lack of knowledge (Pivnick, 1993; Allen et al., 1993; Lwanga, 1992). Cultural beliefs about sex, sexuality and procreation are all important factors to be taken into account. Social factors are also important e.g. the oppression of women, levels of education and the prevalence of poverty. Knowing what condoms are, what
they are used for and were to obtain them are vital components determining their (non) use.

Little research has been carried out within an African context to investigate the individual and/or psychological factors which may contribute to risky sexual behaviour. Studies from the developed world may have some relevance within an African context and point to a complex array of individual factors as such as lack of peer group endorsement of condom use, inaccurate personal risk assessment, larger number of sexual partners, attribution of health to external factors such as chance, luck or fate (Kelly et al., 1990; McLean et al., 1994) and the association of unprotected sex and having a regular partner (Adib et al., 1991; Wemuth et al., 1992; De Graff et al., 1992). Many studies have pointed out that many people do not enjoy using condoms and prefer to have intercourse without them (Weinstock et al., 1993; Stall et al., 1990). Adib et al. (1991) point to poor negotiating and communicating skills as a factor in lapses from safer practices and high risk taking in gay men. Attention has been drawn to the fact that women often have difficulty in negotiating condom use because of power imbalances between the sexes (Sherr & Strong, 1992). Wight (1992) has pointed out that condom use often implies sexual activity outside the primary relationship or even promiscuity.

There are widespread beliefs in many African countries that condom promotion is a white western influenced campaign to control the growth of black African populations (e.g. Bandawe & Foster, 1996). Wilkins et al. (1989) also point to the desire for children as a component in unprotected sex. In most African societies children are considered an essential component of a successful marriage. Chabala et al. (1995) report that childlessness is a source of shame and humiliation. Yelibi et al. (1993) point
out that as the use of condoms in a marriage relationship may create an atmosphere of distrust this is an immediate barrier to use.

Beliefs about sexuality are important in understanding non-use of condoms. Campbell & Kelly (1995) point to beliefs that it is harmful for a man not to be sexually relieved when he feels the urge. Fears that a man will go elsewhere to find sexual relief may prompt women to have sex with their partners in an attempt to ensure sexual fidelity. As women in African countries tend to be economically reliant on men because of their unequal educational, economic and cultural status (de Bruyn, 1992), it may thus become very important for a woman to ensure her own and her children's economic stability by being sexually compliant even within a context where extra-relationship sexual activity is common and even expected.

However, at the most fundamental level, wide variations in condoms awareness have been identified by Mehryar (1995). This multi-site study identified that while a large proportion of people in African developing countries had heard of condoms there were sizeable minorities who had not heard of condoms, did not know what they were and consequently did not use them for HIV prevention. It appears that people in east and southern central Africa are more knowledgeable that people in west and central Africa, that men are more knowledgeable than women and that urban people are more knowledgeable than rural people.

Having access to a condom source is another vital component in condom use. Mehryrar (1995) reported that, in general, a minority of African people had knowledge of a condom source. Figures ranged from 63% of the Kenyan sample being able to identify family planning clinics as a source to 41% of the Burundian sample not being able to
identify a source at all. Travelling times to sources varied a great deal; the shortest travelling time was in Guinea-Bissau (>30 mins) and the longest in Zambia (60+ mins). If reaching sources takes more than 30 minutes it becomes less likely that people will travel to obtain condoms.

This research indicates that any sexual change interventions need to be aware of cultural, gender and economic factors before the intervention is designed and delivered. This necessitates elicitation research in different areas which, although time consuming and not evidently necessary to the intervention, seems vital if the intervention is to be delivered in a way which has meaning for the recipients.

**IMPLICATIONS FOR FUTURE INTERVENTIONS**

It seems that a carefully thought out condom intervention programme needs to operate at different levels. In order to make the sexual behaviour changes necessary to avoid HIV infection people need to know what HIV is and how it is transmitted and how transmission can be prevented. They also need to feel personally vulnerable to the infection, feel motivated and able to make changes to their sexual behaviour and have the skills to implement the desired changes (Fisher & Fisher, 1992). Access to condoms and the social validation of condom use also seems to be important. For example, the 100% condom programme pioneered by the Thai government has resulted in a substantial reduction in unprotected sex and STD and HIV incidence (Hanenberg, 1994). The components of this programme were that sex workers use condoms with all clients, their compliance is monitored and that brothel owners assist the sex worker with uncooperative clients.
The mass media can be useful at disseminating the accurate information about HIV transmission and prevention which stresses that HIV is largely preventable through consistent condom use. The information should also stimulate concerns about personal vulnerability through the identification of the kinds of sexual practices that place people at risk. This list of sexual practices needs to be non-technical, straightforward and perhaps use colloquial or slang terms or language in order to be as comprehensible as possible. This information may also need to address common fears and misconceptions that condoms are injurious to health or that they are dangerous in some way. Condoms need to be widely available to both men and women and in traditional and non-traditional outlets to maximise distribution to people who might not otherwise access them. At a more individual level it seems that individual or group psychological interventions may be useful to help people acquire the skills necessary to practice safer sex. Such interventions have been successful with gay men and resulted in reduced levels of risky sexual behaviour at follow up (Kelly, 1994; Kelly et al, 1989). This is a common intervention strategy in developed countries but extremely rare in African countries because of lack of resources and skill. This approach may also require that interventions are targeted at specific groups in society who may have different needs. Commercial sex workers may have very different concerns to those of a young person about to start a sexual relationship. Different behavioural skills might be required by groups to implement strategies to reduce HIV risk.

Several authors have commented, however, that many studies of individual sexual practices based on rational decision making models have failed to recognise that sexual behaviour is also a social phenomenon which occurs within a context (Aggleton, 1996; Donovan et al, 1994; Davies & Weatherburn, 1991). In an African context there is much to be learnt about the social, cultural and economic meanings of sex and
sexuality. What we do know is that power (sexual, economic, educational and cultural) is unequal between men and women, childbirth is very important (for cultural and economic reasons) and there is an expectation that men will have extra-marital sexual encounters. These factors are all likely to influence the pattern, frequency and type of sexual encounter and whether or not condoms are used. Qualitative studies seem to be required to explore the motivations underlying risky sexual practices in addition to studies which identify the factors associated with risky sexual practice.

CONCLUSION

HIV prevalence in Africa is high but condom use for HIV prevention remains inconsistent. A complex of factors are implicated in this. Awareness of HIV/AIDS is generally good but not universal. Good levels of knowledge co-exist with erroneous beliefs about transmission. This to some extent may be associated with educational level and/or urban or rural location but these factors do not completely account for the phenomenon. Reported vulnerability to HIV infection is variable with some areas reporting feelings of high personal vulnerability. There are large variations in condom awareness and the ease by which they are obtained. There are many beliefs about condoms which are immediate barriers to their use (e.g. that they remain in the vagina) and condom use may imply infidelity or promiscuity to sexual partners.

Research from other countries has shown that interventions based on formal behaviour change theory can have the effect of increasing condom acceptability and use such as happened among gay men in particular. Realistic personal assessments of vulnerability, high motivation to change and possessing the behavioural skill to make and maintain the change seem to have been important factors. However, much remains to be
understood. Motivations for risky behaviour remain unclear and the social and personal meanings of such behaviour is an obvious area for more detailed research.

An integrated and soundly theory approach which combines public health, community and individual initiatives seems to be indicated as the basis for the most effective intervention strategies. It is clear, however, that the interventions need to be based on sound behavioural change theory which acknowledges the complexity of the factors involved. Simplistic messages are not helpful or effective and they may have the effect of making people feel powerless to change in the face of high HIV prevalence. Any intervention needs also to be based on a clear understanding of the meanings of these practices for the people involved.
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AIDS-RELATED DEATH: A REVIEW OF HOW BEREAVED GAY MEN ARE AFFECTED
INTRODUCTION

Dying and death are part of human experience but the process and consequences of dying from AIDS often result in difficulties for the dying person and the people around them (Martin, 1988). While the emotional consequences of AIDS share similarities to death from other causes, AIDS is unique in developed countries in that it strikes mainly at young to middle aged sexually active gay men. Several authors (e.g. Dean, 1995; Schartzberg, 1994) have pointed out that gay men make up approximately 60% of those with HIV and AIDS in developed countries. Gay sexuality is still stigmatised and AIDS is highly stigmatised for the ill man and the people around him (Siegel & Morse, 1994).

While interventions aimed at encouraging gay men to change their sexual behaviours (e.g. using condoms for anal and oral sex) seemed initially to be successful recent studies point to the increase of risky sexual behaviour in gay men especially young men (Dean & Meyer, 1995; Hospers et al, 1994). Increased sexual risk taking has been associated with less positive attitudes to condoms, less effective condom negotiation skills, weaker intention to avoid anal intercourse (de Wit et al, 1993), inadequate risk perception (van der Velde et al, 1994; Lowy & Ross, 1994), alcohol consumption (Perry et al, 1994) and condom unavailability (Kelaher et al, 1994). These worrying findings show that after a decade of health education and promotion gay men are, and will continue to be, at high risk for HIV. Even if men do practice safer sex they are still likely to include HIV+ men within their social and sexual networks (Sikkema et al, 1995) and even if new infections could be prevented there is still a sizeable number of people who will, in time, develop AIDS. Thus, the gay community is one in which there are few people who have been untouched by HIV in one way or another.

AIDS differs from other terminal illnesses in several ways (Richmond & Ross, 1995). Firstly, the time from infection to death may be several years and in general is about 10 years. Secondly, as HIV affects gay men predominantly (in developed countries) it
serves to further stigmatise an already stigmatised community. These men also tend to be younger men who have been sexually active and would normally expect a life span of several decades longer. The medical interventions available to treat the associated illnesses are in the process of continual development and refinement. These interventions inevitably offer hope to people with AIDS (PWAs) but until recently they at best prolonged life. Recently, the development of protease inhibitors has offered increased hope that viral activity might be quashed indefinitely but the newness of these interventions means that there is no data on their long term efficacy. Lastly, many carers of PWAs are also HIV+ and will in time require care themselves. Caring for their ill friends and loved ones is a precursor of what they too will face in time.

These factors make AIDS-related death an experience which can have many repercussions for the bereaved gay man e.g. prolonged and intense grief (Lennon et al., 1990), suicidal feelings (Sherr, 1995), concerns for his own health (Richmond & Ross, 1995) and increased substance misuse (Martin & Dean, 1993a).

The ways in which bereaved gay men cope with AIDS-related death seem to be affected by the experience of multiple loss within their community, concerns regarding one's own HIV status, the perception of stigma or discrimination and the experience of caring and supporting friends and lovers dying from AIDS. This paper will explore these issues.

ISSUES FACED BY GAY MEN BEREAVED THROUGH AIDS

HIV is still a major health problem for gay men. Dean & Meyer (1995), for example, reported an overall prevalence of 9% in a cohort of young gay men in New York City with a higher prevalence in black and Hispanic men. European prevalence ranges from 7-17% (Bochow et al., 1994). These figures indicate that gay men (especially young men) are still being infected sexually which has implications for health promotion interventions. It also means that gay men are likely to continue to know and/or have
sexual relationships with people who are HIV+. Thus, a proportion of the community will be bereaved in the future.

In the gay community the experience of multiple losses through AIDS is common. In New York, Martin and Dean (1989) reported that by 1985 27% of their sample of 746 men had lost one or more partner or close friend. Other studies (e.g. Perry et al, 1992; Neugebauer et al, 1992) report that over 50% of gay men have lost a close friend to AIDS. While psychological distress is a common feature of bereavement it seems that bereavement as a result of multiple loss has additional characteristics including depression, traumatic stress, sedative use, and suicidal ideation (Martin & Dean, 1993a), a sense of increased personal vulnerability to the disease (Sowell et al, 1991; Klein & Fletcher, 1987; Richmond & Ross, 1995) and non-infected sexual partners may feel guilty about their own good health (Maj, 1993). While increased substance misuse itself is not uncommon among bereaved people (e.g. alcohol abuse) the choice of substances among gay men (cocaine, amphetamines, metamphetamines (ecstasy), and barbiturates) seems to be unique (Martin and Dean, 1993a).

Several authors have commented on the stress that lovers of PWAs experience (Geis et al, 1986: Johnston et al, 1995; Irving et al, 1995). Factors such as disease management problems, fear or insensitivity from the medical establishment and isolation from support networks such as family, friends and religious organisations contribute to the stress of coping with the disease in a lover.

Gay men whose partner has died of AIDS may have to cope with many repercussions not usually experienced by heterosexuals (Klein & Fletcher, 1987; Richmond & Ross, 1995). They point out that death from AIDS may lead to disclosure of sexual orientation (in either partner) to unsupportive families which may lead to isolation from them. This experience potentiates feelings of desertion or loneliness following the death of the partner and exacerbates existing loneliness or anger. Partners may be denied visiting rights to the PWA and participation in the funeral preparations if the
bereaved family are hostile to the relationship. There may be financial and legal repercussions in which the bereaved partner has no legal status. Richmond and Ross (1995) also report that sometimes the family of the dead man will say that death was not from AIDS but from some other cause (e.g. cancer).

Lennon et al (1990) point out that strains often appear in the social network of the person with AIDS and his partner because of the stresses and demands of coping with a debilitating illness. Both the PWA and his partner are in need of comfort and support and may not be given it by their social network many of whom may well be coping with their own bereavements.

Sherr (1995) reports that (repeated) AIDS-related bereavement may be a trigger for attempted or actual suicide in HIV+ gay men. While this study reports a high level of suicidal feelings in the sample (n=188, of whom 74.6% were HIV+ gay men) the actual suicide rate was low and in line with the rate for the general population. There is a debate in the literature as to the extent to which HIV+ gay men are at risk of suicide. Several studies have pointed to an elevated risk (e.g. Marzuk et al, 1988; Plott et al, 1989; Engleman et al, 1990; Pugh, 1993) and studies have linked suicide with previous psychiatric morbidity (Pugh, 1995; Gala et al, 1992) and various psychosocial stressors (Starace, 1995). In contrast however, more recent studies have indicated that while PWA's may have suicidal thoughts actual suicide is rare (Rabkin et al, 1993; Sherr, 1995; van den Boom, 1995).

Suicidal ideation must be separated from the wish for euthanasia which is defined as "a wish to prevent unbearable suffering and a degrading existence" (van den Boom, 1995). Euthanasia is considered by 33-50% of gay men with AIDS (Green, 1995; van den Boom, 1995; Laane, 1995) and in Amsterdam euthanasia is the means of death for 26% of PWAs (Laane, 1995). Data regarding euthanasia within a British context is unavailable primarily because it is illegal. In a study by van den Boom (1995) those PWAs who discussed euthanasia with their physicians seemed to cope better with their
illness than the PWAs who did not discuss the issue. There was no relationship between euthanasia and complicated grief in the partners and relatives.

There is little published literature to explore how bereaved gay men cope with the death by suicide of a lover or close friend. If the bereaved men is himself HIV+ he is consequently at elevated risk for suicidal feelings or attempt (Sherr, 1995: Starace, 1995). If he is not HIV+ it is unclear how he copes with the death. The impact of death through euthanasia on the non HIV+ bereaved is somewhat more clear. It seems that while partners and relatives are distressed by the wish for euthanasia eventually they come to accept it. Because they go through a process of coming to terms with their loved one's wishes they may be in a better position to cope with the death when it finally occurs.

It appears that there have been changes in the way gay men have experienced AIDS related bereavements (Martin & Dean 1993b). The psychological impact of loss seems to be diminishing among gay men who have survived the first 10 years of the AIDS epidemic. In their earlier work (e.g. Martin & Dean, 1989) they reported that as the frequency of loss increased so did the frequency of specific psychological symptoms and psychological help seeking. Although high levels of distress are still reported (Martin & Dean, 1993a), Dean (1995) has speculated that personal HIV concerns are replacing AIDS losses as the primary determinant of psychological distress among gay men. Previously, death from AIDS was a possibility considered by many uninfected men because of the uncertainty about what HIV actually was and how it was transmitted. Additionally, the percentage of gay men who have an HIV test has been increasing. Thus, Dean (ibid) suggests, uninfected gay men are increasingly aware of their negative status and are concerned to keep themselves HIV-. This concern about personal HIV status seems to override the emotional impact of bereavement. Dean (1995) calls this phenomenon the "salience hypothesis". In short, she proposes that knowledge of one's own negative status reduces the emotional impact of AIDS related death.
BEREAVEMENT, IMMUNE FUNCTION AND THE HIV+ GAY MAN

Martin (1988) suggested a strong link between repeated AIDS-related bereavements and high levels of psychological distress. In a longitudinal study of gay men spanning 7 years, Martin & Dean (1993) found that the death of a lover or close friend results in high levels of psychological distress and may result in suicidal feelings, depression and stress. The association between bereavement and lowered immune functioning in various populations has been noted in several studies (e.g. Schleiffer et al, 1983; Irwin et al, 1987; Herbert & Cohen, 1993) but there is conflicting evidence regarding the role that bereavement-related depressive symptoms play in the progression of HIV related illnesses.

Several studies (e.g. Burack et al, 1994; Kemeny et al, 1994) have linked both clinical depression and depressed mood with less efficient immune functioning in HIV+ gay men. However, the exact relationship between grief, depression and immune functioning remains unclear and indeed other studies (e.g. Lyketsos et al, 1993; Sahs et al 1994) have not reported a relationship between these variables. These conflicting results may be due to the nature of the grief response itself. While feelings of depression may be a part of grieving most bereaved people do not become clinically depressed. Clinical depression with its unique cognitive and emotional features (e.g. feelings of self-reproach, guilt, feelings of responsibility, over-inclusiveness, generalising) is very different to the depressed mood of a sad person who has lost a loved one. Thus, a distinction must be made between depressed mood and clinical depression but thus far most studies have not separated these experiences. On the basis of the current literature which has explored bereavement and immune functioning in other groups it seems that there ought to be a relationship between these factors in HIV+ gay men. However, it is clear that any relationship will be complex and will probably depend on many factors. This is a particularly important issue for bereaved gay men who are HIV+ themselves. If depression or depressed feelings were demonstrated to play a role in lowered immune functioning and as depression can be
treated both through pharmacological and psychological interventions then potentially survival rates for HIV+ men might be increased.

CARING FOR PWAs

There has been an increasing focus on the effect that caring for a PWA or a person with HIV (PHIV) has on the gay caregiver. Early studies focused on professional health care staff but recently attention has come to focus much more on the role that is played by volunteer carers and the lovers of PWAs. This section will also explore how participation in AIDS volunteerism may help the gay man/caregiver to better cope with loss and bereavement. Many of the earlier studies exploring the effects of professional care-giving did not separate gay men from heterosexual staff. Thus, there is a paucity of literature on how they are affected. This is especially important to understand as a proportion of gay caregivers may be HIV+ and in time may come to develop AIDS themselves. It is also important to understand the ways in which bereavement affects gay men who have been multiply bereaved and those who are isolated either in their car-giving or their bereavement.

Gay professional carers

Gay health professionals may be deeply affected by the experience of caring for many PWAs (Ross & Seeger, 1988; Piemme & Bolle, 1990; Brown & Powell-Cope, 1993). Stressful aspects of dealing with AIDS for health professionals have been identified as the youth of the patients, the neurological aspects of the disease (i.e. dementias), dying patients, and fear of HIV infection (Ross & Seeger, 1988). Burnout syndrome, described by Maslach (1982) as "a syndrome of emotional exhaustion, depersonalisation and reduced personal accomplishment...as a result of chronic emotional strain of working extensively with other human beings particularly when they are troubled" has been identified as a possible consequence of these stressors (Ross & Seeger, 1988). Additional factors that have been considered to contributing to
burnout have been repeated exposure to death and dying, profound feelings of loss and
grief, feelings of helplessness and hopelessness, increased workload, the sexual
orientation of the patient and the stigma of the disease (Bellani et al, 1996). Thus, the
stressors have been considered to be occupational and environmental.

Horstman & McKusick (1986) reported that staff who self-identified as gay were
more likely than heterosexual colleagues to experience increased anxiety, stress,
overwork and fear of AIDS. However, later studies (e.g. Bennett & Kelaher, 1993)
suggested that while grief was associated with higher levels of identification with
patients, gay workers were not necessarily more identified with their patients than their
heterosexual colleagues. Higher levels of grief were associated with burnout due to
perceived lack of personal accomplishment or unrealistic personal expectations i.e.
staff are not able to cure or ultimately prevent their patients from dying. They also
reported that lower levels of grief were associated with reliance on internal coping
strategies and social support.

Gay volunteer carers

As HIV became an increasingly important health issue for gay men, community based
voluntary organisations were established to support PWHIV/PWA's and to provide
information about HIV prevention. Many of these organisations relied exclusively,
initially at least, on volunteer helpers for every aspect of their work. Many AIDS
service organisations (ASOs) include a high number of gay and bisexual men among
the staff and volunteers (Bebbington & Gatter, 1994; Maslanka, 1996). This reflects
the concerns of gay men about those infected and affected by HIV within the gay
community (Bebbington & Gatter, 1994) and the concerns of some gay men who are
HIV+ themselves to be with others in an environment where they will not be
stigmatised. As the HIV epidemic has continued ASOs have grown and changed to the
extent that they have both salaried and volunteer staff. As the nature of volunteering
has changed a number of problems have been experienced within the ASOs which
include retaining volunteers (Bebbington & Gatter, 1994). While volunteering is, in
general, regarded as a rewarding activity (Wright, 1993) the turnover of volunteers in
ASOs is high. It has been speculated that this is because of burnout in some volunteers
due to the extremely stressful activity of caring for HIV+ gay men and the process of
being bereaved many times. Bebbington & Gatter (1994) in their study reported that
those who withdrew from an ASO did so citing either personal problems or problems
relating directly to the tasks. Regarding this issue, it seemed that the problems lay in
the area of the relationship between the volunteer and the organisation rather than
burnout form grief reactions. Volunteers felt excluded from the decision making
process and that salaried staff did not communicate with them effectively. Nesbitt et al
(1996) in a survey of 174 volunteers found no significant relationship between feelings
of grief and burnout. Rather, the volunteers who worked most hours experienced less
grief. Volunteers who were at risk for grief reactions were those who experienced
feelings of helplessness and intense emotions. Thus, while the activity of volunteering
may be stressful it seems that it is the way in which volunteers are supported that plays
a large role in burnout. Nesbit et al (ibid) and Maslanka (1996) point to the importance
of staff support for volunteers in reducing stress and to the use of systematic
approaches to stress reduction for both salaried staff and volunteers.

Lovers and friends as carers

To date, there has been surprisingly little research exploring the effect on gay men of
caring for a lover with AIDS. Johnston et al (1995) point out that HIV+ gay men are
less likely than other affected groups (e.g. intra-venous drug users) to depend on their
families for help, support and care-giving. Instead, they rely more on their friends and
partners. Caregiving seems to be a stressful activity and has been associated with high
levels of psychological distress, more frequent ill health and financial problems in the
reported that the intensity of grief experienced following a bereavement was
heightened for those men who had taken care of a PWA whether a lover or a friend.
Irving et al (1995) found that 66% of a sample of 38 gay men caring for their lovers were experiencing pathological psychological distress. This distress was highly AIDS specific and was characterised by intrusive and worrying thoughts about HIV/AIDS. Irving et al (ibid) concluded that caring for chronically ill HIV+ gay men is both extremely stressful and damaging to the mental health of the carers. This finding supports the conclusion by Turner et al (1994) that caregivers experience psychological distress and strained interpersonal relationships.

Several studies have noted that uninfected partners of PWAs may feel guilty about their own good health (Maj, 1991; Bergeron & Handley, 1992) and may have worries about being infected and going through what their lovers went through (Bergeron & Handley, 1992). Packenham et al (1995) in a study of carers also found that distressing emotions were common. Unfortunately, in this study gay male carers were not separated from family members or friends who were also carers. Interestingly, Packenham reported that illness stage was not significantly correlated with carers' distress but was correlated significantly with living arrangements i.e. if the carer was living with the PWHIV/PWA the higher was the burden experienced. Packenham et al (1995) also point out that the carer/ill man relationship is characterised by a synchronicity of level of adjustment to the illness i.e. either they cope well or badly together indicating that both use similar kinds of coping strategies.

The high levels of stress that carers experience may in part be caused by the smallness of the caring network and a deficit of social support while the PWA is alive (Wright, 1993). As has been pointed out, HIV+ gay men tend not to rely as much on family as other affected groups for their informal care and support. Rather they rely on partners and a small network of friends (Smith & Rapkin, 1995). Johnston et al (1995) have suggested that that PWAs do not ask for family support because of ignorance and fear on the part of their family members. Many PWAs are diagnosed in their middle years and have elderly parents from whom they feel they cannot ask for assistance. If the social support network is small while the PWA is alive the bereaved gay man is not
likely to have many to rely on when the PWA dies. Lennon et al (1990) stated that emotional support was demonstrated to be very important for carers in reducing the impact of the bereavement. However, this study also pointed out that many of the formal support networks that gay men would turn to in times of bereavement are staffed by gay men who in time might also be at risk for psychological distress due to AIDS-related bereavement.

DISCUSSION

HIV and AIDS is, for most gay men, something which impacts upon their lives in a real and profound way and leaves very few untouched in one way or another. Many men have lost close friends and lovers and many more are carers for PWA's through their personal and professional lives or volunteering activities. Data from epidemiological studies reveal that gay men are still being infected and will, in time, die from AIDS. They will leave friends, lovers and families behind them who will have to cope with the loss.

The evidence reviewed here does not suggest or imply that the process of bereavement for gay men bereaved through AIDS is qualitatively different to other bereaved people or groups. Aspects of bereavement identified by authors such as Rando (1984) and Rolland (1990) seem as relevant for gay men as they do for any other group e.g. denial, bargaining, disbelief, anger, acceptance, rehearsal of death, making amends, saying goodbye. However, while death is difficult to cope with for most people the impact of multiple loss for gay men and the nature of death from AIDS has led to many difficulties in coping. Like every activity, death occurs within a societal, cultural and political context. AIDS as a cause of death has several unique features which makes it different from other terminal illnesses. AIDS is a stigmatised illness because of its association (in developed countries) with a stigmatised group of people (gay men) and stigmatised sexual activity (especially anal intercourse). The course of the disease is also uncertain in which there are long periods of good health interspersed with periods
of ill health which gradually become more frequent. Prophylactic medication may have to be considered in a time of relative good health but paradoxically the side effects cause physical problems. PWAs are usually young men in the prime of their lives and those caring for them may be HIV+ themselves. These factors create a situation in which HIV+ men are not only coping with their illness and all the uncertainty attached to it but are at the same time facing societal condemnation, intensified homophobia, social isolation and a sense that they got what they deserved. Bereaved gay men will share some stigma because of their shared sexuality and this may be reflected in their access to supportive networks in times of need or crisis. The research indicates that caring for a PWA is an intensely stressful activity and one which is made worse by lack of support or isolation of the carer. Disapproval or hostility to the bereaved partner may also be reflected in the way in which he is treated by the family of the dead man. Refusal to acknowledge the relationship or hostility to it and denial of the cause of death may also add considerably to the burden experienced.

However, in the middle of the second decade of this epidemic it appears that gay men are beginning to cope differently with their bereavements. The work of Martin & Dean (1993a; 1993b) and Dean (1995) seems to indicate that they are, in general, less distressed by the losses than they were in the early years of the epidemic. The reasons for this apparent change in reaction are complex, multi-factoral and not well understood as yet. In the early years of the epidemic the ways in which the virus is transmitted were unclear and indeed until 1986 there was confusion about what exactly the virus was. This confusion was reflected in the various names that were given to the virus and the syndrome of illnesses we now call AIDS e.g. HTLV 111, LAV, gay related immune deficiency. It seemed that the very state of being gay was a risk factor in itself. This created a situation where the gay community were afflicted by a disease of unknown origin which did not have a name (or had several) and was transmitted in unknown ways. High levels of distress as a reaction to the deaths of friends and lovers were a natural consequence of this confusing, bewildering and panic inducing situation.
Subsequent medical advances including the development and refinement of the HIV antibody test, the discovery and development of anti-retroviral agents and the improvement in understanding the nature of the virus and the course of the illness have contributed to a situation in which life expectancy for a PHIV is now 10+ years. The routes of transmission of the virus are clear and avoidable and HIV is not simply an inevitable consequence of gay sexual activity. Consequently, the fear and panic which characterised the epidemic for several years has died down. This historical context has provided the framework within which gay men's reaction to AIDS related loss has changed.

This context may also reflect an adaptive process by which gay men are increasingly concerned with preserving their HIV- status. This may be reinforced when coming into contact with HIV+ people or death from HIV and, paradoxically, it seems that the process of caring for a man with AIDS can intensify this phenomenon. Familiarity with the process of death from AIDS may also explain this phenomenon to some extent. As a substantial proportion of gay men have been bereaved in this way it may be that over the years they have developed coping styles or strategies which allow them to be less distressed than previously.

The process of volunteering in ASOs or in some other form of AIDS activism (e.g. Gay Men’s Health Crisis, AIDS Coalition to Unleash Power - ActUp) may also serve to bring gay men together in a supportive social and politically focused network which alleviates the impact of bereavements in the group members. Activism may further serve as an outlet for anger, sadness or distress and one which also provides a positive and hopeful focus. Instead of there being an individual concentration on feelings of hopelessness and helplessness activism provides a focus for preventing, as far as possible, other gay men becoming infected or the defence of the rights of those already HIV+. While some men in these organisations may be at risk for burnout due to the stressful nature of the work it seems that this can largely be prevented if they are adequately supported. Paradoxically, it seems they become more unhappy with the
organisation if they are not allowed to participated fully in the making of decisions which may be a stressful activity. Potentially, the process of being involved in an activity which has a positive focus prevents burnout and may increase the individuals sense of efficacy.

However, there is a substantial body of literature which strongly indicates that gay men caring for an ill partner or friend are at risk of serious psychological distress which in many men may be at a pathological level. Factors which contribute to high levels of distress seem to be social isolation, financial pressures and a small network of carers who provide support for each other and the ill man. High levels of distress, especially at a pathological level seem at odds with reduced levels of distress once the PWA has died. This contradiction is not well discussed in the HIV literature and it may be helpful to look at the broader grief literature to explain this phenomenon. The concept of anticipatory grief (Rolland, 1990) attempts to explain the process in which those close to the dying person come to terms with their impending death, confront and resolve areas of conflict, express feelings and make plans for the time when the dying person is dead (Rando, 1984). Aspects of anticipatory grief identified by Fulton and Fulton (1971) include depression, heightened concern for the terminally ill person, rehearsal of death and acknowledgement of the consequences of the impending death. As AIDS is characterised by a series of illnesses which become more frequent and severe there is time for the PWA and his carers to acknowledge that death is inevitable. Coming to terms, at least to some extent, with the inevitability of the impending death of the PWA may be a highly distressing process for carers which may be manifested by major changes in affect, worrying and/or intrusive thoughts and fears for the future. However, this process may prevent high levels of distress once the death has occurred and may facilitate healing. This is an obvious area for further research.

There is little written in the literature about the ways in which gay men engage in rituals to mark deaths or other important dates or events connected with the dead man and which are part of the process of grieving. As many gay men are alienated from
heterosexual society and tend to live within gay dominated sub-cultures it is less likely that they will turn to (heterosexist and possibly homophobic) established religions for spiritual comfort. Alternative forms of religious, spiritual and memorial ceremonies have been developed by gay men (e.g. the remembrance quilt, AIDS vigils, candlelight marches) but there is little or nothing in the literature to explore whether or not this is a part of the process by which gay men cope with their bereavements. Paradoxically, AIDS has provided the gay community with a common focus and the epidemic may have helped to bind disparate groups and factions within the community. This sense of relying on the community rather than on services provided by (predominantly) heterosexuals (e.g. psychotherapy, social services, ministers of religion) has been a painful process and has taken time to develop but may also help to explain the apparent change in coping behaviour. If the community is developing appropriate mechanisms for support, appropriate outlets for the expression of anger and grief and grieving rituals are more formalised, the levels of distress noted in the early years of the epidemic may be more contained and shorter lived. As these rituals and mechanisms were initiated by the gay community they obviously serve a purpose and an interesting focus for future research would be whether or not and by what process(es) they alleviate or mitigate the distress of loss.

The role of bereavement related depression in the progression of HIV related illnesses remains unclear. Studies of other bereaved groups (e.g. spouses) have linked bereavement related depression to the less efficient functioning of the immune system. Research in the HIV field has thus far yielded conflicting results but it does seem necessary to separate the experience of depressed mood from clinical depression as the inclusion of people with these different experiences within the same study are likely to confound the results.

The effects on professional staff of caring for PWAs has been of concern because of the potential effects of burnout. Recent research indicates that staff who work in the field have a high degree of involvement with their work, spend up to half their
socialising time with their colleagues and talk about their work to their wider social circle (Miller & Gillies, 1996). Potentially, because of their identification with their work they are at risk of over involvement and burnout. However, while it seems that caring for PWAs is stressful the effects on staff are more related to their personal characteristics (e.g. age, coping mechanisms, levels of anxiety and depression) than to the nature of the work itself. Support for staff and sensitivity to their individual coping strategies seem to be important components in preventing unnecessary stress and potential burnout. While gay staff are not necessarily more identified with the patient group than are heterosexuals, gay men do make up a significant proportion of HIV/AIDS staff and seem to be motivated by their concern for other HIV+ gay men. The processes by which gay male staff protect themselves (especially HIV+ staff) from over-identification and burnout is not elaborated in the literature and deserves further exploration.

The HIV/AIDS epidemic has had profound effects on the lives of most gay men. Few are untouched by the experience of loss and bereavement and most, at the very least, have had to re-evaluate their sexual practices in the light of how the virus is transmitted. The ways in which gay men as friends, carers, lovers, professionals and volunteers have been affected by the deaths of those close to them seems to have changed over the years. One of the few benefits HIV may have brought is an increased sense of solidarity and common purpose which has created a more supportive framework within which to experience loss, express feelings associated with that loss and then move on. If this is in fact the case the gay community will need all the resources it has to continue to cope with the losses it will surely suffer in the future.
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REVIEW 3

A REVIEW OF THE PSYCHOLOGICAL EFFECTS OF VERTICALLY ACQUIRED HIV INFECTION IN INFANTS AND CHILDREN
INTRODUCTION

As the number of HIV+ women of child bearing age has grown there has also been an increase in the number of children with HIV (European Collaborative Study (ECS), 1996; Havens et al, 1994: Melvin & Sherr, 1993). It is clear that vertical (mother to foetus or child) transmission is and will remain the principal source of paediatric HIV/AIDS in this country and worldwide (ECS, 1996; Nozyce et al, 1994a: Connor et al, 1994). A small percentage of children have been infected through blood products (Czarniecki & Dillman, 1992) but as blood and blood products are screened for HIV the number of children infected this way is diminishing. Some studies have reported that there are differences in length of survival depending on how the virus was acquired initially i.e. perinatally or through transfusion (Frederick et al, 1994: Cohen et al, 1991). The rate of vertical transmission in Europe is 15-20% and research indicates that 25% of infected children develop AIDS in the first year of life and about 40% by the age of 4 years (ECS, 1996, 1994). Early onset of symptoms is associated with reduced length of survival (Pizzo et al, 1995; Scott et al, 1994). These results suggest that there is a faster rate of disease progression than in adults (Pizzo et al, 1995; ECS, 1994). In sub-Saharan African countries the vertical transmission rate appears to be approximately 30% (Chin, 1994). Whether the higher observed rate of perinatal transmission in sub-Saharan countries is due to a larger proportion of pregnant women who are in the later stages of HIV infection or other unknown factors needs further study. However, while a large proportion of children develop AIDS early in life others survive for several years into school age without developing AIDS (Chin, 1994; Tovo et al, 1992).

Much of the focus on paediatric AIDS has been on the tragically rapid progression to death in many infected infants and children. However, with the advent of more sophisticated drug and medical regimens many of these children will survive for longer periods of time (Barnhart et al, 1996; Italian Register for HIV in Children, 1994). A consequence of survival is that neurological and psychological difficulties associated
with the virus become more apparent. Belman et al (1992) report that central nervous system (CNS) involvement is more common in children than in adults and is either directly related to HIV itself or emerges as a complication secondary to immunodeficiency. Developmental delays, learning difficulties and deficits in neuropsychological functioning have been reported as common in children with HIV (Wolters et al, 1995; Gay et al, 1995; Levenson et al, 1992).

Despite efforts to describe the developmental outcome of HIV infected children, it is difficult to estimate and verify the real incidence of paediatric neurodevelopmental pathology in infected children from the existing literature. Turner et al (1993) reports that the incidence of paediatric HIV related neurological conditions is probably under-reported. 60-90% of children with AIDS in the United States reportedly have neurological impairment while the figures for European children are in the range of 20-30% (Msellati et al, 1993: ECS, 1990). The neurological effects of HIV have been much more extensively explored in adults than in children but the clinical course in children appears to be different (Cohen et al, 1991). Different studies have used different methods to assemble study cohorts, with some groups examining children who came to the attention of medical services primarily because of previously undiagnosed HIV symptoms, while other studies have followed children born to HIV infected mothers and assumed that sero-reverted children were adequate controls for HIV infected children. There has been little consistency among researchers in the choice of test batteries used to assess these children and some instruments have been non-standardised (Nozyce et al, 1994). The role of other factors (e.g. pre-natal maternal drug or alcohol use) in the development of developmental or neurological difficulties is unclear.

This paper aims to identify and clarify the psychological and neurological difficulties experienced by infants and children with HIV. The psychological consequences for them and their families will be examined as will interventions aimed at mitigating the symptoms.
CENTRAL NERVOUS SYSTEM INVOLVEMENT

Studies indicated that the central nervous system (CNS) is infected early in the course of the disease (Blanche, 1994; Belman, 1992). However, the stage of brain development at which CNS infection occurs varies among subsets of infants and children. Thus, this may be an important component in the development of the different patterns of disease progression observed among infants and children.

Damage to the CNS is believed to be caused by the direct effect of the virus on brain tissue with one of the most common findings being cerebral atrophy with secondary enlargement of the subarachnoid space and ventricles which makes children vulnerable to meningitis, encephalitis and tumours (Pizzo et al., 1995; Czarniecki & Dillman, 1992). Microcephaly or reduced centiles for head circumference is also common in these children (Schmitt et al., 1991). Ataxia, spasticity, rigidity, hypertonicity, hyper-reflexia, bilateral pyramidal tract signs and seizures may also be present (Czarniecki & Dillman, 1992; Belman, 1992). Calcification of the basal ganglia has also been noted (DeCarli et al., 1993).

Belman (1992) points to the involvement of co-factors in the development of CNS problems. Women with HIV infection are at higher risk for premature delivery (Abrams et al., 1995). The premature HIV+ infant is consequently at high risk for developing CNS complications in the perinatal period and is also at increased risk of mortality (ibid). This may be due to a more underdeveloped immune system than in full term infants or poorer maternal health. Furthermore, children who acquired HIV through transfused blood products are at high risk for developing CNS complications that are related to the underlying disease that necessitated the transfusion (e.g. haemophilia, cancer). In a study by Blanche et al. (1994) the rate of transmission to the infant increased in parallel with the severity of the infection in the mother. Additionally, the risk of CNS involvement in infants whose mothers were in an advanced stage of
HIV infection was three to four times higher than those infants whose mothers were asymptomatic.

A criticism made about studies which examine the effects of HIV on CNS functioning is that there is no generally agreed system of classifying HIV associated encephalopathy in children (Wolters et al, 1995). Many studies have had small samples, have been descriptive and have not controlled for confounding factors e.g. parental drug use, social deprivation. Some institutions (e.g. the National Cancer Institute in the USA) have attempted to classify symptoms using results from psychometric and CT scan investigations rather than relying on a single assessment tool.

DEVELOPMENTAL DELAY

Early studies of the effects of HIV infection in children pointed to developmental delay and progressive cognitive impairment in older children (Belman et al, 1988; Epstein et al, 1987, 1988; Scott, 1990). Later studies, however, present a more complex picture. Nozyce et al (1994a), for example, reported that in their study cognitive and motor impairments appeared to be present predominantly, although not exclusively, in those HIV infected children who develop a serious AIDS defining condition in the first 2 years of life. In the same study HIV+ children without an AIDS defining condition were found to develop, on average, in a manner similar to control children of comparable sociodemographic background.

Tardieu et al (1995) in a longitudinal study of 33 children found that 67% had normal school achievement at a mean age of 9.5 years. However, the study also discovered significant rates of visuo-spatial and time orientation problem (54%), speech and/or language delay or articulation disorders (44%) and affective disturbances (29%).
However, infants born to HIV-infected mothers are at increased risk for a variety of additional factors that can adversely affect development. Low birth weight, poor prenatal care, poor maternal nutrition, being raised in a single parent family, and foetal alcohol and drug exposure have been shown to be significant factors in contributing to developmental delays (Speigel & Mayers, 1991). McKinney & Robertson (1993) report that HIV+ children are significantly smaller than HIV- children in both weight-for-age and length-for-age measurements.

A criticism levelled at many of the European and North American studies is that many of the HIV+ children are born to mothers who acquired HIV through intra-venous drug use (IVDU). Thus, the effects of HIV on neurological development is confounded by the potentially damaging effects of maternal IVDU on the child. In an attempt to separate these factors Msellati et al (1993) compared a group of HIV+ children in Rwanda (where IVDU is almost unknown and where all mothers had been infected heterosexually) to a group of HIV- children of the same socio-economic status. 15%-40% of the HIV+ children had abnormal neurological examinations with the percentage generally increasing with age. These rates are generally lower than those in the USA. HIV+ survivors had milder neurological impairment than those in whom the disease developed in the early months of life. Potentially these results are very important as it is very unlikely that the children studied had been affected in utero by maternal drug use. However, as Rwanda is one of the poorest African countries factors such as poor maternal nutrition may have contributed to foetal neurological development. Additionally, the research tools utilised may not have been appropriate to the population studied in terms of using abbreviated versions and applying them to a population for whom it is unlikely there are norms. Finally, there are methodological problems in translating items from scales researched and written in western European countries to an underdeveloped country such as Rwanda. However, these results are generally reflected in the findings by Gay et al (1995) in which the cognitive and motor development of both HIV- and HIV+ children born to non-drug using HIV+ women
was assessed and compared over 24 months. Overall, HIV+ children developed at a slower rate compared to the uninfected children.

Environmental factors including poor nutrition, prolonged hospitalisation and social isolation are also factors which may contribute to delays in children although Andiman et al, (1988) reported that environmental differences did not account for developmental delays in a controlled comparative study of HIV+ and HIV- infants in which socio-economic and cultural factors were controlled for. The impact of parental illness, death, and absence due to hospitalisation on childhood development is highly significant for HIV+ children but this issue has not yet been thoroughly examined in relation to contributing to developmental delay (Speigel & Mayers, 1991).

In summary, present research indicates that developmental delay does not occur in all children. Specific problems do exist, however, as indicated from the Tardieu (1995) and Nozyce et al (1994a) studies. The findings from Blanche et al (1994) and Tardieu et al (1995) suggest that the more ill the mother at delivery the higher the risk of CNS involvement and developmental delay in the infant. If CNS symptoms are observed before age three most children die before age six whereas those children alive at six years have fewer neurological symptoms and are able to attend conventional schools.

SPECIFIC COGNITIVE DIFFICULTIES

Levenson et al (1992) reported that in their sample of forty-one HIV+ and eight sero-reverted children the level of cognitive ability was found to be well below average with 44% of the sample scoring in the "mentally retarded range". Specific deficits were discovered in verbal and memory functioning. The sample scored highest on motor and performance tasks although scores were still in the low average range. Overall, the children demonstrated weaknesses on those tasks which measure receptive and expressive language. While the authors point to the fact that early detection of specific difficulties may be helped by appropriate educational interventions it is surprising that
the authors identified the children with difficulties as falling into the "mentally retarded range". The use of categories such as this, however well meaning, cannot be helpful to children who may well be already stigmatised as a result of the HIV status. A striking finding in this study was the similarity between the scores of seroreverters and of neurologically intact HIV+ children. This suggests that HIV+ children are similar to seroreverters prior to neurologic involvement. Havens et al (1993) also report that HIV+ children scored lower than controls on short term memory and reasoning tasks but found no differences in language abilities between HIV+ and HIV- children.

Levenson et al (1992) noted that when neurologic deficits were also present cognitive functioning was severely compromised. Thus, it appears that neurologic impairment intensifies cognitive deficits. This finding is supported by a study by Wolters et al (1995) in which HIV was shown to be associated with difficulties in both receptive and expressive language functioning in children with symptomatic HIV disease. Deficits were more pronounced in children with CNS involvement.

Msellati et al (1993) in Rwanda reported that 31% of those aged 12 months and 40% of those aged 18 months displayed gross motor retardation. Language functioning was affected later in life and to a lesser degree than gross motor function. Nozyce et al (1994a) report that mental and motor impairments appear to be present predominantly, although not exclusively, in HIV infected children who develop a serious AIDS defining condition in the first 2 years of life. In this study of 21 HIV+ children, 65 seroreverted children born to HIV+ mothers and 95 HIV- children born to HIV- mothers, they report that the HIV+ children scored at approximately two standard deviations below the Bayley Scales of Infant Development (1969) for both the mental and motor indices. These deficits persisted at follow up assessments. HIV+ children who did not have an AIDS defining condition developed, on average, in a manner similar to control children of a similar sociodemographic background. This result is similar to that of Levenson et al (1992) and the study by Tardieu et al (1995) generally supports this conclusion. Unfortunately, the Nozyce et al (1994a) study does not
specifically list the deficits found in the HIV+ children but rather implies that there were global deficits.

Wolters et al (1995) suggests that cognitive deficits (and specifically expressive and receptive language deficits) are the direct result of HIV related CNS disease rather than the influence of environmental factors. However, the exact pathogenesis of language impairment is unclear and is likely to be complex. Damage to the basal ganglia may be a component as may damage to the myelination process of the frontal and parietal brain regions (Gay et al, 1995). These regions are responsible for several language associated skills.

BEHAVIOURAL PROBLEMS

The number of HIV+ children surviving into school age is increasing (Grubman et al, 1995) due in part to growing medical sophistication. To date there has been little published research on behaviour disorders in this group but several authors have referred to such problems.

There are several reasons to predict increased incidence of behavioural problems in HIV+ children. Attention deficit disorder (ADD) may be one of the consequences of HIV infection (Grubman et al, 1995; Brouwers et al, 1989). Corsi et al (1991) report hyperactive disturbance in 34% of HIV+ children and Hittelman et al (1993) report severe attentional deficits in 53% of HIV+ children over 4 years of age. Tardieu et al (1995) in their longitudinal study, report the presence of affective disorders in 29% of their sample. Speigel & Mayers (1991) suggest that HIV+ children are at increased risk for depressive symptoms as a result of prolonged illness, medication side effects and physical pain. Psychosocial stressors associated with the infection (e.g. chronic illness, stigma, secrecy and loss) may serve to increase psychological and behavioural problems.
It is possible that HIV infection affects regions of the brain involved in the regulation of behaviour. There is evidence from post-mortem studies that HIV affects subcortical brain structures such as the basal ganglia which is involved in the regulation of affect and behaviour (Pizzo et al, 1995; Belman et al, 1988) but Havens et al (1994) has noted that this kind of damage may also occur in non-infected children of IVDU mothers. Thus, the effects may be very difficult to separate. The effects of HIV on motor and cognitive functioning occurring even in the absence of encephalopathic syndromes may in turn influence behavioural adjustment.

Havens et al (1994) found a high rate of disruptive behaviour disorders in a sample of HIV+ children who had been exposed to maternal drug dependence. However, similarly high rates were found in seroreverted and HIV- children who had also had foetal exposure to drugs. This suggests that foetal exposure to drugs is a more important factor in the aetiology of such disorders than HIV. However, in the same study there was evidence that HIV+ children experienced more symptoms of anxiety than the control group (ibid). In a study of haemophiliac children infected through blood products, Hooper et al (1993) failed to find any clear evidence of behavioural problems in an asymptomatic group of HIV+ haemophiliac children and adolescents.

Thus, the role HIV plays in the development of behavioural problems remains unclear. It is possible that HIV does damage those brain centres involved in the regulation of mood, emotion and behaviour. However, it is also important to take into account the home circumstances of those children experiencing behavioural problems. It may well be that the combination of variables such as poverty, parental drug use, parental infection and/or death, bereavement, chronic illness, discrimination, stigmatisation, poor access to medical and other kinds of support and missed schooling due to illness may be more important in the genesis of behavioural problems than HIV itself. Haemophiliac children who acquired HIV through infected blood products did not seem to exhibit behavioural difficulties. This suggests that such difficulties must be
seen within the context of the problems that face the family in which there is an HIV+ child.

**TREATMENT INTERVENTIONS**

The stage of maternal HIV infection seems to be a primary determinant of disease progression in the infant. Medication which decreases maternal viral load (e.g. Zidovudine (AZT), an anti-retroviral agent) may reduce transmission rate to the infant or slow the course of the disease in the infant (Blanche *et al*, 1994). Abrams *et al* (1995) reported that women who received AZT during pregnancy were less likely to vertically transmit HIV than untreated women. However, these results must be viewed with caution as the majority of women only received the medication during pregnancy and not during delivery or the immediate post partum period during which there is a high risk of transmission. Connor *et al* (1994) found that AZT administered during pregnancy, delivery and to the infant for the first six weeks of life was effective in reducing the risk of maternal-infant transmission. This multicentre clinical trial found that the reduction was in the region of 60%+. However, medication such as this does have side effects and the pregnant mother may need skilled counselling in order to make an informed decision.

Zidovudine (AZT) has also been used as a treatment intervention for HIV+ children (Nozyce *et al*, 1994b). Initial studies have shown that the use of continuous intravenous infusion of AZT resulted in significant improvements in cognitive status after 3, 6, and 12 months (Brouwers *et al*, 1990). McKinney *et al* (1991) found improvement in the cognitive functioning of children during the first six months of therapy in which the AZT was administered orally. Pizzo *et al* (1995) report that AZT may be useful in the maintenance of IQ within the normal range. However, Nozyce *et al* (1994b) found no improvement in neuropsychological functioning of socioeconomically deprived children who had been administered AZT orally for 1 year. This may be due to the route of administration and it may be that continuous infusion
is more effective as it allows for maintenance of steady-state drug levels and eliminates the confounding issue of patient compliance as compared with intermittent oral administration. Brady (1994) has suggested that combination therapies of AZT and other antiviral agents (e.g. acyclovir, DDI) have provided evidence of increased drug efficacy in delaying symptoms of HIV. Pizzo et al (1995) reports that while antiretroviral interventions may lower the incidence of developmental problems it is not known if the interventions have an overall positive effect on length of survival.

Intervention strategies in all developmental disorders are based on the premise that developmentally delayed children are both slower in the acquisition of new skills and more likely to learn, or have already learnt, disruptive behaviours. Because language skills are central to the development of social functioning in childhood Spiegel & Mayers, (1991) suggest that early language therapy is particularly important in children with symptomatic HIV infection and social skills training may also be useful for older children as may play therapy (ibid). Wolters et al (1995) suggest that as language delay may be an early indicator of HIV related CNS disease anti-retroviral therapy should be strongly considered at that point. Behavioural interventions may also be appropriate for such problems as tantrums and non-compliance with medication.

However, treating the child directly may not always be possible (Melvin, 1996). The parent(s) may not have either informed the child, other members of the family or agencies with whom they are involved (e.g. school) that the child is HIV+. This can lead to a situation where parents are unwilling to allow their child attend for treatment(s) in case the secret is found out. Often, the parent is also HIV+ and may not have the energy and/or motivation to carry out developmental or management programmes that require sustained effort. Melvin (ibid) suggests that a family based psychotherapeutic approach aimed at changing systems and processes is more useful than individual psychotherapeutic input for the child. This can be difficult, however, if important members of the family are unaware of the diagnosis.
THE ILL CHILD IN THE CONTEXT OF THE FAMILY

Melvin & Sherr (1993) have stated that children with HIV must be seen as having exactly the same needs as other youngsters with some additional special needs. Consequently, their psychological and medical care needs to be seen within the context of their family. They are not mini-adults and may not obey therapeutic instructions and follow regimens faithfully. They may wish to engage in activities that are harmful or potentially dangerous. They may have a limited understanding of their illness and may not understand the benefits of the medical or other regimens in which they are participating.

In addition to coping with a terminally ill child Wiener et al (1994) have stated that families have to cope with many social stressors including public fear and ignorance regarding the nature and transmission of HIV, discrimination, isolation, social ostracism, stigma, and the fear of physical and mental disability. Many parents will themselves be infected with HIV and will be coping with their own failing health whilst also caring for one or more ill children (Grubman et al, 1995; Wiener et al, 1992). Many of the families affected by HIV are socioeconomically deprived and HIV compounds their financial and social problems. Some parents will be dealing with other stigmatised problems such as IVDU. Wiener et al (1994) in a study of parents of HIV+ children found that they experience clinically significant levels of depression and anxiety and HIV+ parents may experience greater anxiety due to fears that their own health will deteriorate before that of their child. Melvin & Sherr (1993) have pointed to the fact that parents of HIV+ children may need nurturing themselves due to a combination of their own HIV status and the stress of looking after a terminally ill child or children. Effective parenting may be hampered by the physical and emotional consequences that HIV brings and some parents be seriously affected by feelings of guilt at having infected their child with HIV.
Melvin & Sherr (1995) in a study of 76 families where one or more members were infected with HIV found that only 7% of 57 HIV+ children had been informed of their status. The study also points to the high percentages of uninfected children who were not informed of their parents or siblings HIV status. For these families, HIV infection may not have been the most pressing worry as many had to cope with refugee status, housing problems and social isolation. They may also have been concerned that HIV was still heavily stigmatised.

Grubman et al (1995) have pointed to frequent absenteeism from school as being a component in the poor school performance of 34% their sample of 32 school age children. Absences were attributed to illness, hospitalisation and multiple doctors' visits. 62% of children in this sample also received intra-venous medication at school adding to absences from the class.

Niehubr et al (1994) reported that parents perceived that their HIV+ children did not need any emotional help for the physical or social problems they were facing nor did the parents perceive they needed any help in talking to their children about their illness. Services must reflect both the needs of the child and other family members in order to respond effectively to these issues and provide as much support to the family so that parents are as empowered as possible to care for their ill child or children (Melvin, 1996; Weiner et al, 1994; Melvin & Sherr, 1993; Czarneicki & Dillman, 1992). Siegel & Gorey (1994) have pointed out that children who experience parental loss through death from AIDS are at increased risk of pathological grief. They may be faced with the realisation of their own death in addition to coping with a terminal illness without parental support.

PAEDIATRIC HIV IN THE BRITISH CONTEXT

Much of the available information about the effects of HIV infection in infants and children comes from the USA (Melvin, 1996). A major difference between the British
and American experience has been that in Britain the main route of maternal infection has been heterosexual whereas a large proportion of HIV+ American women were infected either through IVDU or through sexual intercourse with an IV drug using partner. The literature suggests that children born to IVDU mothers have a different presentation from those mothers infected heterosexually which includes higher rates of emotional and behavioural disturbances. This may be due to the effects of in-utero parental IV drug use on the child and/or the psychological, developmental and emotional effects that parental drug use has on the child. Melvin (1996) reports that, in contrast, a large proportion of children with HIV in London (which has the highest concentration of HIV+ children in the UK) have parents who originated in sub-Saharan African countries (66%+). These parents are rarely IV drug users and in addition to coping with an ill child or children, these parents often had to cope with refugee and residency issues, social isolation and language barriers. Cultural differences in child rearing practices, parenting roles and understanding of illness present challenges to the professional staff working with these families. Thus, the British and American experiences are very different from a social and cultural perspective.

It is less clear if there are major differences in the type of symptoms observed or the stage at which they occur. French data (e.g. Tardieu et al, 1995; Blanche et al, 1994) include women from African countries (19-30% of samples) and it is possible that the situation here is similar to that in France. Further research is urgently required, however, to determine patterns of symptomatology and disease progression in these children. Many of these parents are from sub-Saharan countries and have left their country of origin because of economic and/or political oppression. The impact of their difficulties in a new culture (e.g. residency issues and financial circumstances) on the way they cope with their own and/or children’s HIV infection is unclear and requires further study. They bring with them their own styles of child rearing which may bring them into disagreement with professionals who may have a different view about issues such as secrecy regarding HIV status. More needs to be understood about the most appropriate ways in which to deliver services to families who have different cultural
norms and who may already be traumatised as a result of their experiences in their own countries.

DISCUSSION

Recent research indicates that the number of children with HIV is increasing reflecting the spread of the disease in adults. Medications such as AZT seem helpful in reducing vertical transmission to the infant and in prolonging life. Other medications control opportunistic and other infections to some extent.

However, the research already carried out makes it difficult to generalise about the psychological and neurological effects of HIV in infancy and childhood. Small sample sizes, use of different instruments to assess cognitive functioning, and a focus on infant development have made it difficult to draw conclusions about the effects of HIV on mental development and cognitive processes in older children. Many studies have reported developmental delays without specifying which language and/or motor skills are most or least impaired. School age children need particular attention as there is a lack of clarity in the literature about the effects of HIV on behaviour.

Recent research indicates that developmental delays are not inevitable. The progression of the illness in the child seems strongly influenced by the stage of the disease in the mother at the time of delivery. Developmental delay and CNS involvement seem more common in those children whose mothers were in the later stages of HIV infection at the time of delivery. Children who remain relatively well seem to have less developmental delay and CNS involvement but specific problems like visuo-spatial and language difficulties are common. This information justifies medical interventions with the mother aimed at reducing her viral load which may reduce transmission rates to the child or slow down the progression of the disease. More research is needed to determine the most effective drug or combination of drugs and the optimum time to intervene.
Early intervention, where appropriate and possible, when there is evidence of a behavioural disorder, may improve the quality of life for these children and their families. However, any intervention may be compounded by factors such as parental HIV infection, secrecy about the diagnosis and issues such as housing difficulties, legal problems (e.g. residency) and financial difficulties.

There is a need to further clarify the role of HIV in the development of such disorders as attention deficit disorder as this responds well to drug intervention in HIV- children but the effects of these medications on HIV+ children are as yet unknown. The diagnosis of such disorders must, however, be made with care as factors such as bereavement and grief, parental illness and absence from school may also contribute to the emergence of disruptive or difficult behaviour. In such cases medication may not be appropriate or may only be appropriate when used in conjunction with a psychotherapeutic intervention.

In the study of childhood HIV infection it has been difficult to determine the specific relationship between HIV and cognitive functioning because of the confounding factors of socio-economic disadvantage and maternal drug use before or during pregnancy. Consequently, it has been extremely difficult for studies to separate the effects of HIV disease and in utero drug exposure. Similarly, children who have acquired HIV for blood transfusion need to be separated from those who have acquired it prenatally as it is not clear that disease progression and symptoms are the same for both groups.

Neurodevelopmentally, closer examination of all the variables which impact on cognitive and motor functioning is needed. These include not only prenatal and socio-economic risk factors but current academic, social and medical interventions to which the child is exposed. Medically, accurate monitoring of medication levels and compliance of drug taking is necessary in order to administer the optimum dose of helpful medications which may have beneficial neurodevelopmental effects.
Paediatric HIV in the British context is dominated by HIV+ children many of whose parents originate in African countries. These families may be coping with problems other than HIV. Cultural factors, isolation, language proficiency, financial issues and parental HIV infection may place huge additional strains on these families. Health professionals in contact with them have the challenging task of delivering services in the most appropriate possible way.

In conclusion, there are a growing number of HIV+ children living for longer periods. However, early emergence of symptoms is associated with reduced length of survival. CNS involvement, developmental delay and cognitive and language difficulties may be HIV related but care must be taken in the diagnosis and treatment of such symptoms as the child's family life may also contribute to the emergence of such symptoms.
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SECTION THREE: clinical dossier

DEVELOPING CLINICAL PSYCHOLOGY SERVICES TO PEOPLE WITH HIV

GROUP COUNSELLING FOR PEOPLE ALREADY INFECTED WITH HIV: A CASE STUDY FROM ZAMBIA
INTRODUCTION

Sexual behaviour change among African people already infected with HIV is a neglected area and few counselling interventions have specifically targeted them. People with HIV (PHIV) have many psychological needs which include coming to terms with their HIV status, coping with disclosure to family and friends and coping with the fears and anxieties that accompany a terminal illness. AIDS is often slow to develop and because people have long periods of relative health many carry on with their lives and sexual practices as they did before they became infected. PHIV who are sexually active and not engaging in safer sexual activities are of concern because of potential reinfection of HIV and/or infection of other STD's which may further weaken their immune systems. There is also a risk of transmitting the virus to a sexual partner (or foetus).

Prevalence of HIV (and other STD's) in Zambia is high and transmission among adults is almost exclusively heterosexual. Figures from ante-natal clinics report seroprevalence of 7.4% in rural areas and 33.6% in Lusaka, the capital city. Efforts to reduce and prevent transmission have largely concentrated on informational and educational campaigns and community based peer interventions. These have met with mixed success as levels of knowledge about HIV/AIDS and effective strategies for risk reduction seem to vary widely between men and women and urban versus rural dwellers. Such interventions have been criticised for not providing specific enough information about risky sexual acts and instead have exhorted people to abstain from pre- or extra-marital sexual activity. Many interventions have used formal or medical terms for sexual activity (rather than more widely used and understood colloquial expressions), have not provided realistic alternatives to risky sexual activity and have not provided a training component to show how realistic changes can be implemented and maintained.
The barriers to sexual behaviour change and the adoption of safer sex strategies are unclear and may be very different to those which prevent change in developed countries. Factors such as lack of accurate or incomplete knowledge about HIV/AIDS, perceived invulnerability and lack of the behavioural skills necessary to put changes into practice have been identified as preventing behaviour change but additional factors such as marriage and fertility expectations, educational level and poverty may also be very important. Previous interventions aimed at reducing risky sexual behaviour seem to have been based on strategies which loosely fit health belief model constructs e.g. raising concern about vulnerability to HIV and raising levels of knowledge of HIV. Barriers to sexual behaviour change and how they might prevent change do not seem to have been considered in the design of these interventions. Counselling interventions with individuals and groups also seem to have been based on informational models which reflects the lack of trained staff to do this work, the lack of involvement of psychologists in designing theory led counselling interventions and a general lack of specialist resources.

However, the difficulties of promoting sexual behaviour change must be acknowledged in a country where poverty, inadequate education and medical care, and poor prospects for the future lead people to have priorities that do not give much importance to such things as safer sex. Life expectancy is low and lives are led in poverty and deprivation. People die from completely preventable diseases (malaria, pneumonia, TB, simple infections) which, as a result, give people a different perspective on life as many expect to die as a result of disease or accident. Thus, AIDS is perceived as just another disease and in this context of poverty it is understandable that counselling for behaviour change might be perceived as targeting resources to the wrong health issue or as simply indulgent. However, cognitive-behavioural group counselling seems to have been an effective approach to the issues faced by PHI in other countries, particularly the USA, but as yet little attention has been focused on using similar principles which are culturally sensitive with a group of PHI in a developing country.
It cannot be assumed that a psychological model developed in a context in which most people are adequately nourished and sheltered can be transplanted into a developing country context. However, the evidence thus far from African interventions (which may be loosely based in psychological, sociological or anthropological theory) is that they are at best only somewhat effective and at worst may instil a sense of hopelessness, fatalism or pre-destination. This article presents a case study of a firmly theory based cognitive-behavioural group counselling approach to changing risky sexual behaviour with a group of PHIV in an African developing country. This particular model was chosen because there are no African based psychological models in the literature to guide such an intervention.

BACKGROUND AND AIMS OF THE GROUP

A small scale survey carried out in a community centre for PHIV in Lusaka (Hope House run by Kara Counselling & Training Trust (KCTT)) found that PHIV continued to engage in unprotected sexual activities after receiving information about protecting their own health and that of others. This had caused a great deal of concern within the organisation. There were concerns that the organisation had not adopted effective enough strategies to help PHIV implement the safer sex information that was available to them.

To address this issue it was decide that an intervention which was firmly based in psychological theory would be carried out aimed at empowering people with the knowledge and skills to stay as sexually healthy as possible. A cognitive-behavioural model was adopted which had been successfully used in the developed world with groups of people engaging in high risk sexual activity.
THEORETICAL BACKGROUND TO THE MODEL

The model proposes there are three elements to effective behaviour change: having accurate information about HIV, motivation to change behaviour and the behavioural skills necessary to implement the changes. The approach aimed to help participants identify situations in which they had unprotected sex, identify other strategies to cope with those situations and teach the necessary skills (e.g. assertion) in order to implement the new strategies. It was considered important that even though clients might not be currently sexually active (e.g. as the result of ill-health) they may become sexually active in the future. Central to the approach was the concept of elicitation research which proposed that it is fallacious to assume that all people within an ethnic group or culture will share similar beliefs, knowledge or attitudes. Beliefs etc. need to be elicited before an effective intervention can be undertaken and the intervention is carried out with as much understanding as possible of the cultural context.

THE CONTEXT

The group targeted for this approach was a group of HIV+ people attending a skills training scheme at Hope House. They were referred to this scheme in a number of ways: through counselling and testing services (both hospital and community based), the home based care team based at the University Teaching Hospital (UTH), a TB prophylaxis scheme run at the UTH, and church based community groups. All clients were living at subsistence level. They had the opportunity of being trained in a skill which when trained they could use as a means of generating income. The training scheme is one of several services offered by Kara Counselling. Others services include counselling and support (both individual and group), basic medical services to PHIV, HIV testing facilities, community outreach and education programmes and food distribution through the World Food Programme. Each of the clients was assigned a counsellor with whom they had met at least once and they also had the opportunity of
joining a support group for newly diagnosed people. Support groups had already been established and were working well. Evaluations of the groups had shown that the participants had valued them both for the emotional support they offered and for help with practical issues such as disclosure to partner, families and the wider community. Thus, working in groups had become an accepted practice within the organisation.

PARTICIPANTS

Participants of the skills training scheme were invited to join a seven week group focusing on identifying ways of staying as sexually healthy as possible. Clients attending the scheme were assured that there would be no repercussions if this kind of groupwork was not of interest to them. 8 people indicated their interest (5 men and 3 women) ranging in age from 19 - 42 years. 4 of the men were married and 1 was single. Of the women, 1 was married, 1 was widowed and the other was single. 6 of the participants had children and other dependants. All but 1 had been unemployed for the past year. The number of years spent in full time education ranged from 7 - 18 years (x = 11.1). All participants were English speaking as the group was mainly to be conducted through English. The participants completed a standardised interview before the group started. This was an opportunity for a personal relationship to be established before the group commenced. It also yielded information on their knowledge of HIV transmission, knowledge about AIDS, attitudes toward condom use and current sexual activity. This approach allows for the greatest possible understanding of the particular cultural, educational and economic circumstances of the participants rather than approaching the work with assumptions and ready made interventions. Participants were asked for permission to have a Zambian trainee counsellor attend some of the sessions. All participants agreed to this and were assured of confidentiality.
THE WORK OF THE GROUP

From the pre-group interviews it emerged that participants had misconceptions about the way in which HIV is transmitted. For example, two of the participants believed that using condoms put them at great to moderate risk for coming in contact with HIV again. Two main reasons were given for this belief; condoms were already infected with HIV and that they all had tiny holes in them through which HIV might be transmitted.

All but one said they had used condoms on at least one occasion but also said that they would rather not use them. This issue will be explored at another point in the paper. Three believed that masturbation was an activity which put them at risk for further infection of HIV. Masturbation in Zambian culture is (reportedly) an exclusively male activity but one which is taboo. It is considered a grave issue to waste the semen which could have created a human life. Many other beliefs are associated with semen including that semen nourishes the foetus in the womb, that it helps women keep a youthful complexion and that it is health threatening for women not to be inseminated. Thus, semen is considered to be a precious commodity and one which must not be wasted. These individuals linked wasting semen with punishment which, in their cases, meant AIDS. A similar belief was expressed by another participant who believed that AIDS is a punishment from God.

All but one of the participants expected to be sexually active within and/or outside marriage. That participant said she intended to be celibate for the rest of her life. Only one man reported having more than one sexual partner in the past year. However, counsellors at the centre to whom the clients were assigned reported concern that many of them were having unprotected sex with more than one partner.

The first 2 sessions were spent in identifying areas of difficulty for the participants around safe/safer sex issues. The following themes emerged;
(a) negative attitudes toward condom use
(b) lack of negotiation skills to implement condom use
(c) feelings of fatalism
(d) desire for children.

These themes were addressed over the following 5 sessions. Participants were given correct information about HIV transmission and the riskiness to themselves and their sexual partners of sexual activities such as protected and unprotected sex, oral sex and mutual masturbation. Attitudes and current behaviours which facilitated unprotected sex were challenged and alternative strategies for behaviour were discussed and modelled. This mainly focused on attitudes toward condom use which were generally unfavourable but were held for different reasons by women and men. While it became clear that both women and men lacked confidence in their skills to negotiate condom use, women in particular felt they had no right to insist on it. Women reported feeling embarrassed about asking their partner to use condoms and feeling obliged to have sex if a man asked for it. Men reported their sexual partners feel insulted if they use condoms because it implies that the man thinks she is promiscuous. Women reported similar feelings. While the majority had used condoms on at least one occasion in the past all participants agreed that they would not use a condom if their partner requested it. Both male and female participants described using a condom as "taking a shower with a raincoat" or "sucking a sweet with the wrapper on". This issue was particularly important for men who reported that sexual pleasure was dramatically reduced when condoms were used. Women also said that their sexual pleasure was reduced but this appears more linked to their perception that men are supposed to enjoy sex physically and that their own pleasure is supposed to come from the sense of having satisfied their partner. These situations were discussed, role plays were used and various ways of dealing with this issue were modelled as the group attempted to identify culturally appropriate ways of introducing condom use to their sexual partner. Women in particular had difficulty with the role plays when negotiating condom use with a male.
role play partner. They said that in Zambian culture women were expected to let the man take the sexual lead. Sexual intercourse for women is not expected to be a pleasurable or enjoyable activity which is made more uncomfortable by the widespread use of traditional herbs which dry and tighten the vagina in order to heighten the intensity for the man. This practice may also make women more vulnerable to HIV because of the increased risk of abrasion to the vaginal walls.

Expectations of sex outside marriage were discussed briefly. While this is a common practice especially among men it was embarrassing for the participants to discuss it. Women expressed feelings of not understanding why men went outside marriage to find sex. However, they also reported that culturally and traditionally they feel unable to bring up the issues with their husbands. Most of the men denied that they would ever be unfaithful to their wives (even though most of them had been infected with HIV outside their marriage). This was the most embarrassing issue for the participants to discuss and it evoked many feelings in the group including anger, guilt and shame. Women especially felt anger toward the men who infected them (usually their husbands).

Participants also reported feelings of fatalism. Common statements included "there is nothing I can do about it (i.e. being HIV+)", "AIDS is a disease just like any other", "if I don't die from this I may die of something else", "it is the will of God", and "I just have to accept it". They talked about feeling helpless to change their circumstances and it seemed that there was a powerful need to normalise the experience of being HIV+ by describing it as "just another disease". This may be viewed as an attempt to reduce the stigma and alienation that many felt results from being HIV+ but also accurately reflected life in a situation where there is little or no access to healthcare.

The participants identified a major barrier to their own sexual behaviour change as being the desire for children. All realised that to have a child would be to risk infecting the child and possibly place the health of the mother at further risk. Many felt that
condom use might be useful in reducing risk of transmission to their partners but at the same time wanted to have children. Much time was spent on discussing these risks and the advantages and disadvantages. When asked directly about their intentions to have children, 6 participants indicated that they might at some point in the future. This will necessarily mean having unprotected sex. Children are important in Zambia in several respects. They represent some kind of economic insurance for old age in a country where there are no automatic pensions. They are also an important rite of passage into the world of adults and a childless person or couple is perceived as not being a proper adult(s).

**PROCESS OF THE GROUP**

The group was generally conducted in an atmosphere where there was a great deal of laughter, good humour and high spirits. While this may seem at odds with the predicament in which all participants found themselves it may also reflect the coping strategies and methods that they had developed over the years in response to the many economic and health problems that they had faced. The economic climate in Zambia had been poor for many years and all clients were familiar with poverty, lack of access to education and medical facilities and their expectations of changes to their economic status were low. The good humour may also have been a reflection of the importance in Zambian culture to have good relations with people and the culturally prescribed need to avoid public confrontation, anger or vulnerability. In retrospect, there may have been culturally specific ways in which people expressed such feelings but to which outsiders may not be aware of or sensitive to.

Attendance at the group was generally consistent but did become more erratic towards the end. This was interpreted to mean that members did not want the group to end, did not want to say goodbyes and did not want to think about letting go of something which most members identified as being supportive. The participants confirmed this and talked about the group as their family. As many had been alienated from their
families or feared rejection if they disclosed their HIV status to the families or community these sentiments had particular poignancy. This forceful reminder of their attachment to their fellow group members also reflected Zambian culture which places particular emphasis on community, sharing, mutual responsibility and togetherness.

OUTCOME OF THE GROUP

The group was not formally evaluated but at the last session participants were invited to feedback on their experiences. While most had found it helpful to talk about HIV related issues, their feelings, had experienced the group as supportive and had used the group to discuss practical issues such as disclosure, the general feeling was that people did not feel that they could make consistent changes to their sexual behaviour. Condom use in casual sexual relationships was considered possible but even then condoms would not be used if the partner strongly objected to them. Condom use within married relationships was considered almost impossible because it implied that one or both partners was sexually active elsewhere and because of the expectation for children within the marriage.

DISCUSSION

It clearly emerged from the this group that the participants were mixed feelings about adopting safer sex strategies. It appears that there is a complex set of reasons to explain this. Gender, cultural, individual and economic factors must be taken into account in order to understand the factors which prevent people from adopting safer sex strategies.

While participants may have agreed that knowledge of safer sex and how to implement this knowledge was a useful thing they may have considered it was too late for them to use the knowledge and skills (as they were all HIV+). This raises the question of why they joined the group and what they thought they would gain from it (although this
question was not formally asked or evaluated). As a culture of support groups existed within Hope House the participants, through conversations with other people attending Hope House, may have been under the impression that it was another type of support group. Alternatively, they may not have been too concerned about the overt focus of the group as their own personal needs for more general support seem to have been met within the group. They may have also used it as a way of gaining more general information about HIV and AIDS without necessarily wanting to apply it to their own behaviour. They may also have felt that they could pass on the information to their families or community in order to help them avoid HIV.

However, there were other powerful barriers to adopting safer sexual practices which included negative attitudes to condom use. Condoms were seen to be foreign to traditional beliefs, insulting to the sexual partner and were believed to drastically reduce sexual pleasure. Condom use implies, as far as they were concerned, that the partner is perceived as promiscuous and therefore not to be trusted. There was also a sense that proposing condom use implied one’s own promiscuity which may lead to the potential partner refusing to have sex. The decision not to use condoms may also be related to the individual strategies to cope with HIV infection as carrying, possessing or proposing to use condoms may have meant an acceptance of personal HIV status, that it was fatal and that they had a responsibility not to pass it on.

Participants in the group expressed feelings of fatalism and powerlessness to change their circumstances. All but one had been unemployed for the previous year and all were living at or just above subsistence level. There is no universal free access to health care in Zambia and the participants were dependent upon the community centre to provide them with medication in the event of illness. Some, depending upon their individual circumstances were also dependent on extra food distributed through the World Food Programme through the community centre. Much of their time would be spent dealing with fundamental problems of trying to feed themselves and their families, finding money to send their children to school and for clothing and transport.
The fact that many were economically and medically dependent on the centre may help to explain the discrepancy between reported levels of sexual activity. They may have felt that to publicly acknowledge their unprotected sexual behaviour would jeopardise the facilities provide to them within the centre as the organisation actively promotes safer sex for PHIV.

Power imbalances between women and men also became evident in the group. Women felt that they had little power to insist on condom use or, indeed, little power to refuse sexual advances. This is also a more general reflection of the economic and cultural status of women within Zambian society where men have more political and economic power.

It has been acknowledged by researchers in developed countries that (sexual) behaviour change requires a major individual effort. If a PHIV is preoccupied with basic issues of living they may not be in a position to identify sexual behaviour change as a major priority. For many of the participants life was a struggle. Sexual activity may have been one of the only pleasures in their lives and as they were already HIV+ it may have been that there was reduced incentive for them to change their risky sexual practices.

While PHIV in Zambia may acknowledge the need to adopt safer sex practices they belong to a culture which places great importance on having children. By the age of 19 years 66% of Zambian women are either mothers or are pregnant with their first child. Family size is large; on average 6.5 live children per woman. Factors such as poverty and lack of education further reduce the age at which women have their first child. This implies that poorly educated women become sexually active at a much younger age and perhaps have less control over their fertility. Infant mortality is on the increase. This may mean that many pregnancies are needed to achieve desired family size and may also increase the risk of exposure to HIV. Attitudes to childless people may also be important in PHIV deciding to have children. Traditionally, childlessness is
stigmatised because it represents a break in the link with ancestors and consequent problems for the living relatives. Some participants reported that funeral rites are different for childless people and they are perceived as shameful and humiliating. There may be a fear of being regarded as not having contributed to the continuity of the line (even if the child dies as a result of HIV) which may contribute to the decision of a PHIV to have a child.

While some beliefs about how HIV is transmitted were expressed within the group it is interesting to speculate why the issue of witchcraft did not emerge. It has been well documented that dual belief systems exist in many African countries about how illness comes about and is transmitted. On the one hand tradition explains that illnesses are created by supernatural forces which may be harnessed by certain people. The use of witchcraft and traditional healers with such powers are considered to be often motivated by envy or malice. Western concepts of illness (bacteria, viruses etc.) are also widely accepted. Often these belief systems run in parallel and each is considered to have it’s merits. HIV is often considered within Zambia to be caused by witchcraft and as such is curable if stronger “magic” can be harnessed or if the perpetrator can be identified and punished. This may be in part response to the failure of orthodox western medicine to develop a vaccine or cure for HIV. Such beliefs were not expressed within the group and a number of factors could have contributed to this. The presence of a white, European male facilitator may have inhibited discussion of this topic as the participants assumed that Europeans do not usually share this particular belief system. The participants may also have had a perception of what the facilitator wanted to hear and decided that this did not include discussion of this issue.

CONCLUSION

This case study raises more questions than answers. A fundamental question to be examined is how do counsellors, psychologists and other health professionals encourage people to change a pleasurable activity within a cycle of poverty,
deprivation, low life expectancy and increasing infant mortality. There is also an issue of working with economically disempowered people who may be dependent on services offered by an AIDS organisation. This results in a significant power imbalance and may have the effect of creating a situation where service users feel unable to be honest about their sexual behaviour (especially if they feel their behaviour is in conflict with the aims of the organisation) to ensure ongoing material and medical support. It is vitally important that this issue be at least considered when behaviour change interventions are being designed.

The challenge facing us is to make behaviour change an attractive and achievable goal for the people with whom we work. Because it may not be a priority for many people other issues may have to take priority: for example, contributing to empowering people to identify their own problems and solutions in other areas of their lives, promoting the discussion of practices which facilitate the transmission of HIV (gender inequality, poor education), and campaigning for the human rights of PHIV to be protected and enforced (e.g. the right to adequate nourishment and medical care). This may be necessary groundwork before sexual behaviour change can be considered as an important issue. However, implicit in the notion of sexual behaviour change is the belief that it is a worthwhile, valuable and perhaps even a responsible and moral activity. From within a European context this may have relevance and potency for a behavioural scientist but the belief may not be shared by the group targeted for the intervention.

What are appropriate psychological models upon which to base interventions in a developing country? Many psychological models (including the one used in this group) assume a universality of meaning which may be mistaken. Our models assume that people are not preoccupied with fundamental living issues (food, shelter etc.) and have time for self actualisation, reflection and are concerned with their internal world, mood state, or emotions. The models assume that people have choices that are within their direct control and they have the power to change themselves and/or their behaviour.
Finally, models assume a shared belief in, and validation of, individualism. This concept is of little value in societies which emphasise the welfare and well-being of the group and stress that individuality is not necessarily a good thing.

Thus, the theory and practice of clinical psychology are based within a cultural, political and moral framework which cannot be assumed to have a universality. However, as there is no cure or vaccine for HIV the only tool at our disposal is sexual behaviour change. The design of interventions can be based only on state of the art knowledge and practice and necessarily they will be imperfect and based on assumptions. If the models are underpinned by the expectation that they will have to be aware of and adapt to particular cultural norms then they may have some relevance within the particular context in which they are being used.

The experience of facilitating this kind of work has resulted in a deeper understanding of what does not work and what potentially might be helpful. A deeper pre-existing knowledge of the culture, societal structure and beliefs (e.g. expectation for children, beliefs about HIV and witchcraft, women's perception of their powerlessness and the power inequalities between men and women which facilitate risky sexual behaviour) would have enabled the work to operate at a different level. A Zambian psychologist would have had this cultural knowledge and may have had the facility to deal with issues that did not emerge in the group e.g. witchcraft. The work of the group may have been more effective if the participants had been able to work through their own language instead of through English. It may be better to have single sex groups of similar age, marital status and educational level. Change may be easier to achieve with a more homogenous group. Concerns about the repercussions of sexual activity and continued participation in any other programmes (e.g. food assistance or training schemes) could have been more explicitly allayed at the outset.

However, at the time there were no Zambians within this organisation who could have carried out this work. A Zambian colleague training to be a counsellor sat in on some
of the sessions and also had supervision sessions with the facilitator where theory and practice were discussed. It was hoped that this experience would enable him to carry on and develop the work to the cultural demands of the situation.

The evidence from developed countries demonstrates clearly that people can and do make changes to their sexual behaviour which reduces their HIV risk. While the theories might not be completely translatable it is imperative that interventions are at least tried, and even more importantly, evaluated. It is through this process that more effective interventions can be designed and delivered.
COGNITIVE BIASES IN GENERALIZED ANXIETY DISORDER: ATTENTION AND RETRIEVAL

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ABSTRACT

Bowers (1981) Network theory proposes that anxiety biases the person to selectively attending to threatening information and that if further facilities the availability of memories past dangers. However, recent research has indicated that these biases may only be seen when there is competition between threatening and no threatening information, forcing the subject to assign priority to processing the threat information. This appears to be a relatively robust phenomenon in anxious individuals. Data concerning later retrieval and recognition of threatening material has been confusing because of the lack of consistent evidence concerning the existence of a recall bias. The present study was designed to investigate the role that these processes may play in the maintenance of anxiety disorder using a paradigm in which the notion of competition was a major factor. Subjects were required to listen to a tape cassette on which had been recorded threat and non-threat words. A pair of words (either threat-neutral or neutral-neutral) or a single word (threat or neutral) was presented to the subject at five second intervals. They were instructed to repeat what they heard. This was followed by free recall and recognition and word completion tasks. Anxious but not control subjects did display an attentional bias for threat words that had been part of the threat-neutral pairs but not for single threat words. There were no significant differences between the groups in the number of threat words recalled.
In the recognition task, control subjects recognised more of both type words than anxious subjects and both groups correctly completed more neutral than threat words stems in the word completion task. The results were interpreted as providing further evidence for the existence of anxiety related encoding bias and that the convincing lack of any recall or recognition data indicated that this factor (failure to store threat information) may be an important part to the maintenance of the anxiety state.
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INTRODUCTION
PART 1 - INTRODUCTION

A(1) What is Anxiety?

It is a prerequisite to the various forms of treatment of anxiety disorders that reliable diagnostic criteria be specified and validated. However, as anxiety is a ubiquitous experience such clear diagnostic criteria are not easily reached. Hence, we have the situation that the classification of anxiety disorders is still controversial as a result of the difficulty of defining many anxiety related symptoms.

In the literature heterogenous groups of clinical syndromes and definitions for anxiety disorders can be found. These definitions can be divided broadly into 2 categories. Firstly, some definitions refer to phobic disorders that are primarily named and characterized by "external triggers" of avoidance behaviour e.g. agoraphobics, acrophobics etc. Secondly, are definitions used to describe a group of anxiety disorders characterized primarily by anxiety response features such as heart of cardiac neurosis, effort syndrome, nervous exhaustion, neurasthenia or neurocirculatory asthenia. These terms refer to recurrent and chronic anxiety states, characterized by symptoms like dyspnoea, palpitations, fatigue and preoccupation with somatic states.
Freud (1894) introduced the term anxiety neurosis for the characterisation of these disorders, but this term, like many others, has resisted all attempts to append a clearer and more reliable definition. In clinical practise the diagnosis of anxiety neurosis subsume 3 rather heterogenous groups of people:

(a) people with multiple phobias,
(b) people with specific somatic anxiety states and
(c) people with other neurotic illnesses with predominant anxiety and/or somatic features (Wittchen et al., 1985)

Table 1

Anxiety States
Panic disorders
Generalized anxiety disorder
Post-traumatic Stress disorder

Phobic Disorders
Agoraphobia (with or without panic attacks)
Social phobia
Simple phobia

Special emphasis is placed on the subclassification of anxiety states formerly referred to as anxiety neurosis into 4 groups of disorders, including obsessive-compulsive disorders.
Phobic disorders have been divided into 3 subgroups (Table 1).

The present study is directed towards examining cognitive biases in generalized anxiety disorders and thus other forms of anxiety will not be defined. In generalized anxiety disorder DSM III-R states "the essential feature of this disorder is unrealistic or excessive worry (apprehensive anticipation) about life circumstances e.g. worry about possible misfortune to one's child (who is in no danger), worry about finances for no good reason." Thus the essential component of anxiety may be regarded as cognitive in the sense that it arises from the way in which information concerning personal danger is processed by the cognitive system.

Beck et al. (1985) state that "the crucial element in anxiety states ... is a cognitive process that may take the form of an automatic thought or maybe that appears rapidly, as if by reflex, after the initial stimulus ... and that is followed by a wave of anxiety".

Beck et al. further state that "when a person has anxiety he experiences a subjectively unpleasant emotional state characterized by unpleasant emotional feelings, such as tension or nervousness, and by physiological symptoms like tremor, nausea and dizziness."
A fear is activated when a person is exposed, either physically or psychologically, to the stimulus situation he considers threatening. When the fear becomes activated he experiences anxiety.

B(1) Cognitive Model of Anxiety

In 1976 Beck delineated particular types of thoughts as leading to specific corresponding emotions. In his conception, thoughts of loss lead to sadness, thoughts of threat or personal danger lead to anxiety, focusing on the wrongfulness of a deed produces anger, and the anticipation of personal gain produces emotions such as excitement, happiness or euphoria. Beck proposed that emotions become dysfunctional when an excessive focus on a particular type of thought is combined with other cognitive distortions. Within this theoretical framework Matthews (1988) has in addition proposed that vulnerability to anxiety disorders may arise as a result of systematic biases in the cognitive input to the emotional evaluative system.

Specifically, Butler and Matthews (1983) have proposed the existence of a pre-attentive bias which results in the more threatening aspects of information from the environment commanding processing resources. This selective attending to particular aspects of information leads to an additional focusing on the threatening aspects of the information whilst the not-threatening
aspects are ignored and information from other sources which may suggest that the extent of threat is exaggerated are also ignored. In turn, this may lead to the processing of information into memory which has the capacity to activate anxiety when accessed. Finally, it is postulated that more elaborated schemata in memory concerning personal threat may lead to a bias in processing what is perceived to be potential threatening information.

This bias may take the form of overestimation of personal risk. Of particular relevance here is the manner in which memory and performance are affected by anxiety states. Bower (1981) has postulated that in anxious mood states, mood congruent (or threat related) information will tend to become activated and thus more accessible. This is because, it is postulated, mood congruent information is linked within a network system around emotion "nodes" such that activation spreads from the emotional nodes through the remainder of the network. In short, memories of past events may become more accessible if they are congruent with present mood states. Assuming such a model, anxiety states may make memories about past dangers more available while increasing the probability that anxiety will be aroused.

Anxiety states appear to interfere with task performance particularly if the task is complex. Eysenck (1985) investigated the performance of individuals high and low in trait-anxiety on a cognitive task involving letter transformation.
This task was performed in the presence or absence of monetary incentive for superior performance. Adverse effects of anxiety on performance were apparent only on the more complex versions of the letter transformation task. The analysis of the task revealed that anxiety impaired the rehearsal and storage of task-relevant information.

Eysenck discusses these finding with reference to the working memory system (Baddeley & Hitch, 1974) which is concerned with both processing of task information and transient storage of task relevant information. Four components of working memory were identified (Baddeley & Hitch, 1974); an attentional system, an articulatory loop or rehearsal system, a visuo-spatial scratch-pad, and a primary acoustic store. Eysenck (1985) discusses why it is rehearsal and storage that is affected by anxiety and suggests that accessing long-term memory may be a relatively automatic task, whereas letter transformation makes use of the articulatory loop, and rehearsal and storage require the additional resources of the central executive (the attentional component of the working memory system) to a greater extent than do the other processing stages. This analysis suggests that it is primarily the central executive component by anxiety.

Borkovec et al. (1983) have reported on a greater frequency of negative thought introversions in "worriers" than "non worriers" in an experimental investigation of worrying.
These negative thought introversions related to physical or social danger, such as threats to self-esteem. Matthews (1988) suggests that this phenomenon may be related to the observation that anxiety states appear to interfere with performance and complex tasks and further suggests that intrusive thoughts reflect an excessive degree of task-irrelevant processing which reduces the capacity available for task-relevant processing. This in turn ties in with the concept of working memory (Baddeley & Hitch, 1974).

(2) Cognitive Characteristics Associated with Anxiety

It can be reasonably postulated that the function of anxiety would seem to be to arouse vigilance for possible external threats or dangers. Oatley and Johnson-Laird (1988) have suggested that emotions serve as signals within the cognitive system. For example, when self-preservation goals are threatened and anxiety is aroused the effect is to activate schemas that check the environment and prepare for avoidant action while inhibiting other less relevant cognitive events.

This model provides another dimension to Bowers (1981) network model because of its suggestion that emotions arise at particular points in the progress towards the fulfilment of goals, and additionally that they serve specific functions within the cognitive system which vary across different emotional states.
One potential problem with the network model is that it does not appear to require any variation in the action of different mood nodes, other than that dictated by the content of mood congruent information around. That is, the processes are the same regardless of whether the emotion node corresponds to sadness, happiness, anxiety or depression. However, there is some evidence which suggests that the cognitive operations which are biased in anxiety are not necessarily the same as those biased in depression and vice versa. For example, it appears that attention is more easily captured by negative mood-congruent stimuli in anxious than in depressed individuals, while the recall of negative self-referred events is more biased in depression than in anxiety. These findings will be discussed in more depth later in the review. In a study specifically directed towards the extent to which attentional resources were allocated to threatening stimuli Matthews and McLeod (1985) test how much the incidental presence of such stimuli interferes with an ongoing task.

This selective processing phenomenon was investigated using a modification of the Stroop-Colour naming task, in which some of the target words were related to physical or social threat (e.g. "cancer" or "pathetic"), while others were completely unrelated to danger. The results indicated that anxious subjects were generally slower than controls in colour-naming all words, but were particularly slow with threat words.
In the case of physical (but not social) threat words, there was also evidence that interference was most marked in those subjects reporting worries within the relevant domain. This finding indicates that anxious subjects do selectively process threat cues even when they have been instructed to ignore them.

Parkinson and Rachman (1981) have demonstrated that mothers who were currently anxious because their children were due to undergo surgery, showed increased detection rates for stress-related words than control subjects in the presence of distracting auditory information. Burgess et al. (1981) found that individuals experiencing phobic anxiety showed an increased ability to detect fear-relevant words presented to the unattended channel in a dichotic listening task. While the findings of Parkinson and Rachman (1981) and Burgess et al. (1981) may reflect an encoding bias, the results of these studies reflect a mood dependent response bias.

It follows that, if all subjects extract the same degree of partial information allowing them to guess at a word identity with a certain level of accuracy, and if subjects favour guesses which are congruent with their current mood, then the observer effect will be demonstrated. In a study designed to overcome that weakness Matthews & McLeod (1986) used a dichotic listening paradigm and presented short neutral stories in one ear while the subject shadowed either threatening or non-threatening words in the other ear, which the subject was instructed to ignore.
For the anxious, but not for the control subjects, threat-related material in the unattended channel was found to draw disproportionately on processing resources, as evidenced by differential impairment of a simultaneous, simple reaction time task, even when they were completely unaware of the nature of the unattended information. Matthews (1986) suggests that the results may explain why anxious patients may report any environmental cause, for example, panic feelings that "come out of the blue".

An alternative explanation, however, is that the interference observed could have been interpreted as a movement of attention away from threat cues rather than towards them. Dixon (1981) suggested that detection of an emotional threat at an early perceptual level can lead to a raised threshold for entry into consciousness and that this raised threshold commands processing resources, therefore, this movement of attention away from threat cues could have resulted in the interference observed.

However, a study by McLeod et al. (1986) introduced a paradigm attempting to circumvent such interpretive problems, enabling direct measurement of how visual attention is distributed. Words were simultaneously presented to two areas on a VDU screen of a microcomputer. The ensuing visual attention was measured by a secondary task involving the detection of a visual probe which could appear in the spatial location of either word immediately after the display of that word was terminated.
This probe was a small dot, and subjects were required to press a hand held button immediately the dot was presented. Detection latency for the probe was regarded as a sensitive measure of visual attention, an assumption that has received empirical support (Navon and Margalit, 1983). The trials providing the data of interest were those in which one of two words was an emotionally threatening (physical health or social threat) term. By examining the impact of such a word on the relative probe detection latencies in the two spatial areas, it was possible to determine whether visual attention had shifted toward or away such stimuli.

The results indicated that anxious subjects were faster to detect the probe dot if it replaced a threat rather than a non-threat word. This can be interpreted as meaning that anxious subjects shift their attention toward threat cues in the environment rather than away from them. Surprisingly, the non-anxious controls also displayed a bias which was in the opposite direction to that shown by the anxious subjects. The non-anxious controls tended to shift visual attention away from threat material. Additionally, the bias towards threat in the anxious group appeared to be a general one rather than being selectively limiting to major personal concerns (for example, physical health or social threat). The bias is presumably general because it operates on rapidly available information concerning the threat value of the material (Seamon et al. 1984) rather than on detailed semantic information.
Thus, from the available existence it may be suggested that anxiety states are associated with a cognitive bias that facilitates the acquisition of threatening data from the environment while non-anxious people the reverse pattern. It seen that this bias operates pre-attentively i.e. it occurs prior to awareness.

(3). **Recognition and Recall**

From the evidence concerning selective processing it would not be unreasonable to assume that clinically anxious subjects would have a bias in memory favouring material related to threat. Such a bias would arise because when making judgements about future risk, mood congruent material may be activated thus facilitating retrieval of threatening material. However, several researchers have found it difficult to obtain evidence of this bias as it operates in clinical anxious subjects. Evidence of a memory bias in agoraphobic subjects has been reported by Nunn et al. (1984). The results indicated that agoraphobic subjects were better able to recall words in passages related to their fears than were non-agoraphobic subjects. Mogg et al. (1987) presented anxious subjects with lists of threatening and non-threatening words and the results indicated that not only was there no recall effect favouring negative or threatening words, but a signal detection analysis of subsequent recognition revealed a trend favouring poorer discrimination of negative words by anxious subjects.
This apparent discrepancy in the results may be explained by the fact that Nunn et al. used words like "Supermarket" as emotionally threatening words for agoraphobic subjects. While this word may elicit an emotional response from agoraphobics it may not have the same threat content for non-agoraphobic control.

(4) Ambiguous Information and Interpretation of Threat

Matthews (1988) proposed that anxious subjects when presented with ambiguous material will encode the most threatening aspect of the possible interpretations. In an experiment in which anxious subjects were presented with homophones with a threatening and a non-threatening spelling e.g. die - dye, guilt - gilt, the results strongly indicated that the anxious subjects did display an interpretative bias favouring threat. This finding tends to lend credence to the suggestion that when there is competition between two interpretations of the same piece of information, situation and event, anxious subjects will favour the most threatening interpretation.

(5) Network Model and Memory Bias

The data available suggesting that in fact there is no recall bias favouring threatening information (Mogg et al. 1987) does not fit well into Bower's network model since it predicts that anxiety states should better facilitated the recall of threatening information that non-anxiety states.
Matthews (1988) suggests that other cognitive processes in operation in anxiety states may well reverse the effects of automatic spreading activation. Implicit in this view is the notion that mood congruent biases may or may not occur depending on the type of emotion and the process under consideration. Thus, a recall bias in anxiety states may only be observed when the threatening information is in competition with non-threatening information or where the information is ambiguous and the subject is forced to interpret the information.

Thus, Matthews (1988) goes on to propose that as different emotions serve different functions so the processes in operation will also be different leading to different patterns of cognitive bias. For example, Oatley and Johnson-Laird (1987) argued that depression is associated with rehearsing past failures and consonantly reviewing future goals. Part of the bias seen in depression is the selective retrieval of personally negative information (Blaney, 1986). However, the selective attending to threat material that is seen in anxious patients is not seen as strongly in depressed patients (McLeod et al., 1986).

Matthews (1988) reports some unpublished work which lends further evidence to the proposal that automatic activation leads to increased ability to retrieve the relevant schemata. Anxious subjects were presented with blurred pictures of pleasant or unpleasant situations and were instructed to label them as being either pleasant or unpleasant.
The results indicated that anxious subjects were no better in accurately identifying the scenes than were non-anxious subjects. This can be explained by proposing that the cognitive bias will only be observed when subjects are presented threatening information in competition with other information. This competition for cognitive resources may force the subjects to give priority to processing the threat information rather than the non-threat information. This effect may perhaps also be observed with the use of other paradigms such as a dichotic listening task. This suggestion has the benefit of also providing an explanation of inefficiency of performance in highly anxious people i.e. by the provision of cognitive resources to the processing of threat information, the capacity to encode other information is severely diminished.

The addition of this evidence to the body of literature about anxiety does not necessarily contradict a network model of mood and memory. However, it does effect the predictors that can validly be made from the framework because of the evidence that indicates that mood congruent accessibility effects are dependent on whether the processes necessary for retrieval of the relevant schemata are assigned priority.
PART 11

THE PRESENT STUDY
PART 11 - THE PRESENT STUDY

Aims

From the preceding literature review, one can conclude that there are a number of hypotheses that could be considered at this point to account for the phenomenon of selective attention and the reported lack of a recall bias in the cognitive processing of anxiety provoking stimuli.

There is now considerable evidence that an attentional bias which favours the encoding of mood congruent material, operates in anxiety (Watts et al., 1985; Matthews and McLeod, 1985; McLeod et al. 1986). However, of the relatively few studies on anxiety and recall a consistent recall bias has not been reported. Nunn et al. (1984) reported that agoraphobia subjects were better able to recall words related to their phobia that were non-agoraphobic controls. However, Mogg et al. (1987) found no such evidence for a recall bias in anxious subjects and in fact found that anxious subjects tended to discriminate more poorly for threatening words that non threatening words.

Matthews (1988) has suggested that recall bias for threatening information may only be displayed when the threatening information is in competition with non-threatening information or when the information is ambiguous and the subject is forced to interpret it.
Thus, a consistent recall bias in anxiety has not been shown because the experimental paradigms used have not tasks in which threatening information is in competition with non-threatening information for processing resources.

Thus, the present study wished to examine these concepts in more detail, using an experimental paradigm which included a dichotic listening task in which there was competition between threatening and neutral material. The study specifically aimed at examining the cognitive processes of encoding, recall, recognition and word competition, using mood congruent material.

If Bower's network model (1981) were correct then one would hypothesize that the results would show evidence of biases which favour the encoding of mood congruent material for anxiety. In addition this would be followed by retrieval bias of a similar nature.

B Hypothesis

The experimental hypothesis as follows:-

H1:-- anxious subjects, but not controls, would shift attention towards emotionally threatening material when this material was in competition with nonemotionally threatening material.
H2: anxious subjects, but not controls, would selectively retrieve from memory emotionally negative material, resulting in significantly higher recall, recognition and word completion scores for anxiety congruent words.

C Methodology

(1) Subjects

A total of twenty-four people constituted the subject sample. The clinical group consisted of twelve subjects who were selected from psychiatric out-patients at Kingston Hospital and St. Georges Hospital. They were firstly approached by the clinical psychologist from whom they were receiving treatment and were asked to participate in the study after being informed that they would be asked to listen to a tape, repeat and recall some words. Subjects also received follow-up debriefing. All anxious subjects had been given a diagnosis of generalised anxiety disorder by the clinical psychologist giving treatment and subsequently subjects were interviewed by the author to ensure that any who complained of substantial phobic avoidance or obsessional symptomatology were excluded. It was attempted to match control subjects (4 males, 8 females) with the clinical subjects as closely as possible, for gender, age, and verbal intelligence (Mill Hill Syndrome Test). Subjects measures can be seen on Table 2.
These control subjects were recruited from a pool of volunteers, mainly hospital employee, based at Sutton Hospital, and not currently requiring treatment for emotional problems. All subjects completed the Hospital Anxiety and Depression Scale (Zigmund and Snaith, 1982), a self-assessment scale designed for screening clinically significant anxiety and depression (see appendix 1 for a copy of this scale).

TABLE 2.

<table>
<thead>
<tr>
<th></th>
<th>Anxious</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age</td>
<td>41.8</td>
<td>41.75</td>
</tr>
<tr>
<td>(t= .29, p &gt; .05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Mill Hill Synonym Test Score</td>
<td>18.5</td>
<td>18.9</td>
</tr>
<tr>
<td>(t= .255, p &gt; .05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean HAD Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>13.8</td>
<td>2.8</td>
</tr>
<tr>
<td>(t = 8.90, p &lt; .001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>6.6</td>
<td>1.4</td>
</tr>
<tr>
<td>(t = 5.03, p &lt; .001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean STAI Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAI 1</td>
<td>43.4</td>
<td>34.5</td>
</tr>
<tr>
<td>(t= 1.89, p &lt; .05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAI 2</td>
<td>56.0</td>
<td>35.5</td>
</tr>
<tr>
<td>(t= 8.31, p &lt; .001)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Materials and Measures

The one hundred and twenty threat words were selected from a pool of already generated words which had been used in the Psychology department at St. Georges Hospital. Sixty of the threat words related to physical threat and sixty related to social threat. To ensure that the threat values of each set of words was not significantly different from other set, six independent judges were asked to rate the words in terms of their threat values i.e. to what extent did the words suggest threat or danger to a person's well being or self esteem.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all</td>
<td>slightly</td>
<td>moderately</td>
<td>extremely</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>threatening</td>
<td>threatening</td>
<td>threatening</td>
<td>threatening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>or dangerous</td>
<td>or dangerous</td>
<td>or dangerous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results from the t-tests showed that the threat values of the sixty physical words attributed to them by the independent judges were not significantly different \( (t = .98, p > .05) \) and nor were the threat values of the sixty social threat words \( (t = 1.02, p > .05) \).

Forty eight of the threat words (twenty-four physical threat and twenty-four social threat) were matched with neutral words to construct threat-neutral pairs. The neutral words were matched for syllable length and word length.
These threat-neutral and neutral-neutral word pairs were recorded on a cassette tape with one word of each pair being recorded on a different channel to the other. This gave the effect of the words in the threat-neutral, and neutral-neutral pairs being presented simultaneously to the listener with one word of each pair being heard in a different ear to the other. The voice was that of a mate (the author himself) and ensured that all words were read in a similar tone, accent etc.

Further, 12 threat words (six physical, six social) were presented as single words on the tape. The remaining sixty threat words were presented in the recognition in the recognition task. A further 60 new neutral words were also generated for the recognition task. The word lists are displayed in Appendix 11.

(a) Dichotic Listening Task

96 wordpairs and 24 single words were presented on a cassette tape to the subjects. The subjects used headphones in order to listen to the words. There was a five second interval between the presentation of the pairs or single words. Of the 96 pairs, 48 were threat-neutral, and 48 were neutral-neutral pairs. Of the threat-neutral pairs, 24 were physical threat-neutral and 24 were social-threat neutral pairs. Twelve of the physical threat-neutral pairs were presented to the right-ear and twelve to the left ear. The presentation of the social-threat-neutral pairs was the same.
Twelve single threat words were presented to the subjects, 6 words to each ear, in order to minimize ear bias. Thus, of the six social threat words, three went to the left ear and three to the right ear. The six physical threat words were presented in the same way.

Of the forty-eight neutral-neutral pairs, twenty-four words were presented to the left ear and twenty-four to the right ear. In addition there were twelve single neutral words, six of which were presented to the left ear and six to the right ear. Again the inclusion of the single words was to ensure that the ear bias was minimised.

There was a five second pause between the presentation of the words during which the subject was instructed to say aloud what s/he had heard. The responses were recorded on a checklist. It was also recorded which word the subject reported first and whether the word reported was right or wrong.

(b) Recall Task

After the presentation of the tape subjects were instructed to count backwards from 200 to 0 in twenties. They were then asked to recall as many words as possible that they had heard on the tape, in a two minute period.
(c) Recognition Task

The recognition task contained the sixty threat words from the dichotic listening task, the sixty neutral words and the sixty threat words (30 physical and 30 social threats) not previously used and sixty new neutral words. These words were presented on three sheets of paper and subjects were asked to decide if they had heard the word on the tape or not. To do this they were asked to use a 4 point confidence scale. A copy is displayed in Appendix 111.

1 2 3 4

| absolutely sure | fairly sure | fairly sure | absolutely 
| word was not | word was not | word was on | sure word was 
| on tape | on tape | tape | on tape |

(d) Word Completion Task

The word completion task contained the first three letters of the sixty new threat and neutral words. Subjects were asked to complete a word using the three letters as the first three letters of a word. A copy of the word stems is displayed in Appendix 111.
Procedure

Subjects were initially told of the study by the Clinical Psychologist concerned with their case. The subjects were informed that the nature of the study required them to listen to words on a tape and to report them as soon as they were heard. The voluntary nature of participation was stressed and if consent was obtained the subject was then contacted by the researcher and seen individually in the relevant hospital's Out Patient's department or in the subjects own home.

Subjects were then interviewed by the researcher to ensure that their anxiety disorder reflected the criteria of the DSM III-R classification of Generalized Anxiety Disorder. Exclusion criteria for the purposes of this study included: -

(a) subjects must not have had a psychotic breakdown,
(b) subjects were to be under the age of sixty,
(c) subjects were not to have brain damage,
(d) subjects with diagnosis of Generalized Anxiety Disorder with Agoraphobia or Panic Attacks were not suitable.

Before putting on the headphones subjects were read the following instructions: -

"This is an experiment to examine how many words people can hear at any one time and how many they can remember after the tape has finished."
When the tape starts you will hear a voice saying a different word into each ear at the same time. After each word or words there will be a gap to allow you to tell me what word or words you heard. I would like you to say what you heard aloud. If you don't clearly hear a word or words I would like you to guess what you think the word or words might be. Do you have any questions?"

Subjects began a short practice session before listening to the experimental tape. After completing the dichotic listening task subjects received the following instructions:-

"Now, I would like you to count backwards from one-hundred to zero in twenties." Then, "Next, I would like you to try and remember as many words as you can that you heard on the tape and please say them aloud. They can be in any order and you can have 2 minutes to do this."

After completing the recall task subjects were presented with 240 words and asked to decide whether or not they had been on the tape. To help them do this a rating scale was provided. They were informed that their immediate impression of the word that was important and thus they were not to spend too much time on any one word. Next, subjects were presented with the word-completion task. They were told that this task had nothing to do with the previous tests but was a word association test.
They were asked to complete words using the 3 letters given as the first 3 letter of the word.

Following the presentation of the experimental tasks subjects completed the Speilberger State-Trait Anxiety Inventory (Speilberger et al. 1970), the Hospital Anxiety and Depression Scale (Zigmund and Snaith, 1982) and the Mill Hill Synonym Test.
PART 111

RESULTS
PART 111 - RESULTS

(1) **Analysis**

Of the four main dependent variables (i.e. dichotic task data, recall, recognition and word completion scores), three (dichotic task data, recall and word completion scores) were separately subjected to a two-way analysis of variance that included one fixed between-subject factor (groups) and one fixed within-subject factor (word-type). Separate analyses were carried out for the dependent variables in which there were double and single words (i.e. dichotic task data and recall task data). Data from the recognition tasks was analysed to yield signal detection measures (alpha and beta). These results were separately subjected to a three-way analyses of variance that included one fixed between-group factors (word-type, and presentation (e.g. single or double).

(2) **Analysis of the Dichotic Task Data (Double Word Pairs)**

The raw data was analysed for the number of correct threat words and neutral words (from the threat-neutral word pairs) that the subject had reported. The mean number of correct responses found for each condition and subject group are shown in Table 3.
Table 3

<table>
<thead>
<tr>
<th></th>
<th>Dichotic Task (Double)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Threat</td>
</tr>
<tr>
<td>Anxious</td>
<td>33.42</td>
</tr>
<tr>
<td>Control</td>
<td>35.33</td>
</tr>
</tbody>
</table>

On a two way analysis of variance effects were found between groups ($F(1,22) = 4.06$, $p < .05$), between word-type (threat or neutral) ($F(1,22) = 20.59$, $p < .01$) and for group by word type ($F(1,22) = 11.48$, $p < .01$). Thus, anxious subjects reported more threat than neutral words but control subjects reported roughly equivalent numbers of threat and neutral words. This confirms the prediction of hypothesis H1 that anxious subjects but not control subjects would show an attentional bias towards threatening information when there was competition between threatening and non-threatening material.

The analysis is displayed in Table A of the appendix IV.

(b) Analysis of the Dichotic Task Data (Single Words)

The raw data was again analysed to yield the number of correct threat and neutral single words that the subject had reported.
The mean number of correct responses found for each condition and subject group is shown in Table 4.

### Table 4

<table>
<thead>
<tr>
<th></th>
<th>Dichotic Task (Single)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Threat</td>
</tr>
<tr>
<td>Anxious</td>
<td>10.58</td>
</tr>
<tr>
<td>Control</td>
<td>11.75</td>
</tr>
</tbody>
</table>

On a two-way analysis of variance, an effect was found for word-type (i.e. threat or neutral), \( (F(1,22) = 10.06, p<.01) \), but no other significant effects were found.

Thus there is no significant difference between the number of correct responses reported by the two groups but there is a significant main effect due to threat vs neutral words reported i.e. more threat than neutral words were reported by both groups.

See Table B of Appendix IV for a display of the analysis.
(c) Analysis of the Word Recall Data (Double Word Pairs)

The raw data was examined for the number of words correctly recalled from the threat-neutral pairs in the dichotic listening task. The mean number of correct responses found for each condition and group is shown in Table 5.

Table 5

<table>
<thead>
<tr>
<th></th>
<th>Word Recall (Double)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat</td>
<td>Neutral</td>
</tr>
<tr>
<td>Anxious</td>
<td>1.67 1.58</td>
</tr>
<tr>
<td>Control</td>
<td>2.25 1.25</td>
</tr>
</tbody>
</table>

On a two-way analysis of variance no significant interactions were found between word type and group thus disconfirming the hypothesis (H2) outlined previously. As can be seen, the recall rates for both word types and both groups is very low indeed. The trend was for anxious subjects to recall slightly (but not significantly) more threat than neutral words. The same phenomenon is seen in the mean scores for the control on word type.

The analysis of variances is displayed on Table C in Appendix IV.
(d) Analysis of the Word Recall Data (Single Words)

The number of words recalled under each condition and for each subject group are shown in Table 6.

Table 6

<table>
<thead>
<tr>
<th></th>
<th>Threat</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious</td>
<td>0.83</td>
<td>0.33</td>
</tr>
<tr>
<td>Control</td>
<td>0.92</td>
<td>0.75</td>
</tr>
</tbody>
</table>

A two-way analysis of variance was carried out and no significant interactions were found, again disconfirming the hypothesis (H2) outlined previously. The recall rate was again very low but once more the trend is for both groups to recall slightly (but not significantly) more threat than neutral words.

The analysis is displayed on Table D of Appendix III.
In order to determine whether the proportion of items endorsed correctly was higher than would be expected by chance and independent of response bias factors, the mean number of words that were correctly endorsed (hit rate) and mean number of matched distractor words endorsed, when no such word had actually been presented (false alarm rate), were calculated. These values were then transformed to the signal detection parameters alpha (discrimination index) and beta (response bias).

Mean alpha and beta values for word type and group are given in Tables 7 and 8.

**Table 7**

**Mean Values for Alpha (Recognition Data)**

<table>
<thead>
<tr>
<th></th>
<th>Double</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat</td>
<td>.52</td>
<td>.93</td>
</tr>
<tr>
<td>Anxious</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>.74</td>
<td>1.32</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>1.21</td>
<td>1.47</td>
</tr>
</tbody>
</table>
Table 8

Mean Values for Beta (Recognition Data)

<table>
<thead>
<tr>
<th></th>
<th>Double</th>
<th>Single</th>
</tr>
</thead>
<tbody>
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<td>0.79</td>
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<tr>
<td>Anxious</td>
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<td>2.03</td>
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<tr>
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<td>1.06</td>
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<tr>
<td>Control</td>
<td>2.20</td>
<td>2.10</td>
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</table>

Three-way analyses of variance were carried out separately for alpha and beta values (displayed in Table E of Appendix IV). The analysis of alpha values indicated that there is a significant main effect between groups with control subjects recognizing more threat and neutral words than anxious subjects. There was a significant effect for mode (whether word was double or single). Single words were recognized more often and more correctly than double words, by both groups. There were no significant interactions on the beta (response bias) values. Thus, the prediction of the hypothesis outlined previously (H2) has not been met.
(f) Analysis of the Word Completion Data

Mean values for the words correctly completed under each condition and for each subject group are shown in Table 9.

Table 9

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<td>Control</td>
<td>16.83</td>
<td>20.25</td>
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On a two-way analysis of variance an effect was found for valence (i.e. the number of threat and neutral words correctly completed), \( F(1,22) = 8.54, p < .01 \). This result shows that both anxious and control subjects correctly completed more neutral than threat words stems but there was not significant interaction between the two groups. The prediction that the anxious subjects would significantly differ from the control subjects (H2) has not been fulfilled.

The analysis is displayed in Table F of Appendix IV.
PART IV

DISCUSSION
PART IV - DISCUSSION

The major aim of this study was to investigate the basis of cognitive bias in anxiety and identify processing biases which influence the encoding and retrieval of emotionally congruent material. The results may be summarised as follows: (1) Anxious but not control subjects showed an attentional bias towards threat words embedded in threat-neutral word pairs. (2) Anxious subjects did not display an attentional bias towards single threat words but both groups reported more threat than neutral words. (3) No significant differences were found between the 2 groups in the number of threat (double or single) words recalled. (4) In the signal Detection Analysis of the alpha values from recognition task a significant difference between anxious and control groups was found with control subjects recognising more of both type words than anxious subjects. (5) Both groups had significantly higher scores for single words on the alpha values (discrimination index but not on the beta (response bias) values. (6) Both groups correctly completed more neutral than threat words in the Word Completion Task but there was not significant interaction between the groups. This discussion will attempt to examine each of these cognitive processes in turn (attention, recall, recognition and word completion) in relation to the results of the matters under test.
The confirmation of an attentional bias in this study compares favourably with the results of previous studies which examined an attentional bias (described in the Introduction section). By virtue of these constant findings, the current study has confirmed such a bias in anxiety, thus giving more credence to this bias. However, the attentional bias displayed was only for threat words which had been embedded in threat-neutral word pairs. The effect was not displayed for single words as both groups recognize more double than single words but there was no significant differences between the groups. This difference in processing needs some explanation.

It has been previously mentioned that Matthews (1988) reported some unpublished work in which anxious subjects were presented with blurred pictures of pleasant and unpleasant situations and were instructed to decide if the situations were pleasant or unpleasant. The results indicated that the anxious subjects were no better in accurately identifying the scenes as being pleasant or unpleasant than non-anxious controls. Matthews (1988) proposed that this effect was displayed because there was no competition between threatening and non-threatening information and thus no competition for processing resources. If competition between threatening and not-threatening information forces the subject to give priority to the threat rather than the non-threat information then the selective attention bias towards threatening information
may not be displayed when the information (single words) is not in competition with any other information.

Thus, the results of this study do not support Bower's network model (1981) where he predicted that selective attention would be biased towards the encoding of mood congruent material. This effect has not been demonstrated in the absence of competition between the threat and non-threat material and the present study has demonstrated that single threat words were less well attended to than the double word pairs. Therefore, it can be suggested that the network model needs modification to include the concept that selective attention bias towards threatening information is displayed when the subject is presented with competing stimuli.

(2) Recall

The results from the present study failed to support the hypothesis that anxious subjects, but not controls, would selectively recall more threat words than neutral words. This poses a number of interesting questions. Anxious subjects have already displayed a processing bias favouring threatening material and Bower's network model (1981) would predict that a recall bias favouring threatening material would be the next logical stage. The results from the Recall Task are consistent with those found by Mogg et al., (1987) who also found no recall effect favouring negative or threatening material.
Mogg states that the results obtained suggested the existence of some inhibiting process in anxiety that interferes with memory for threatening information. Thus, biases may operate in opposite directions at different stages of processing in anxious individuals: They show attentional vigilance but inferior memory for threatening material. There are two possible explanations which may account for this result: (1) the role of competition for attentional resources, and (2) avoidance strategies that may be employed by anxious subjects. In all the studies that have demonstrated an attentional bias competition for processing resources between threatening and non-threatening stimuli has been built into the experimental paradigm. Matthews and Eysenck (1988) suggest when such competition does not exist there are not differences between groups in their ability to identify positive versus negative words presented singly. Typically, memory experiments do not present multiple stimuli that compete for attention and so may be insensitive to differences based on attentional deployment. Second, recall differences may depend on secondary reactions and strategies adopted by anxious subjects after they have identified the materia as being threatening in some way.

Therefore, since the present study provided competition in the dichotic listening task from which the subjects were required to recall words, the first hypothesis can be discounted.
The second explanation which suggests that anxious subjects may adopt cognitive avoidance strategies is far more plausible in this study. Thus, anxious subjects may use behavioral avoidance as an anxiety reducing strategy. In a similar way they may use, when presented with threat material, cognitive avoidance strategies such as selective ignoring or failure to rehearse. This contradicts Bower's network model (1981) and suggests that the basis of anxiety are far more dynamic than was supposed. Instead of a model in which mood congruent information elicited an appropriate emotional response and facilitated the retrieval or recall of congruent past events, the findings of the present study suggest that selective attending to threat material does occur but only in the presence of competition and that this information is not subjected to secondary processing further suggesting that a process, not included in the network model, is in operation.

Nunn et al. (1984) have reported findings that suggested that agoraphobic subjects were better able to recall words or passages related to their fears that were non-anxious controls tested with the same material. However, the words and passages used would have implied very different things to the two groups. A passage describing a trip to a supermarket may arouse anxiety in an agoraphobic but is unlikely to do so in a non-agoraphobic control subject. Thus the Nunn et al. study cannot be said to have obtained reliable evidence of recall bias in anxious subjects.
Therefore, in view of the few studies concerned with recall bias in generalised anxiety disorder, the results of the present study appear to be consistent with the results of previous studies, namely that there is no recall bias favouring negative or threatening information. This contradicts the predictions made by the network model and it is suggested that these results indicate the presence of a further process not included in the network model namely, that secondary processing of threat material does not occur because of the presence of cognitive avoidance. The exact nature of this process i.e. whether is failure to rehearse or selective ignoring can at this stage only be speculated upon.

(3) Recognition

The results from the signal detection analysis showed that the second hypothesis (H2) was not met. The anxious subjects did not recognise more threat than neutral words than the controls. A main effect did emerge with control subjects recognising more threat and neutral words than anxious subjects and single words (threat and neutral) were recognised more often and more correctly than double words, by both groups. Again it can be argued that as clinical anxiety is characterized by a vigilant monitoring of the environment for potentially threatening events combined with active efforts to avoid or reduce the impact of those events. The results can be seen as a subsequent inhibition of further processing of threatening information.
Mogg et al. (1987) in a signal detection analysis of recognition data found that there was a trend favouring poorer discrimination of negative words by anxious subjects actually discriminated fewer threat words than did non-anxious controls. Matthews and McLeod (1985) in their study failed to show any difference between groups in a recognition test for words that had previously produced differential interference effects.

In the case of depression there is some evidence that cognitive distortions interact with negative mood in such a way as to influence the duration of the depressive episode (Lewinsohn et al., 1981). Teasdale (1983) has drawn on this to formulate a circular interactional model of depression in which mood state and negative recall bias influence one another in a circular fashion. Thus, a depressed individual will tend to access negative memories more readily, which will lead to a maintenance of depressed mood. Those who demonstrate the greatest recall bias in response to depressed mood will thus tend to remain depressed longer.

While a recall bias favouring threat material has not been found in anxious subjects such a circular model may also be possible in anxiety states. Anxiety states have been shown (present study) to lead to increased attention which in turn serves to maintain anxiety and lack to recall and recognition biases for threat information may serve to maintain anxiety states.
As has been previously mentioned, it can be suggested that a failure to process threat material may be due to cognitive avoidance. This may serve to maintain an anxiety state by preventing the anxious person becoming habituated to anxiety provoking thoughts and thus preventing a reduction in the extent of the anxious response. Matthews (1988) suggests that in anxious subjects the function remaining vigilant and ready to avoid danger is best served by scanning the environment to identify the source of threat, rather than rehearsing previous dangers.

Matthews (1988) also reports an unpublished experiment by Richards who examined interpretations of ambiguous sentences made by anxious, recovered and normal control groups. A series of ambiguous sentences which could be interpreted in a threatening or non-threatening way was presented to the subjects. The experiment examined if the ambiguous information would be encoded in a biased way using a subsequent recognition test. Thus, all subjects were required to look at a series of disambiguated sentences and to decide if they meant the same as the sentences previously presented. The results indicated that the anxious subjects endorsed more of the threatening versions in comparison with normal controls and the recovered anxious group. However, the results from this study, as regards the recognition task, are problematic because it can be strongly argued that the effect was due to the general tendency of anxious subjects to endorse threatening material regardless of whether they have seen it before or not.
In this task, both anxious and control subjects correctly completed more neutral stems than threat stems and there was no significant interaction between the groups, thus disproving the hypothesis that anxious subjects would correctly complete threat than neutral stems. This result is very consistent with the rest of the recognition and recall data in this study and again strongly suggests that anxious subjects do not show a recall or recognition bias for threatening information and perhaps this is a mechanism that actively maintains the anxiety state.

Graf and Mandler (1984) propose that words activate a schema (a mental representation of that word) and that this schema is operated upon by two processes: integration and elaboration. By integration, it is meant that when the schema is activated one of the immediate consequences is a further integration or strengthening of the internal organization of the schema.

Graf and Mandler argue that such integration makes the word more accessible in the sense that it will come to mind when only some of its features or components (such as initial letters) are presented as in the word completion task. When a schema is activated in the presence of other mental events new relationships with those events are established and previous relationships are reactivated. The relationships produced by this process of elaboration make the schema more retrievable (as in recall and recognition tasks).
because they generate new and activate old paths for retrieving the word. They further argue that these processes enable a word to be accessible for word completion without being retrievable for word recall or word recognition.

Thus, accessing to threatening information should be facilitated by the automatic nature of the word completion task whereas recall and recognition both involve a more elaborate, conscious retrieval process. As has been shown, selective attending to threatening information is also an automatic process and it has been postulated that the subsequent lack of recall bias may involve a deliberate strategy of cognitive avoidance. Therefore, the failure to find a word completion effect favouring the completion of threat word stems may indicate a methodology flaw in the present study rather than the non-existence of different memorial representations of threat words. It can be speculated that had subjects been presented in the dichotic listening task and subsequently in the recognition task, instead of word stems from words which had only been presented in the recognition task, that a word completion effect favouring the completion of more threat that neutral stems may have been found.

(5) Clinical Implications

This study has shown that whenever there is competition for cognitive resources, anxiety is associated with the assignment of a high priority to processing threat-related information.
This account of attention bias also helps explain interference effects and the inefficiency of performance also associated with high levels of anxiety. By giving a high priority to the processing of threat information, the efficiency of the cognitive system in managing other complex tasks will necessarily be compromised.

It is now clear that generalized anxiety is associated with selective processing of threat cues and this conclusion implies that external (as well as internal) stimuli may be more relevant in this condition than was previously believed, perhaps because of the frequent inability of patients to report anxiety provoking events or situations. This should encourage therapists to perhaps concentrate on finding anxiety eliciting stimuli by direct observation rather than relying on the patient's reporting of the event. It also raises the question of greater role for exposure in this treatment of generalized anxiety.

Many clinicians use exposure to anxiety eliciting stimuli as part of a management programme and there is some evidence to suggest that this form of treatment is effective (Jannoun et al., 1982). Perhaps the exposure element is implicated at least in part for the successful effect.

The present study has also stressed that the lack of a recall or recognition bias favouring threatening information may facilitate the maintenance of the anxiety state.
Cognitive therapy as part of its procedure forces people to confront their fears and threatening information and situations through the examination of core beliefs etc. Thus, because the fears then have to be recalled in a situation where the patient is not likely to become extremely anxious, and they are examined in detail, the threatening information which was formerly suppressed and thus enabled the anxiety state to be maintained now loses that status and cognitive restructuring can now begin.

(6) Future Research

The findings from this study do not necessarily contradict a network model of mood and memory but the predictions that can be made from this model must be now modified by the finding that various parts of a cognitive event are associated with different biases. Thus, the cognitive system may be seen as a collection of relatively autonomous modules, which are organised in different ways according to the task requirements involved in achieving current goals. Thus, even within anxiety different biases may operate in order to maintain the anxiety state. Further research will need to concentrate on investigating the role of recall and recognition as it operates in the anxiety state and further examining the notion that the different memory structures proposed by Graf and Mandler (1984) actually influence the accessibility and retrievability of threat information.
REFERENCES


APPENDIX 1

SELF EVALUATION QUESTIONNAIRE

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate number to the right of the statement to indicate how you feel right now, that is at this moment. There are no right or wrong answers. Do not spent too much time on any one statement but give the answer which seems to describe your present feelings best.

1. I feel calm ................................... 1 2 3 4
2. I feel secure .................................. 1 2 3 4
3. I am tense ..................................... 1 2 3 4
4. I feel strained .................................. 1 2 3 4
5. I feel at ease ................................... 1 2 3 4
6. I feel upset .................................... 1 2 3 4
7. I am presently worrying over possible misfortunes . 1 2 3 4
8. I feel satisfied .................................. 1 2 3 4
9. I feel frightened .................................. 1 2 3 4
10. I feel comfortable ......................... 1 2 3 4
11. I feel self-confident ....................... 1 2 3 4
12. I feel nervous .................................. 1 2 3 4
13. I feel jittery ................................... 1 2 3 4
14. I feel indecisive ............................. 1 2 3 4
15. I am relaxed ................................... 1 2 3 4
16. I feel content .................................. 1 2 3 4
17. I am worried ................................... 1 2 3 4
18. I feel confused .................................. 1 2 3 4
19. I feel steady ................................... 1 2 3 4
20. I feel pleasant .................................. 1 2 3 4
SELF EVALUATION QUESTIONNAIRE

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate number to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

21. I feel pleasant ................................ 1 2 3 4
22. I feel nervous and restless ................... 1 2 3 4
23. I feel satisfied with myself .................. 1 2 3 4
24. I wish I could be as happy as others seem to be ... 1 2 3 4
25. I feel like a failure ............................ 1 2 3 4
26. I feel rested .................................. 1 2 3 4
27. I am "calm, cool, and collected" ............... 1 2 3 4
28. I feel that difficulties are piling up so that I cannot overcome them .......................... 1 2 3 4
29. I worry too much over something that really doesn't matter .......................................... 1 2 3 4
30. I am happy ..................................... 1 2 3 4
31. I have disturbing thoughts ..................... 1 2 3 4
32. I lack self-confidence .......................... 1 2 3 4
33. I feel secure ................................... 1 2 3 4
34. I make decisions easily ........................ 1 2 3 4
35. I feel adequate ................................ 1 2 3 4
36. I am content .................................. 1 2 3 4
37. Some unimportant thoughts runs through my mind and bothers me .................................... 1 2 3 4
38. I take disappointments so keenly that I can't put them out of my mind ............................ 1 2 3 4
39. I am a steady person ............................ 1 2 3 4
20. I get in a state of tension or turmoil as I think over my recent concerns and interests ......... 1 2 3 4
Doctors are aware that emotions play an important part in most illnesses. If your doctor knows about these feelings he will be able to help you more.

This questionnaire is designed to help your doctor to know how you feel. Ignore the numbers printed on the left of the questionnaire. Read each item and underline the reply which comes closest to how you have been feeling in the past week.

Don't take too long over your replies; your immediate reaction to each item will probably be more accurate than a long thought-out response.

I feel tense or "wound up":

Most of the time
A lot of the time
From time to time, occasionally
Not at all

I still enjoy the things I used to enjoy:

Definitely as much
Not quite as much
Only a little
Hardly at all

I get a sort of frightened feeling as if something awful is about to happen:

Very definitely and quite badly
Yes, but not too badly
A little, but it doesn't worry me
Not at all

I can laugh and see the funny side of things:

As much as I always could
Not quite so much now
Definitely not so much now
Not at all
Worrying thoughts go through my mind:

A great deal of the time
A lot of the time
From time to time but not too often
Only occasionally

I feel cheerful

Not at all
Not often
Sometimes
Most of the time

I can sit at ease and feel relaxed

Definitely
Usually
Not often
Not at all

I feel as if I am slowed down:

Nearly all the time
Very often
Sometimes
Not at all

I get a sort of frightened feeling like "butterflies" in the stomach:

Not at all
Occasionally
Quite often
Very often

I have lost interest in my appearance:

Definitely
I don't take so much care as I should
I may not take quite as much care
I take just as much care as ever

I feel restless as if I have to be on the move:

Very much indeed
Quite a lot
Not very much
Not at all
I look forward with enjoyment to things:

As much as ever I did
Rather less than I used to
Definitely less than I used to
Hardly at all

I get sudden feelings of panic:

Very often indeed
Quite often
Not very often
Not at all

I can enjoy a good book or radio or TV programme:

Often
Sometimes
Not often
Very seldom

Now check you have answered all questions
The Mill Hill Vocabulary Scale Synonyms Test (1977 Revision)

In each group of six words below underline the word which means the same as the word in heavy type above the group, as it has been done in the first example:

```
Begun ...............
```

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<td>compress</td>
<td>strengthen</td>
<td>penitent</td>
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| 16 | ENVISAGE      |
|    | enfeeble     | activate       | astringent | fearful              |
|    | surround     | estrange       | petulant   | curious              |
|    | contemplate  | regress        | inquiring  | spurious             |

| 17 | AMULET        |
|    | charm         | jacket          | impermanence | rashness             |
|    | flirtation    | crest           | nervousness | stability            |
|    | cameo         | savoury         | punctuality | submissiveness       |

| 18 | GARRULOUS    |
|    | talkative    | daring          | esculent    | optative             |
|    | massive      | ugly            | profound    | prolific             |
|    | ridiculous   | fast            | sublime     | salic                |

| 19 | LIBERTINE    |
|    | missionary   | rescuer         | contradict  | decry                |
|    | farrago      | canard          | renounce    | execute              |
|    | regicide     | profligate      | belie       | assemble             |

| 20 | BOMBASTIC    |
|    | democratic   | pompous         | challenge   | attenuate            |
|    | bickering    | cautious        | suspend     | establish            |
|    | destructive  | anxious         | misrepresent| conclude             |

| 21 | LEVITY       |
|    | parsimony    | velleity        | vagabond    | caprice              |
|    | salutary     | frivolity       | obscurity   | vulgarity            |
|    | alacrity     | tariff          | evasion     | fallacy              |

| 22 | WHIM         |
|    | complain     | noise           | fallacious  | coeval               |
|    | fancy        | tonic           | palatial    | typical              |
|    | wind         | rush            | nutritious  | flexible             |

| 24 | QUERULOUS    |
|    | fugitive     | cumbersome      |             |                      |
|    | unwieldy    | repelling       |             |                      |
|    | penitent    | reclining       |             |                      |

| 25 | TEMERITY     |
|    | astringent  | fearful         |             |                      |
|    | petulant    | curious         |             |                      |
|    | inquiring   | spurious        |             |                      |

| 26 | FECUND       |
|    | talkative    | daring          | esculent    | optative             |
|    | massive      | ugly            | profound    | prolific             |
|    | ridiculous   | fast            | sublime     | salic                |

| 27 | ABNEGATE     |
|    | missionary   | rescuer         | contradict  | decry                |
|    | farrago      | canard          | renounce    | execute              |
|    | regicide     | profligate      | belie       | assemble             |

| 28 | TRADUCE      |
|    | democratic   | pompous         | challenge   | attenuate            |
|    | bickering    | cautious        | suspend     | establish            |
|    | destructive  | anxious         | misrepresent| conclude             |

| 29 | VAGARY       |
|    | fugitive     | cumbersome      | fallacious  | coeval               |
|    | unwieldy    | repelling       | palatial    | typical              |
|    | penitent    | reclining       | nutritious  | flexible             |

| 30 | SPECIOUS     |
|    | confuse      | noise           | fallacious  | coeval               |
|    | fancy        | tonic           | palatial    | typical              |
|    | wind         | rush            | nutritious  | flexible             |
31 SEDULOUS
rebellious, dilatory
complaisant, diligent
seductive, credulous

32 NUGATORY
inimitable, adamant
sublime, contrary
numismatic, trifling

33 ADUMBRATE
foreshadow, protect
detect, eradicate
elaborate, approach

34 MINATORY
implacable, diminutive
belittling, quiescent
depository, threatening

Ended .................
APPENDIX 11

Social Threat words from Dichotic Task

Mocked
Criticism
Stupid
Pathetic
Hated
Scorned
Insecure
Fail
Insult
Persecuted
Inferior
Useless
Ridicule
Despised
Hostile
Silly
Failure
Ignored
Humiliated
Foolish
Worthless
Lonely
Mistake

Single Words

Disapproval
Unworthy
Detested
Isolated
Excluded
Pitiful
Physical Threat Words from Dichotic Task

Disease
Cancer
Inquest
Tumour
Violence
Sickness
Stab
Crippled
Mutilated
Funeral
Incurable
Assault
Disable
Lethal
Hazard
Hearse
Victim
Injury
Coffin
Wounded
Corpse
Fatal
Harm
Collapse

Single Words

Deathbed
Seizure
Suffocated
Illness
Paralysed
Coronary
Neutral Words from Dichotic Task Threat-Neutral Pairs

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Social Threat Words from Recognition Task

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Rejected
Ignorant
Unsuccessful
Immature
Friendless
Anxious
Miserable
Hated
Disgusting
Tense
Inept
Intimidated
Ashamed
Regarding
Mortified
Error
Contempt
Disgraced
Inadequate
Spiteful
Idiotic
Absurd
Loathed
Uncomfortable
Offended
Disappointment
Incompetent
Shunned
Physical Threat Words for Recognition Task

Peril
Lamed
Handicapped
Gravestone
Torture
Attacker
Infirm
Cruelty
Suffer
Threaten
Abuser
Dangerous
Punished
Smash
Assailant
Struggle
Accident
Ruthless
Aggression
Suicide
Impairment
Casualty
Molester
Savagely
Mugger
Depraved
Hurt
Punched
Annihilate
Murder
60 Neutral Words

Account
Mate
Openly
person
Load
Sweet
Draw
Jug
King
Large
Paints
Deliver
Ideal
Misprint
Juice
Hurry
Word
Year
Also
Waken
Truth
Develop
Onset
Shelf
Vicar
Gown
Helmet
Doll
Stand
Devout
Glove
Employ
Hide
Tidy
Hair
Hurdle
Expert
Trim
Value
Wait
Level
Snow
Include
Dream
Wall
Frill
Parlour
Extend
Meet
Track
Front

Goal
Old
Lower
Grand
Moon
Perk
Handy
Green
Mill
APPENDIX II

Recognition Task

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Word Stems from Word Completion Task

ACC... HAR... ERR... ASH...
DRA... MAT... SAV... DAN...
REJ... DEL... WOR... MUG...
IMM... IGN... HID... IDE...
KIN... UNS... ATT... YEA...
ANN... TRU... EXP... ABS...
FRI... SHE... WAI... HEL...
WAK... ANX... DIS... EMP...
VIC... SNO... TRI... DEG...
MIS... WAL... MOR... VAL...
LEV... EXT... CRU... INF...
PUN... HAT... STA... MOO...
INC... FRO... MOL...
TEN... LOW... DOL... PER...
OPE... DIS... GRA... UNC...
FRI... INC... SPI... GAS...
SHU... PER... ALS... GRE...
ASS... DRE... INA... IMP...
PAR... MUR... SMA... HUR...
AGG... LAM... HUR... DIX...
ONS... SWE... HAN... OFF...
PER... GOW... IDI... DEV...
GRA... INT... THR... GLO...
MEE... DEV... MIL... DEP...
RUT... ACC... LOA... HUR...
GOA... PAN... HAI...
SUI... STR... TID... ABU...
TRA... LOA... AWK... SUF...
LAR... TOR... JUI... MIS...
HAN... INE... PUN... CON...
## APPENDIX IV

### Table A

**Analysis of the Data from the Dichotic Task (Double Word Pairs)**

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1.0 INTRODUCTION

1.1 Introduction

At the end of the twentieth century which has seen the control and eradication of many serious and life threatening diseases, acquired immune deficiency syndrome (AIDS) is unique because of the absence of a cure or vaccine and the association of sex and mortality. For many, sex has become an act tinged with anxiety in which the imperative is protection. It is as if our worst nightmare has come to pass. Each sexual act be it love, lust or passion now carries with it the invisible threat of a terrible death. What should be the calm after the passionate storm is tainted with the fear of the killer virus which may already have quietly started its deadly work. Spontaneity must now be negotiated, wild abandon must be controlled and the giving of oneself equates with Russian roulette.

In this worst case context it is not surprising that AIDS generates so much anxiety, worry and even panic. HIV testing has been held by some physicians and public health commentators to be a necessary part of promoting the sexual behaviour changes necessary to reduce HIV risk (Miller and Pinching, 1989) although Landis et al (1992) in a study to assess sexual behaviour change in a sample of people who attended for an HIV test found at one year follow up that only 21% of interviewees reported condom use in that previous month. This suggests that HIV testing does not have a significant impact in changing subsequent sexual behaviour. However, HIV antibody testing may be the first step in an individuals' sexual behaviour change process and it is the necessary first step to receiving medical interventions if the test is positive. Testing may confirm an already held suspicion about HIV status (either positive or negative) (BMRB, 1991: Bor et al, 1991) and it may serve to allow long term plans to be made including those concerning sexual practices, contraception and pregnancy (Leen et al, 1989; Carne & Kapila, 1988). Public recommendations for HIV testing are sometimes problematic as several studies have observed that when AIDS is prominently in the
news the number of people attending clinics for human immunodeficiency virus (HIV) testing increases without a corresponding increase in the overall incidence of HIV. (Ross & Scott, 1993; Lewin & Williams, 1988). Miller et al (1988) suggest that such campaigns raise anxieties about HIV which are not necessarily reflective of people's individual risk factors. Mansson (1990) has noted that between 1985 and 1989 the numbers of gay and bisexual men and injecting drug users (who are the communities most affected by HIV in European countries) coming forward for HIV testing decreased slightly while the numbers of heterosexuals (mainly HIV-) dramatically increased. Hong & Berger (1994) report that in a sample of patients attending for an HIV test at a medical clinic 74% claimed to have had no risk for HIV infection but were still concerned about it. Several authors (Todd, 1989; Windgassen & Soni, 1987; O'Brien, 1987) have reported that unfounded worries about HIV infection can lead to people seeking HIV testing. Bor et al (1989) report that patients with psychological problems such as anxiety and depression may present with anxieties about HIV and requesting HIV testing. This behaviour is not well discussed in the literature although Miller et al (1988) have distinguished between those with "AIDS anxiety" and those who are "worried well". The former, they suggest, are characterised by cognitive preoccupations and somatic indices of anxiety relating to risk group membership or sensationalist media reporting and the latter by chronic ruminative thoughts about their possible exposure to infection despite reassurance, physical examination and often repeated negative antibody testing. Other labels, such as "AIDS phobia", AIDS panic" and "pseudo-AIDS" have also been applied in similar contexts (Hausman, 1983: Jacob et al, 1987: Miller et al, 1985).

Thus, some people become anxious and concerned about HIV who indeed may have little or no reason to be concerned. This contrasts with reports that within the UK general population people have a perception that their risk of HIV infection is low which, objectively, it is (McDonald & Smith, 1990; Department of Health, 1996). While this perception happens to be accurate in relation to HIV the process by which people come to this conclusion may be similar to the way in which people
underestimate their risk for serious illness or accident. This phenomenon, called optimistic bias (Lichenstein, 1978; van der Velde, 1992), has been observed in relation to heart disease and the risk of motor accidents. This bias will be discussed more fully at a later point.

People with unfounded or unrealistic HIV concerns seem thus to be a particular population. They have been characterised as the "worried well" and the term has come to be widely applied to almost anyone who fears they have been at risk, ranging from those who continue to have concerns after a negative HIV test to people who develops obsessive worries about HIV infection or has delusions that they are HIV+ (Miller et al, 1985; Bor et al, 1989).

While this group of worried people is heterogeneous and ranges from the married man who had a one-off sexual encounter at the office Christmas party to the celibate pensioner who worries that AIDS can be caught from the seats of public lavatories, they share in common a belief that they have been at risk for HIV (Davey & Green, 1991). Sometimes this personal assessment is based on inaccurate or misleading information or perhaps there has been some slight risk but at a level which most people would ignore or be able to reassure themselves that everything would be alright. Many who have fears or concerns may be reassured by information or advice from their general practitioner but a smaller proportion will be sufficiently concerned to want a HIV test.

It is unclear why people who have little or no risk for HIV become so concerned about it. In a sample of 30 "worried well" patients Green & George (1988) found that nearly 50% had been over concerned about other diseases in the past. 40% had been concerned about illness or death in a close friend or relative in the six months prior to presentation at a clinic. These findings suggest that this sample had concerns about their own and others health and HIV became the focus for their current concern. Davey & Green (1991) suggest that guilt can often find a focus in HIV concerns
particularly if the action was an illicit sexual contact. In a study which examined who and who is not tested for HIV, Waddell (1993) reported that gay and bisexual men were more likely to be tested than heterosexual men. The commonest reason to be tested for all three groups was risky sex although the percentages differed by sexual orientation. 41% of gay and bisexual men listed this as a reason as compared with 21% of heterosexual men. A higher percentage of heterosexual men identified "curiosity" as the main reason for testing compared with gay or bisexual men (18.7% vs. 2.3% vs. 1.7%). Unfortunately the author did not define "curiosity" nor did he speculate why this should be such an important feature of the heterosexual men. In general heterosexual men were more likely to consider themselves not at risk for HIV. Those who were tested differed markedly from gay men in this respect and did not seem to have a similar emotional reaction to the process. This result raises the possibilities that the study design did not adequately explore the reasons or that there were other factors influencing the heterosexual men (e.g. pressure from a new sexual partner, a pre-marriage requirement, wanting to make absolutely sure before potential pregnancy) which was subsumed under the general label of "curiosity".

While it seems axiomatic that people have different motivations for wanting a HIV test it may be that concerns about HIV exposure or risk are not necessarily those which influence HIV testing in heterosexuals who, in the UK, are generally less likely to be at risk for HIV. Several studies have noted that the heterosexuals who attended for HIV testing did not identify themselves as having been at risk for HIV (Clift et al, 1992; Hong & Berger, 1993; Waddell, 1993). This seems to be in contrast to gay and bisexual men who attended for testing. This raises the question of why did these people attend for testing if they felt they had not been at risk for HIV? It has been suggested that attendees underestimated their risk or had an undetermined risk (Hong & Berger, 1993). Perhaps they did not wish to reveal the extent of their risk because of embarrassment or guilt. However, in an anonymous and confidential setting it is hard to imagine that all attendees felt and behaved in this way. Affective factors such as anxiety and depression seem to play a role in the decision to have a HIV test and may
be a factor in the inappropriate decision to have a HIV test (Bor et al, 1989; Todd, 1989; Green & George, 1988) but the exact process by which these factors influence the decision is unclear.

1.2 Mood, risk taking and perception of vulnerability

Links between mood, risk taking and perception of vulnerability to negative events (e.g. death, illness or impairment) have been noted by several authors (Mano, 1992; Isen, 1987; Isen & Patrick, 1983). Lichenstein et al (1978) asked people to estimate the number of deaths each year caused by various means. They found two effects; primary bias (the tendency to over-estimate infrequent causes of death and to underestimate more frequent causes) and secondary bias (the observation that overestimated causes of death attract more attention because they are unusual and infrequent whereas underestimated causes of death are unspectacular).

Johnson and Tversky (1983) suggested, on the basis of a series of experiments, that judgements are made which are compatible with current mood. They presented subjects with newspaperlike reports of tragic events in an attempt to induce negative or positive affect. Subjects were then required to estimate the frequency of such events as stabbings, murder, leukaemia and death from fire. Induced negative mood led subjects to greatly over-estimate the likelihood of negative events. Moreover, the effects were independent of the similarity between the story and the risk. Induced positive affect produced a decrease in the judged frequency of risks. Johnson & Tversky (ibid) further suggest that people are not aware of the link between negative mood and their personal responses even thought they can identify that they feel in a negative mood. They use the example of a bounced cheque which induces a negative mood (and which can be identified by the individual) but the link between the factor which induced the mood and being snappy with a friend is not made.
Maule & Hockey (1996) suggest that changes in mood effect the way in which risks are perceived and decisions are made. However, studies indicate that the association between mood and risk taking is complex. In a series of laboratory experiments in which mood was assessed using the constructs PA (positive affect i.e. calm, pleased or elated) and NA (negative affect i.e. miserable, displeased or tense) they found that high PA subjects were more likely to take risks. Subjects were required to make a decision which involved potentially taking a risk i.e. taking a weekend break in a new hotel rather than a tried and tested hotel. Field studies (e.g. GP's were required to assess the riskiness of their clinical decisions over a number of surgeries) using the same constructs showed the opposite relationship. High NA subjects were more likely to judge their decisions as risky than high PA subjects.

Optimistic subjects had relatively adequate perceptions of HIV risk taking in a study by van de Velde et al (1992) which is in contrast to other research findings, particularly those by Weinstein (1984, 1989), which suggested that feelings of optimism are associated with lowered feelings of vulnerability. In a major subsequent study by van der Velde et al (1994) 1318 heterosexual people at low risk for HIV infection judged their risk to be ten times higher than it actually was. van der Velde et al (ibid) speculate that this finding could be a result of people comparing themselves to others who are particularly vulnerable to HIV. A similar finding was reported by Campbell et al (1996) in which the anxiety and depression levels of heterosexuals attending for HIV testing in a low prevalence area were measured. High levels of anxiety were reported and the authors speculated that the presence of such feelings led to inappropriate concerns about HIV. In contrast to the work of van der Velde et al, Mahoney et al (1995) found that feelings of susceptibility to HIV/AIDS (and other sexually transmitted diseases (STDs)) in college students were not predictive of increased condom use. Factors which emerged as important to explain this result were being sexually active with multiple partners and being drunk during sex.
The literature in this area thus indicates that, in general, people have an optimistic bias i.e. they judge others to be more at risk for negative events (illness or accident) than they are themselves. This may help to explain the results by Mahoney et al (ibid). People in a negative mood judge their decisions or actions to be more risky than people in a positive mood. People in a positive induced mood seem more likely to take risks. In HIV terms this may indicate that people with low mood are likely to judge their not-risky or low risk sexual activity as posing a threat to their health or well being. Conversely, people in a positive mood (which may be induced or artificial e.g. happiness due to a pay rise) may engage in sexual activity which they later judge to be risky. The results of the van der Velde et al (1994) study in which a heterosexual sample with few identifiable risk factors judged themselves to be ten times more vulnerable to HIV than prevalence would predict deserve further exploration. The sample may have inappropriately compared themselves to a group at higher risk but the reasons for why they should do this are unclear. It may be helpful to explore some of their characteristics. While the sample was at low risk for HIV, 65% (158/241) of the subjects were recruited through STD clinics. The authors do not make it clear why subjects were attending such clinics and it is interesting to speculate whether or not they had pre-existing HIV concerns which led them to the clinic initially. It is clear that there was a high degree of HIV concern among these heterosexuals which seems inappropriate given their reported sexual behaviour. While the authors do not report levels of anxiety it may be inferred from these results that this concerned sample must have had worries and anxieties as a consequence of their vulnerability judgement. It can be reasonably speculated that this sample had inappropriate pre-existing HIV concerns which somehow became so reinforced that they over-estimated their vulnerability by a factor of ten.

1.3 Cognitions and cognitive biases associated with anxiety and depression

What are the cognitive processes by which people may come to make an inaccurate assessment of their HIV risk? Depression and anxiety are thought to involve distorted
cognitions (Beck, 1967: Beck & Emery, 1985: Mineka & Sutton, 1992). There are several forms of judgemental bias that are associated with depression, anxiety and phobias (Williams et al, 1988). When asked to judge the amount of control that their responses had over outcomes, depressed individuals make lower estimates about the degree of control than do non-depressed individuals. Interestingly, the biased processing also occurs in the non-depressed who overestimate their control (Alloy & Abramson, 1979, 1982).

Both anxiety and depression are associated with biased judgements of the likelihood that negative events will happen to the individual (Butler & Matthews, 1983: Williams et al, 1988). However, Williams et al (ibid) caution that judgemental biases are not uniquely associated with the emotional disorders. Anxiety is also associated with an increased tendency to interpret ambiguous information in a threatening manner. For example, when high trait anxious or clinically anxious subjects are read a series of homophones, each of which has a threatening and non-threatening meaning (e.g. die, dye), subjects are more likely to select the threatening meaning than are non-anxious subjects (Eysenck et al, 1987: Matthews et al, 1989). Similarly, when anxious subjects are read a series of ambiguous sentences (e.g. the men watched as the chest was opened), they are more likely to remember the threatening meanings of the sentences than are non-anxious subjects (Eysenck et al, 1991).

Studies also suggest that anxiety has an automatic influence on attention resulting in it being directed toward potentially threatening stimuli. Studies assessing the effect of emotion have generally used variations on three paradigms: stroop tasks, visual attention tasks, and dichotomous listening tasks. Numerous studies using a modified Stroop paradigm have shown that subjects with a variety of anxiety disorders are significantly slower colour naming relevant threat words than colour naming non threat words (Foа et al, 1991: McNally et al, 1990). MacLeod et al, (1986) used a visual attention task to assess the impact of clinical anxiety on attention and found that anxious subjects directed attention toward threatening stimuli whereas non-anxious
subjects direct attention away from threatening stimuli. However, Richard et al (1995) has suggested that HIV prevention campaigns which stimulate fear and anxiety risk arousing people so much that they will avoid attending to the message as a defensive response. Evidence for an attentional bias in depression is equivocal (MacLeod & Mathews, 1991).

Investigation of memory bias and depression has consistently found evidence of a strong bias to recall negative, especially self-referential, information (Williams et al, 1988: MacLeod & Mathews, 1991). The bias occurs both when the negative material is autobiographical and when it is experimentally presented. Furthermore, this memory bias occurs with laboratory mood induction as well as in clinical depression, and seems to remit following recovery from depression (MacLeod & Mathews, 1991).

By contrast, investigation of memory bias and anxiety has not produced a coherent set of supportive findings. Although a few studies have produced reported memory bias for threatening information the overall picture is equivocal (Mineka & Sutton, 1992).

Thus, anxious people seem more likely to attend to threatening information which probably further reinforces their anxieties but it is unclear whether or not they will remember the information source. Translating this into HIV terms it may be that anxious people will attend to information in the media or in conversations with friends or family which will confirm and reinforce a sense of threat and vulnerability but they may not be able to later recall from where this anxiety provoking information was obtained. Both anxiety and depression are linked to the sense that negative events are more likely to occur. In relation to HIV it may be that because HIV has received a lot of media attention and because sex is something in which most people engage, already anxious/depressed people and/or people vulnerable to anxiety/depression have come to focus on HIV as something which becomes a personal threat. AIDS is a terminal illness and this may also increase it's salience in both anxious and depressed people who are likely to feel that something bad or negative is going to happen in the future. In
summary, this combination of high media presence, certain death and the sexual transmission link may thus make HIV a focus for anxious and/or depressed people.

1.4 How do people come to the decision to have a HIV test? Using the Health Belief Model to explain this decision

On what basis do people make an assessment of their susceptibility to HIV and why do some make the decision to attend for a HIV test? It is clear that many assessments of personal vulnerabilities to accident or disease are not accurate reflections of objective reality. Many people in the UK are at increased risk for heart disease and certain types of cancers to which their lifestyle contributes (i.e. smoking, over-eating, under exercising) but they continue to underestimate or ignore their risk factors. Conversely, people often acquire a notion of the seriousness of a threat (e.g. cholesterol) from their friends or the mass media without having the slightest idea of what cholesterol actually is, why it is harmful or how it causes disease. Similarly, it seems that high profile media campaigns about AIDS raise anxieties which seem to result in an increase in the numbers attending for testing but without a parallel rise in the number of new infections (Ross & Scott, 1991). Factors which heighten the sense of threat might be frequent reminders of the threat (via the media) and the fact that sex, the major route of infection, is something that most people engage in (Weinstein, 1989).

When people feel personally susceptible to a disease or illness this motivates them to reduce their likelihood to it. The health belief model (Becker, 1974) is perhaps the most widely used psychological model of health related behaviours. It is a model developed to explain why and under what conditions people will take conscious and informed decisions about their health. The theory assumes that people feel that if they take a health precaution they reduce the magnitude or likelihood of the health threat. Originally developed in the 1950's to explain poor participation in public health campaigns such as immunisation, the theory has proved useful in predicting preventive
behaviours in a wide range of health settings (Janz & Becker, 1984; Montgomery et al, 1989).

The basic model proposes there are four determinants of health related behaviours: Perceived susceptibility (i.e. one's subjective perception of the risk of contracting an illness), perceived severity (i.e. feelings concerning the seriousness of contracting an illness), perceived benefits (i.e. effectiveness of the recommended health action) and perceived barriers (i.e. the potential negative aspects of the health action). Taken together, these elements produce a degree of psychological readiness to act and the model assumes that all the elements are involved in an individual making a change to a health behaviour (Mahoney et al, 1995). Weinstein (1989) has suggested that implicit in a person's decision to adopt or cease a behaviour is the calculation of the size of any health threat (e.g. cancer, car accident) by the multiplication of the likelihood of the event (susceptibility) by the magnitude (severity). It is suggested that this is a central tenet to the health belief model.

Early formulations of the model proposed that a "cue to action" was important in the initiation of any change to a health behaviour. This has been interpreted to mean an event which stimulated a sense of vulnerability e.g. illness in a family member or friend, a minor or near accident. In addition, some health beliefs proponents added other elements, most notably "modifying factors" and self-efficacy beliefs. Modifiers included personal and social characteristics such as age, sex, and culture.

1.5 Applications of the health belief model

The health belief model (hereafter referred to as the HBM) has been the most widely applied, explanatory model in health behaviour research (Kirscht, 1983). It has been applied to diverse health problems such as coronary heart disease (e.g. Fleetwood & Packa, 1991) tobacco smoking (e.g. Orleans et al, 1994) vaccination seeking (e.g. Aho, 1979; Carter et al, 1986) cancer screening (e.g. Friedman et al, 1994; Katz et al,
1995) and HIV infection (e.g. Allard, 1989; Lux & Petosa, 1994) and there is evidence that the constructs can be useful in directing preventive interventions and to explain under what conditions people can be helped to identify their vulnerability to a disease. The application to some of these health issues will be examined and attention will be given to those operationalise constructs which seem helpful to explain health decisions. The applicability of the model to explain HIV testing will also be explored.

The HBM has been applied to vaccination seeking behaviour. Aho (1979) in a study looking at swine 'flu inoculation found a positive correlation between individuals who perceived themselves susceptible to the 'flu, believed the inoculation would be beneficial, perceived the vaccine as safe, and receiving the inoculation. Rundall & Wheeler (1979) also in a study of swine 'flu inoculation found that perceived susceptibility, benefits, and barriers were found to correlate significantly in a positive direction with vaccination behaviour. A third swine 'flu vaccination study by Cummings et al (1979) found that there was a significant correlation between inoculation behaviour and reported perceptions of seriousness, susceptibility, benefits and barriers. These same data were used by Brock (1984) to examine relationships over time. Beliefs about susceptibility, severity etc were more stable for those who did not obtain the vaccination indicating that as susceptibility to swine 'flu was significantly reduced for the vaccination takers any concerns they had changed their minds about the benefit of the vaccination. Thus, the behaviour predicted later beliefs better than earlier beliefs predicted behaviour.

As part of an influenza vaccination study Carter et al (1986) gathered health belief information from a large group of chronically ill patients, for whom 'flu vaccination was recommended. In regression analysis, measure of susceptibility, severity and benefits were significant predictors of both intention and behaviour. Benefits were by far the best predictor. Similar results were obtained for acceptance of hepatitis B vaccine among hospital workers (Bodenheimer et al, 1986) a programme that was affected, in part, by fear of AIDS.
These studies clearly demonstrate the utility of the HBM model in single event health behaviours such as a single vaccination. Most studies have reported that all factors are predictive of the decision to engage in this behaviour.

1.6 Cancer screening

The HBM has been utilised as the theoretical model underpinning interventions to increase cancer screening in men and women.

Katz et al (1995) in a study of awareness of, and self examination for breast and testicular cancer, predicted that perceived susceptibility to cancer, internal health locus of control, loneliness and hypochondrical concerns would positively relate to self-examination and cancer knowledge. Perceived susceptibility emerged as the only factor related to cancer knowledge or self-examination.

Friedman et al (1994) also examined breast self-examination (BSE) behaviour in women. The study examined relationships among predictors drawn from the HBM and behavioural self regulation theory (Carver & Scheier, 1981). The most consistent predictor of BSE was self-efficacy. Barriers were significantly negatively related to BSE with the most frequently endorsed barrier "being too busy/forgetting". Perceived susceptibility, barriers and benefits were HBM constructs used by Friedman et al (1995) in a study looking at skin cancer prevention. This study, like the previous one focusing on BSE, also operationalised constructs from the behavioural self regulation model and self-efficacy theory (Bandura, 1986). The results indicated that perceived susceptibility and benefits of self skin-examination (SSE) were the best HBM predictors of intention to engage in skin cancer prevention activities (e.g. use of sunscreen, skin examination) and to engage in a skin cancer prevention programme in the next year (i.e. to see a physician). Having previously engaged in SSE was also a predictor.
A study by Aiken et al (1994) focused on mammography screening and explored whether HBM constructs predicted compliance above other predictors of compliance particularly physician referral. The strongest predictor was physician referral. Three of the HBM constructs (except severity) were also predictive of compliance.

These studies seem to indicate that as the health threat becomes more serious (cancer is usually more serious than swine 'flu!) the constructs of the HBM become less predictive. However, these studies have also indicated that susceptibility, barriers and benefits are factors involved in cancer prevention activities (e.g. SSE) but other factors including self-efficacy and physician referral also play a role.

1.7 Tobacco smoking

Tobacco smoking has also been explored within the HBM framework. Weinberger et al (1981) in a study aimed at examining susceptibility and severity perceptions in relation to smoking. Respondents were asked the potential negative outcomes of smoking, their perceived vulnerability to those negative outcomes and the benefits of quitting found that significantly more ex-smokers and moderate smokers viewed smoking as a serious health problem. A statistically significant number of ex-smokers (unlike moderate smokers) also perceived themselves as susceptible to those health problems. The authors concluded that to quit smoking, perceptions of susceptibility and severity needed to be present. It should be noted that the authors concluded this on the basis of a retrospective methodology. Orleans et al (1994) in an analysis of the American Adult Use of Tobacco Survey 1986 (United States Department of Health and Human Service, 1990) reported that older smokers saw themselves as much less at risk for 9 of 10 proven smoking health dangers (e.g. heart disease, cancer, emphysema) indicating an unrealistic personal assessment of their actual susceptibility to smoking related diseases. The length of time the sample had smoked may have contributed to this result. They were older smokers who had smoked for a long time and had thus far
not reported any serious ill effects (e.g. lung cancer) as a result of their behaviour. This may have reduced their sense of susceptibility to illness which may have facilitated a sense of "having gotten away with it"! Older adults also saw smoking as an aid to weight control and as a stress reliever. Orleans et al (ibid) speculate that this unrealistic personal risk assessment underpins the continued smoking behaviour. This points to the possibility that staying slim and feeling relaxed had a high health value for this sample. As a result, engaging in cancer prevention behaviours (quitting smoking) may have had little salience for this group who perceived that they were at little risk for cancer and who placed a high value on the weight and stress control benefits of smoking. Kirscht et al, (1989) reported that health beliefs, including the benefits of stopping smoking, barriers, severity, susceptibility and intention to stop related to subsequent quitting. On the other hand, Strecher et al, (1985) found that only an interaction between perceived benefits and barriers to predict change in smoking, with high benefits and lower barriers yielding the most change.

Fleetwood & Packa (1991) in a study of some of the aspects of coronary artery disease (CAD) prevention among people at high risk for CAD found that individuals' beliefs about control over their health, health value and knowledge about CAD risk factors were positively correlated with participation in health promoting behaviours (e.g. avoiding certain foodstuffs, smoking). Higher risk knowledge scores were associated with higher health promoting behaviours.

The results reported here again indicate that when the health threat is high (e.g. CAD, lung cancer) the HBM becomes less predictive of the decision to engage in preventive behaviours. All HBM constructs have again been identified as components in behaviour change but it seems that other factors also play a role as the results indicate that people, in general, do not accurately assess their susceptibility to smoking related diseases. Contributing factors include self-efficacy and highly valuing smoking or eating high-fat foods. In this context giving up a valued activity becomes more
burdensome that adopting preventive behaviours which give no guarantee of health and longevity.

1.8 HIV prevention and testing

Gielen et al (1994) in a study of preventive health action and women at risk for HIV found that women who perceived themselves as more susceptible to HIV and who perceived protective behaviours as more burdensome were more likely to report having adopted protective behaviours (e.g. condom use) in the past. These findings suggest that women may be motivated by perceptions of personal susceptibility to try certain recommended protective behaviours and then, having tried them, conclude that they are indeed burdensome. For example, women who try to insist that their partner use a condom may be negatively reinforced by feelings of anxiety, lack of physical pleasure, arguments, or possible violence. Allard (1989) used the HBM to guide an investigation of self-reported risk reduction practice among a population based sample of Canadian adults who were interviewed by telephone. The HBM variables of susceptibility, severity, and benefits of prevention were significantly associated with having reported at least one of a series of risk reduction practices ranging from avoiding giving blood to using a condom. Harrison et al (1991) interviewed over 600 adult women from jails, sexually transmitted disease (STD) and family planning clinics, and substance abuse treatment facilities and found that 90% did not perceive themselves susceptible to HIV.

Koopman et al (1990) in a study of adolescents at risk for HIV found that knowledge about HIV and beliefs about the benefits of HIV avoidant behaviours (e.g. condom use, reduced number of sexual partners) did not correlate with the adolescents sexual behaviour. Stiffman et al (1994) also in a longitudinal study of adolescent sexual behaviour reported that condom use increased over time and was associated with changes in beliefs about condoms (more positive) and increased awareness of HIV transmission. Negative beliefs about condoms were associated with decrease of usage.
However, the youths who engaged in the highest risk behaviours (IV drug use, prostitution, unprotected anal sex) were no more likely than lower risk youths to increase their condom use.

Lux & Petosa (1994) reported contrasting results in a study which explored the safer sex intentions of juvenile offenders in custody. The HBM constructs of perceived susceptibility and barriers to condom use were useful in understanding the sexual behaviour intentions of this group. Joseph et al (1987a) in a study of perceived risk to HIV in 1000 gay men found a strong positive relationship between knowledge of preventive practices and behaviour change. However, in a second study (Joseph et al., 1987b) this relationship disappeared throwing into doubt the role of perceived susceptibility in understanding behaviour change.

Sass et al (1995) examined why health care workers who had had a needle stick injury at work decided to attend/not attend for recommended HIV testing within a HBM framework. They operationalised all four constructs and found that those who returned for testing at 3, 6, and 12 months scored highly on the susceptibility and benefits scales. The authors speculate that those who did not return for testing did not perceive themselves as susceptible and/or felt too afraid to attend for testing.

In a study which measured knowledge about HIV as a predictor in HIV testing, Phillips (1993) found that subjective knowledge (what people think they know) predicted testing whereas objective knowledge (scores on objective questions) did not. Interestingly, the correlation between subjective knowledge and perceived risk was low. Although this study was not formally within a HBM structure this study illustrates that the decision to have a test may be based on factors other than a realistic and informed assessment of vulnerability.

The HBM has thus yielded sometimes contradictory results about the usefulness of the model in relation to HIV prevention and testing. Some studies report that some or all
of the constructs are involved in either HIV testing or preventive behaviours (Allard, 1989; Lux & Petosa, 1994; Sass et al, 1995) while others found that the predictive power of the model to be low (Koopman et al, 1990; Joseph et al, 1987b). It might be expected that because, on the basis of the cancer screening and tobacco smoking studies reported earlier, HIV is a major health threat people would not engage in preventive actions nor would they want to know their HIV status because of the fear it might cause them.

1.9 So, how useful is the Health Belief Model in explaining health decisions?.....

Major reviews of the model were published in 1974 and 1984 (Becker, 1974; Janz and Becker, 1984) and focused on the relationship of each of the models components to a variety of health behaviours. In the studies published prior to 1974 "perceived susceptibility" was identified as the factor most likely to explain health seeking behaviour (10/11 studies examined) but the remaining components were also found to be significant in 73-80% of the studies. However, many of these studies had not, or had inconsistently, operationalised and measured "barriers" which, in the post 1974 studies, emerged as the most powerful component (Janz & Becker, 1984). The 1984 review identified "severity" as the least important construct (significant in 36% or 4/11 studies assessed). "Susceptibility" ranked next in importance in 20/26 (77%) of the studies. "Benefits" was predictive in 21/26 (81%) of the studies.

Because AIDS is a life threatening disease which required sustained and consistent sexual behaviour change Montgomery et al (1989) re-examined the 1984 review (ibid) to explore the utility of the model with respect to extremely threatening illnesses which required a complex health behaviour response. They concluded that when applied to complex situations (e.g. smoking cessation, compliance with exercise programmes, dieting) rather than comparatively more simple ones (e.g. receiving a single vaccination) the model becomes less useful to explain behaviour. "Barriers" remained the most important component and susceptibility the least important one. The authors
speculated that the HMB might be most useful when preventative behaviours do not need to be repetitive (e.g. a single vaccination). They also briefly discussed the role of "habit" in health behaviour and suggested that this may be an influential predictive factor.

1.10 Limitations of the Health Belief Model

The application of the HBM to health behaviours has been criticised from various perspectives. HBM constructs are operationalised idiosyncratically according to the requirements of the study and thus might poorly capture the components of the construct (Adler et al, 1992). Single indicator measures have also been used which obviously limit the validity of the operationalised construct. For example, Calnan (1984) operationalise the benefits and barriers constructs with one 3 item scale in which women were asked if they had heard of breast screening, whether or not they thought it was a good idea and whether or not they were worried about aspects of the procedure. Studies have additionally measured only some aspects of the HBM with perceived severity being omitted most often or two constructs have been collapsed into a single measure (e.g. Calnan, 1984). Many studies have not explored or reported on the reliability of the operationalised constructs. Finally, some studies have combined constructs from other theories including the behavioural self regulation model and social cognitive theory (e.g. Friedman et al, 1994 Friedman et al, 1995; Clasen et al, 1994) which may mitigate against systematic theory testing.

While studies seem to show that the HBM is useful in understanding health seeking behaviour and non-utilisation of health knowledge, the HBM has been criticised regarding HIV prevention behaviour on the basis that it primarily a rational-cognitive approach to sexual behaviour which in itself is not necessarily governed by rationality (Brown et al, 1991; Gerrard et al, 1993; McKirnan et al, 1996). Exploring sexual behaviour, therefore, within a completely rational, cognitively-based framework ignores salient affective factors which also influence the behaviour (McKirnan et al,
Harrison et al, (1992) argues that it has not provided a good enough model of the determinants of gay men's sexual behaviour in prospective studies. Montgomery et al (1989) concluded that the HBM could not adequately account for gay men's sexual behaviour and suggested that there are other more powerful forces influencing sexual behaviour which may include alcohol or drug use. McCusker et al (1989) used HBM-derived measures to explore the antecedents of consistent "safer sex" behaviour over 12 months and found that previous risk behaviour was the strongest predictor, with perceived susceptibility also achieving significance. Siegel et al (1989) examined the degree to which psycho-social variables accounted for "safer" versus "risky" sexual practices over a 6-month period and found that drug use and previous sexual behaviour were more important predictors than health beliefs. This pattern of safer sexual behaviour being predicted by previous behaviour and not by health beliefs has been replicated by Abraham et al (1994) in a longitudinal study of heterosexual adolescents' consistency of condom use over 12 months. Gender, prior condom use, lifetime partners and frequency of intercourse were each found to have a direct effect on reported consistency of condom use. Richard et al (1995) in a study aimed at exploring the predictive ability of the protection-motivation theory (PMT) in relation to HIV prevention campaigns with adolescents found that the predictive ability of the model increased when anticipated affective reactions were incorporated into the model. The PMT shares many features in common with the HBM including perceived susceptibility, perceived severity and perceived benefits.

Thus, HIV prevention may not be the most important goal involved in the regulation of sexual behaviour (Abraham & Sheeran, 1994; McKirnan et al, 1996) even in groups who are traditionally more at risk for HIV i.e. gay men. People may, for example, want to have unprotected sex because it is regarded as more meaningful, more trusting, more exciting, less likely to cause conflict (Miller et al, 1993), is "the only acceptable form of sexual expression" (Sherr et al, 1990) or it is part of, and rooted in, sexual identity and lifestyle (Bauman & Siegel, 1987). McKirnan et al (1996) suggest that the very fact of having high levels of HIV awareness and favourable attitudes toward
condom use and the taking of personal responsibility for one's own sexual health creates a pressure from which people wish to escape. They posit that safer sex requires such high and rigorously enforced standards that people "disengage" in certain circumstances from their sincerely held beliefs and attitudes about unprotected/protected sex. These include being highly stimulated, use of substances and being in locations/situations (e.g. bars, night-clubs) in which sex is part of the reason for being there.

1.11 Affective factors, HIV concerns and the Health Belief Model

Affective factors such as anxious and depressive symptoms have not received consideration within the HBM. Research from other areas, however, indicates the such mood states do influence health decision (cf. McKirnan et al, (1996) for an analysis of rational derived models of sexual behaviour). For example, Zuckerman et al (1989) showed that pregnant women with higher levels of depressive symptoms were less likely than their less depressed counterparts to change unhealthy habits such as cigarette smoking or drug or alcohol use during their pregnancy. Orr et al (1994) found that black women with depressive symptoms were more likely than other women to report more HIV risk factors (i.e. unprotected sexual intercourse and IV drug use with shared unsterilized needles). Depressive symptoms thus seem to be factors which prevent people taking health precautions. It is unclear how depression might influence the decision to have a HIV test. While people with depressive symptoms might find it harder to make positive health decisions this does not necessarily mean that they do not recognise that their current behaviour places them (or their foetus) at risk for illness or disease. In this way they may be confirming the depression associated belief that negative events happen to them.

Meisenhelder (1994) points to fear as another affective factor involved in HIV related behaviour which has thus far received little attention. Her study tested the relationships of homophobia, fear of the unknown, fear of death, and fear of punishment as
predictors of fear of HIV contagion. Results supported significant relationships for all predictors except fear of death. Austin et al (1989) in a study of Australian college students also found that students with more negative attitudes toward homosexuality had more fear of AIDS, those who had more empathy with people with AIDS had less fear of AIDS. Miller et al (1988) has described fear of infection in individuals who have issues around sexuality and sexual behaviour. A clandestine sexual relationship or affair may lead to feelings of guilt which can intensify any concerns about infection with any sexually transmitted disease and especially HIV. If an individual's sexual behaviour conflicts with their own and family beliefs, then this conflict may be expressed as feelings of guilt and anxiety (Bor et al, 1989). Salt et al, (1989) suggests that it is this guilt and anxiety which individuals report is the driving force behind their seeking medical advice and counselling.

The studies cited above further confirm that affective factors play a role in the decision to be tested for HIV. Meisenhelder (1994) and Austin et al (1989) did not speculate how fear of contagion or fear of homosexuality might be associated with HIV testing but it is reasonable to postulate that at least some of those who had HIV concerns considered or did attend for HIV testing. The other studies (Miller et al, 1988; Bor et al, 1989; Salt et al, 1989) demonstrate clearly that concerns about sexual orientation and clandestine sexual behaviour or relationships can find a focus in HIV concerns.

1.12 Rationale for the present study

The HBM has been used to explain the factors important in deciding to take a health action. It seems that a personal assessment of susceptibility to the illness or disease in question is important combined with a clear sense of the severity of the illness to be avoided and a belief that there will be benefits to engaging in the health action. A perception of susceptibility and severity is considered to be based on accurate information about the illness or disease. Barriers to engaging in the health action are expected to be low. The HBM suggests that the combination of these factors are
operational in a population attending for a HIV test. However, other studies indicate that sexual behaviour and decisions about it are complex and are not alone governed by rational decision making processes. It is suggested that when it comes to having a HIV test additional factors to those identified by the HBM are also in operation. Important factors are considered to be affective factors especially anxiety and depression.

The study will profile the heterosexual population attending for testing and expects there to be within-group differences. It is considered they are an understudied group in relation to HIV testing but yet make up the majority of those attending for testing in many test centres in the UK. Different reasons for attending may lead to the identification of different groups of people who may be more or less influenced by the HBM, affective factors or a combination of factors. The existing literature indicates that while worries about the risk of unprotected sex accounts for heterosexual testing to some extent a larger proportion attend for testing stating they have not been at risk. Clearly, factors other than a straightforward sense of susceptibility are in operation (Waddell, 1993; Hong & Berger, 1994).
ABSTRACT

Objectives The role played by affective factors in the decision to have a HIV test is unclear. Testing in a low prevalence area may be more determined by affect than objective risk factors, low or inaccurate levels of HIV information or feelings of susceptibility to HIV. The study used the health belief model as the theoretical framework. Methodology 76 heterosexual subjects attending for HIV testing ONLY participated. Measures included the identification of reasons for testing, an AIDS knowledge scale, a HIV susceptibility and severity scale, the types of sexual activity engaged in, the numbers of sexual partners ever and in the last year and The Hospital Anxiety and Depression Scale. From this data two distinct groups emerged. The “past risk” group (PR) comprised people who had some objective exposure to HIV in the past; the “just checking” group (JC) did not have objective risk factors but were concerned about their (ex) partners’ fidelity, were entering a new relationship, were planning to cease condom use or wanted a pre-marital sexual check-up. Results 78% of the sample always or sometimes had unprotected sex. The majority of people had 3 or fewer partners in the past year. 69% of people had 6 or fewer partners ever. The sample had a high level of correct HIV/AIDS information. Susceptibility/severity scores were not high. The mean anxiety score for the sample was 9.11 placing the entire sample in the borderline anxious range. The PR group had a higher depression score (x=5.18) than the JC group (x=2.72; p=.018) but the scores do not indicate the presence of clinical depression. The mean HAD score for this group was 12.18 indicating the presence of clinical anxiety. The JC mean score was 7.68 which does not indicate the presence of clinical anxiety but may indicate that this group may be experiencing some difficulties with anxious feelings. A discriminant analysis was performed and results showed that anxiety discriminated between the two groups (p=.0017). The mean susceptibility score for the sample did not appear to be high (X=8.84 out of a possible score of 15). However, there was a significant difference between the susceptibility scores of the PR and the JC groups (x = 9.91 vs 8.36; p=.010). None of the participants had a positive HIV result. Discussion The PR group

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seem to be clinically anxious but their HIV worries are not reflected in their level of
condom use. Anxiety associated cognitive biases may be associated with an
inappropriate focus on HIV. By contrast, the JC group are not as anxious or depressed
but still have HIV concerns. Testing may have acquired other meaning e.g. ensuring
monogamy, expressing distress about failed relationships, planning for stopping
condom use. Conclusion 1. Testing may not accurately reflect level of HIV risk. 2.
Worries about HIV in a well informed group do not necessarily translate into condom
use. 3. Feeling of susceptibility to HIV do not appear to be high overall but are higher
in the PR group. 4. Testing may be more reflective of relationship problems than of
HIV risk.
2.0 THE PRESENT STUDY

2.1 Aims of the study

AIM 1 The study aims to construct reliable scales of susceptibility, severity, barriers and benefits, the constructs of the HBM.

AIM 2 The heterosexual population attending for HIV testing is considered to be at low risk for HIV. A profile of the range of different reasons for attending will be developed and the relationship between those reasons and other variables will be explored.

AIM 3 The study will identify the samples' sources of HIV/AIDS information.

2.2 Hypotheses

HYPOTHESIS 1 It is hypothesised that subjects who attend for testing have high levels of accurate information about HIV.

HYPOTHESIS 2 It is hypothesised that in this population there will be high levels of susceptibility, severity and benefits and a low level of barriers.

HYPOTHESIS 3 It is hypothesised that there will be a high level of anxiety in the heterosexuals attending for testing. The level of depression in this group will be explored.

HYPOTHESIS 4 It is hypothesised that none of the subjects who attend for HIV testing will test HIV+.
2.3 The setting

The Department of Genitourinary Medicine (GUM) at The Hillingdon Hospital (The Tudor Wing) offers a comprehensive HIV/AIDS service, a component of which is HIV antibody testing. People can self-refer or can be referred by their general practitioner or other appropriate health practitioner. The Tudor Wing offers a completely confidential testing service and operates, as do all GUM services, on the basis of a national catchment area.

The borough of Hillingdon has a population of 236,000 and is the third largest of the London boroughs. Situated to the west of London it is a mix of urban and rural suburban areas. Ethnic minorities (9% from the Indian sub-continent and 3.3% Africa-Caribbean) make up 12.3% of the population (Franey, 1996).

Prevalence of HIV among heterosexual GUM clinic attendees is relatively low with some exceptions (Department of Health, 1996). Prevalence in London and the south east for men ranges from 0.15-1.77% and for women range between 0.09-1.02%. Prevalence is higher in central London clinics and for people originating in Africa. Prevalence among heterosexuals who had a HIV test at the Tudor Wing last year is 0.006%. This figure is based on 14 positive test results in the clinic population last year divided by population size. It is impossible to determine whether or not this is a completely accurate reflection of local prevalence because of the national catchment area system that is in operation. It is clear that many people from outside the usual catchment area choose to use the Tudor Wing rather than their local clinic for reasons of confidentiality and probably embarrassment. Similarly, Hillingdon residents may chose to use other clinics particularly those living in areas closer to other testing sites e.g. the sizeable Asian community is situated mainly in the east of the borough close to Ealing Hospital.
2.4 Method

Full ethical committee approval for this study was sought and granted by the ethics committee of The Hillingdon Hospital NHS Trust.

Data were collected from heterosexual participants who identified as attending ONLY for HIV testing to reception staff. People who attended for other reasons which may have included HIV testing were not included. All people attending for HIV testing are offered the test (providing they are able to give informed consent - this may exclude some people e.g. those with a mental health problem). Participants were then seen by the health advisor whose role it is to carry out the pre-test discussion. The purpose of the study was briefly outlined to them and they were invited to participate. Those who agreed signed a consent form (appendix 1) and were given written information about the study (appendix 2). The consent form was placed in their notes. They were then interviewed by the health advisor using a semi-structured interview developed by the author (appendix 3). This was similar to the format used by Campbell et al (1996) which had been developed with a GUM population. Next, they were then given the Hospital Anxiety and Depression scale (Snaith & Zigmond, 1983), an AIDS knowledge scale and the four operationalised constructs of the HBM in questionnaire form to fill out. This information was collected before any pre-test discussion took place. The interview and questionnaires took approximately 30 minutes to carry out.

2.5 Measures

The Tudor Wing semi-structured interview

The initial interview was designed by the researcher and based on previous research in a genitourinary medicine setting with a similar population (cf. Campbell et al, 1996). The interview partly comprised demographic information which included gender, age, ethnicity, sexual orientation, total number of sexual partners, number of partners in the
last year and sexual practices in the last year. Responses regarding sexual activity were coded into one of three categories; always protected (i.e. always used condoms for penetrative sex), sometimes protected and never protected. The interview asked why people had come to the clinic on that day with written prompts for the interviewer if the participant could not reply or had difficulty in replying. 16 categories were generated in advance into which responses were placed. An "other" category was included for responses which did not fit elsewhere. The participant was also asked from where they got their information about HIV. Categories were generated in advance for the responses and also included an "other" category.

*Hospital Anxiety and Depression Scale* (HADS, Zigmond & Snaith, 1983)

This scale (appendix 4) was designed as a quick and reliable tool for detecting anxiety and depression in hospital patients. It is quick to complete, easily understood and is particularly applicable with non-psychiatric hospital attendees. It is a widely used and reliable measure (anxiety r=0.74; depression r=0.70) and comprises a seven item anxiety subscale and a seven item depression subscale which yield an anxiety and a depression score (Zigmond & Snaith, 1983). Respondents are asked to rate how much each question has applied to them *over the previous week* using a four point scale (0-3). In this way the scale is considered a good measure of longer term anxiety. It was considered important to choose a scale which would not only capture any understandable concerns about the HIV testing situation but would reflect more general anxiety and depression. Scores from 0-7 in either scale are considered to fall into the non depressed/anxious range, scores from 8-10 fall into the borderline range and scores above 11 are considered to be definitely reflect the presence of clinical anxiety and/or depression.
The AIDS Knowledge Scale

This scale (appendix 5) was chosen because it was developed in a genitourinary setting specifically for HIV testing attendees (Clift et al., 1992). It has been used in previous research of this type (cf. Campbell et al., 1996) and has been considered a more useful measure than questionnaires developed for and standardised on general population.

The scale consists of 13 items to which the respondents are asked to reply using a five point likert scale ranging from strongly disagree to strongly agree. The scale is organised along 2 dimensions; how strongly respondents believe (or not) that HIV only affects particular groups of people (gay men, intravenous (IV) drug users) and the extent to which people are at risk for HIV on the basis of recognised HIV transmission routes (protected and unprotected penetrative sex, IV drug use).

Susceptibility, severity, benefits and barriers (the operationalised constructs of the HBM)

These constructs were operationalised by the researcher as already operationalised measures did not exist in the literature. The operationalise scales (hereafter called "the scales") were pilot tested for content validity and appropriateness with 5 colleagues working in the sexual health field. The scale items were developed after consulting the already developed scales from the cancer and HIV prevention literature. Note was taken of the ways in which the concepts had been operationalised and, if appropriate, those strategies were also used in the present study.

The scales were constructed in such a way that a higher score indicated higher level of the construct as measured by the scale. Thus a higher severity score indicates that the subject felt that AIDS is a more severe illness, a higher susceptibility score indicates that the subjects feels more susceptible to HIV etc. Some of the items were expressed
in the negative and for scoring purposes are reversed in the analysis. This is indicated by "r" beside the item.

The susceptibility scale contained six items (appendix 6) and was designed to measure how susceptible the respondent felt to HIV infection. The scale contained two concepts; helplessness (items 2,4,6) which aimed to measure feelings of being affected by HIV and/or a sense of inevitability of infection. The other concept, powerfulness (items 1,3,5), aimed to capture the extent to which people felt they could avoid HIV infection.

The severity scale (appendix 7) included eight items and was intended to measure the extent to which respondents felt HIV would impact on their lives. Two concepts underpinned the items; the negative consequences of being HIV+, stigma, illness and social approbation (items 1,3,6,8). The second concept was sympathy and understanding (items 2,4,5,7) which measured the extent to which people would feel able to be open about their HIV status and carry on their lives as normal and not suffer any negative consequences.

There were six items in the benefits scale (appendix 8) which was constructed to measure the extent to which respondents felt there were advantages to safer sexual behaviour. A sense of personal responsibility was measured (items 1,4) and the extent to which this sense was put into practice (items 2,3,5,6).

Eight items made up the barriers scale (appendix 9). This measured the extent to which respondents felt there were disadvantages to practising safer sexual behaviour. Feelings about condom use were measured (items 3,4,5,6,7,8) as was the ease of which sexual behaviour can be changed (item 1) and whether or there was any point to change if the respondent did not consider themselves "promiscuous" (item 2).
2.6 Participants

There were 76 participants in the study (45 women and 31 men) all of whom were heterosexual and who had consented to participate. 6 attendees chose not to participate and 121 were not asked. This was for a variety of reasons; there was not enough time because of practical reasons, some attendees had been assaulted and it was inappropriate to ask them, some were so anxious it was considered inappropriate to invite them to participate and some were gay or bisexual. No information is available on the attendees who chose not to participate. Data were collected over a 6 month period and the total number of attendees (203) reflects an increase over the average 6 month attendance rate of 154 in the previous year. As there has been a year on year increase partly due to increased advertising and additional personnel this increase is not surprising.

2.7 Data Analysis

The data were analysed using the Statistical Package for the Social Sciences (SPSS) for Windows 6.0.
3.0 RESULTS

3.1 Demographic characteristics

Table 1 Age of Sample

<table>
<thead>
<tr>
<th>Age:</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>(n)</td>
</tr>
<tr>
<td>18 and under</td>
<td>2.6</td>
<td>(2)</td>
</tr>
<tr>
<td>19-25</td>
<td>19.73</td>
<td>(15)</td>
</tr>
<tr>
<td>26-30</td>
<td>7.8</td>
<td>(6)</td>
</tr>
<tr>
<td>31-40</td>
<td>5.2</td>
<td>(4)</td>
</tr>
<tr>
<td>41-50</td>
<td>3.94</td>
<td>(3)</td>
</tr>
<tr>
<td>50 and over</td>
<td>1.3</td>
<td>(1)</td>
</tr>
</tbody>
</table>

The age range was 15-75 years. The mean age for women was 23.8 years (SD=7.0) and the mean age for men was 27.8 years (SD=11.83). These data indicate that a high proportion (41.8%) of female attendees were under 25 years (32/45).
Table 2 Ethnicity of Sample

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>%</th>
<th>(n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White British/European</td>
<td>82.8</td>
<td>(63)</td>
</tr>
<tr>
<td>Black British</td>
<td>2.6</td>
<td>(2)</td>
</tr>
<tr>
<td>Asian</td>
<td>3.9</td>
<td>(3)</td>
</tr>
<tr>
<td>African</td>
<td>5.3</td>
<td>(4)</td>
</tr>
<tr>
<td>Other</td>
<td>5.3</td>
<td>(4)</td>
</tr>
</tbody>
</table>

The data indicates the a high proportion of the sample were White and either British or European. The number of Asian people does not reflect the demographics of the catchment area in which the Asian population is 9%. The percentage of Africans attending is slightly higher than the percentage resident in the borough. The "other" category contains 2 Israelis, 1 black Caribbean and 1 anglo-Carribean.

Table 3 Marital status

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>single</td>
<td>86.8</td>
<td>66</td>
</tr>
<tr>
<td>married</td>
<td>9.2</td>
<td>7</td>
</tr>
<tr>
<td>separated/divorced</td>
<td>3.9</td>
<td>3</td>
</tr>
</tbody>
</table>

This table shows that the majority of testees (86.8%) stated they were single.
3.2 AIM 1 The study aims to construct reliable scales of susceptibility, severity, barriers and benefits, the constructs of the HBM.

A reliability analysis was performed on the scales and they proved not to be reliable measures (appendix 10). A factor analysis was thus carried out on the scale items.
Table 4  Factor analysis of HBM scales

<table>
<thead>
<tr>
<th>variable</th>
<th>factor 1</th>
<th>factor 2</th>
<th>factor 3</th>
<th>factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>bar1</td>
<td>.52434</td>
<td></td>
<td>-.32363</td>
<td>.31772</td>
</tr>
<tr>
<td>bar3</td>
<td>.30320</td>
<td></td>
<td></td>
<td>-.53288</td>
</tr>
<tr>
<td>bar5</td>
<td>-.70504</td>
<td>.31772</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar6</td>
<td>.65317</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar2</td>
<td></td>
<td>-.35216</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar4</td>
<td></td>
<td>.56040</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar8</td>
<td></td>
<td>-.37847</td>
<td>.64769</td>
<td></td>
</tr>
<tr>
<td>ben1</td>
<td></td>
<td></td>
<td></td>
<td>.47129</td>
</tr>
<tr>
<td>ben3</td>
<td>.68810</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ben5</td>
<td>.47402</td>
<td></td>
<td></td>
<td>.47129</td>
</tr>
<tr>
<td>ben2</td>
<td></td>
<td></td>
<td></td>
<td>.47129</td>
</tr>
<tr>
<td>ben4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ben6</td>
<td></td>
<td></td>
<td>-.53028</td>
<td></td>
</tr>
<tr>
<td>sus2</td>
<td>-.33297</td>
<td>.30078</td>
<td>.60033</td>
<td>-.43086</td>
</tr>
<tr>
<td>sus4</td>
<td></td>
<td></td>
<td></td>
<td>-.41808</td>
</tr>
<tr>
<td>sus6</td>
<td></td>
<td>.66481</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sus1</td>
<td></td>
<td>.75588</td>
<td>.74930</td>
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<tr>
<td>sus3</td>
<td></td>
<td></td>
<td></td>
<td>.51966</td>
</tr>
<tr>
<td>sus5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sev1</td>
<td>.45702</td>
<td></td>
<td>.39728</td>
<td></td>
</tr>
<tr>
<td>sev3</td>
<td></td>
<td></td>
<td></td>
<td>.36796</td>
</tr>
<tr>
<td>sev6</td>
<td></td>
<td>.64626</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sev8</td>
<td></td>
<td>.67992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sev2</td>
<td></td>
<td>-.33435</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sev4</td>
<td>.46912</td>
<td></td>
<td>-.37409</td>
<td></td>
</tr>
<tr>
<td>sev5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sev7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A four factor solution was extracted using principle component analysis with direct oblimen rotation. This table shows that the barriers items loaded four items in factor 1
and 2 items in factor 2. Three susceptibility items loaded on factor 2. Five severity items loaded on factor 3 and on factor 4 with two items. Benefits items did not primarily load onto any one factor. It can be seen that there are two benefit items in factor 1, one item in factor 2 and three items in factor 4. The table also shows that, apart from the benefits items, the scales emerge in the analysis as relatively conceptually intact as the various scale items are clustered together.

Table 5  Factor information

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>% of variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.12591</td>
<td>11.2</td>
<td>11.2</td>
</tr>
<tr>
<td>2</td>
<td>2.78417</td>
<td>9.9</td>
<td>21.1</td>
</tr>
<tr>
<td>3</td>
<td>2.38425</td>
<td>8.5</td>
<td>29.6</td>
</tr>
<tr>
<td>4</td>
<td>2.15888</td>
<td>7.7</td>
<td>37.3</td>
</tr>
</tbody>
</table>

This table shows that the four factors accounted for 37.3% of the variance.
Table 6 Factor correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 2</td>
<td>.02296</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 3</td>
<td>.01928</td>
<td>.01993</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Factor 4</td>
<td>-.08426</td>
<td>-.02415</td>
<td>.03267</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Low correlations exist between the factors indicating that each is relatively independent.

Table 7 Reliability of items from factor 1

<table>
<thead>
<tr>
<th></th>
<th>Scale mean if item deleted</th>
<th>Scale variance if item deleted</th>
<th>Corrected item total correlation</th>
<th>Alpha if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>bar1</td>
<td>11.3824</td>
<td>4.5680</td>
<td>.3745</td>
<td>.5560</td>
</tr>
<tr>
<td>bar5</td>
<td>9.8676</td>
<td>4.4449</td>
<td>.4654</td>
<td>.4998</td>
</tr>
<tr>
<td>bar6</td>
<td>9.8971</td>
<td>4.3325</td>
<td>.4175</td>
<td>.5250</td>
</tr>
<tr>
<td>ben4</td>
<td>10.4118</td>
<td>3.784</td>
<td>.3519</td>
<td>.5969</td>
</tr>
</tbody>
</table>

Alpha = .6125
Four items proved to construct a reliable scale. The items were:

I find that as condoms often split or tear there is little point in using them (bar5).

Changing my sexual behaviour is easy (bar1r).

I always use a condom even if my partner doesn't want me to (bar6).

I never worry that my partner might pass a sexually transmitted disease to me (ben4r).

It can be seen that this reliable scale is constructed from three barriers scale derived items and one item derived from the benefits scale. Taken together, the items form a scale in which there is an inherent worry that the respondent may be transmitted a sexually transmitted disease even though s/he does not consider themselves promiscuous and indeed may not trust the complete effectiveness of condoms.

Table 8  Reliability of items from factor 2

<table>
<thead>
<tr>
<th></th>
<th>Scale Mean if item deleted</th>
<th>Scale variance if item deleted</th>
<th>Corrected item - total correlation</th>
<th>Alpha if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>sus1</td>
<td>5.8933</td>
<td>3.3398</td>
<td>.4829</td>
<td>.6161</td>
</tr>
<tr>
<td>sus3</td>
<td>5.7333</td>
<td>2.3063</td>
<td>.5734</td>
<td>.4844</td>
</tr>
<tr>
<td>sus5</td>
<td>6.6933</td>
<td>2.9993</td>
<td>.4562</td>
<td>.6392</td>
</tr>
</tbody>
</table>
Three items in factor two proved to construct a reliable measure of susceptibility. The questions to which the items relate are:

I believe I will not be infected with the HIV virus (sus1r).

My lifestyle does not put me at great risk for HIV (sus3r).

I believe I am less susceptible than other people (sus5r).

These items thus form a scale in which feelings of vulnerability to HIV are clear.

Table 9  Reliability of items from factor 3

<table>
<thead>
<tr>
<th></th>
<th>Scale Mean if item deleted</th>
<th>Scale variance if item deleted</th>
<th>Corrected item-Total correlation</th>
<th>Alpha if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>sus2</td>
<td>8.5000</td>
<td>3.5685</td>
<td>.3019</td>
<td>.4438</td>
</tr>
<tr>
<td>sev3</td>
<td>7.8514</td>
<td>3.9091</td>
<td>.2476</td>
<td>.4901</td>
</tr>
<tr>
<td>sev6</td>
<td>6.5946</td>
<td>3.8608</td>
<td>.3860</td>
<td>.3833</td>
</tr>
<tr>
<td>sev8</td>
<td>7.5402</td>
<td>3.5668</td>
<td>.2975</td>
<td>.4483</td>
</tr>
</tbody>
</table>

Alpha = .5130

237
The items proved not to construct a reliable scale. The alpha score of .5130 was the highest reliability score that could be achieved. The questions to which the items relate are:

I believe there is nothing I can do to avoid HIV (sus2).

If I were ill everyone would see it was HIV related (sev3).

People would feel disgusted if they saw me with an HIV related illness (sev6).

If I had HIV people would feel that I got what I deserved (sev8).

It can be seen that 3 of the above items emerge directly from the severity scale. There is, however, also one item which relates to the susceptibility scale. The three severity derived items were designed to measure the negative consequences of being HIV+. It is also interesting to note that the items are primarily concerned with the reactions of others to HIV. The susceptibility derived item was designed to measure helplessness. Taken together, the items provide a severity scale in which the negative reactions of others to an HIV diagnosis is the primary component but there is also a personal sense of helplessness in the face of the disease. The susceptibility item was initially placed in susceptibility scale and was considered to express a helplessness to avoid the infection. The fact that it appears in factor 2 with a relatively high loading seems to indicate that the helplessness has been taken to mean a helplessness to avoid the course and ill effects of the disease. The underlying construct of helplessness thus seems to relate strongly to the other severity items.
Reliability of items from factor 4

A reliability alpha of .399 was achieved for items from factor 4. As these items did not achieve reliability and did not have a conceptual coherence they were not used any further for the purposes of the analysis.

3.3 AIM 2 The heterosexual population attending for HIV testing are considered to be at low risk for HIV. A profile of the different reasons for attending will be developed and the relationship between those reasons and other variables will be explored

Table 10 Why do you want a HIV test?

<table>
<thead>
<tr>
<th>Reason</th>
<th>%</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>condom split/came off</td>
<td>7.8</td>
<td>6</td>
</tr>
<tr>
<td>partner IVDU</td>
<td>1.4</td>
<td>1</td>
</tr>
<tr>
<td>ex-partner IVDU</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>ex-partner HIV+?</td>
<td>5.2</td>
<td>4</td>
</tr>
<tr>
<td>unprotected sex - regular partner</td>
<td>6.8</td>
<td>5</td>
</tr>
<tr>
<td>casual partner</td>
<td>9.5</td>
<td>7</td>
</tr>
<tr>
<td>new relationship</td>
<td>24.3</td>
<td>18</td>
</tr>
<tr>
<td>blood contact</td>
<td>3.9</td>
<td>3</td>
</tr>
<tr>
<td>stop condom use</td>
<td>9.5</td>
<td>7</td>
</tr>
<tr>
<td>fidelity issue</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>pre-marital check</td>
<td>9.5</td>
<td>7</td>
</tr>
<tr>
<td>other</td>
<td>5.2</td>
<td>4</td>
</tr>
</tbody>
</table>
The "blood contact" category contains one subject who had a blood transfusion in 1988 and 2 who have come into contact with blood (one because he was a soldier in Bosnia and the other because she was assaulted). The "ex-partner HIV+?" category contains 4 people who suspected their ex-partner to be HIV+ but who had not had conformation of their status. One participant said that her ex-partner had told her while they were having a row and while she said she did not believe him she wanted to make absolutely sure. The "other" category contains one person who had been sexually abused by her brothers in her childhood, one who has worked as a prostitute (but always had protected sex with her clients), one who is currently having an affair and one who is concerned that current weight loss might be HIV related. Participants could list more than one reason for attending. Generally, only one response was recorded.

**Table 11  Number of Sexual partners ever**

<table>
<thead>
<tr>
<th>No. of sexual partners - ever</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>50</td>
<td>21</td>
</tr>
<tr>
<td>4-6</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>6-10</td>
<td>14.28</td>
<td>6</td>
</tr>
<tr>
<td>10-14</td>
<td>16.7</td>
<td>7</td>
</tr>
</tbody>
</table>

This data is based on 42 responses. 34 subjects did not respond to this question. This may be because they did not wish to respond to the question (because of embarrassment for example) or could not remember how many partners they have had. It can be seen that 69% of subjects have had 6 or fewer sexual partners ever.
Table 12  Number of Sexual Partners in the Last Year

<table>
<thead>
<tr>
<th>No. of sexual partners in last year</th>
<th>%</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5.4</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>51.5</td>
<td>29</td>
</tr>
<tr>
<td>2</td>
<td>19.6</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>17.9</td>
<td>10</td>
</tr>
<tr>
<td>4+</td>
<td>5.4</td>
<td>3</td>
</tr>
</tbody>
</table>

This data is based on 56 responses. It can be seen that the vast majority of subjects have had 3 or fewer sexual partners in the last year. It is important to note that 3 subjects reported that they had no sexual partners in the last year.

Table 13  Sexual activity by level of protection

<table>
<thead>
<tr>
<th>Level of protection</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>always</td>
<td>13.2</td>
<td>10</td>
</tr>
<tr>
<td>sometimes</td>
<td>40.8</td>
<td>31</td>
</tr>
<tr>
<td>never</td>
<td>36.8</td>
<td>28</td>
</tr>
</tbody>
</table>

Data were missing on 7 subjects (including the 3 subjects who said they had not been sexually active in the past year). In the sample of 69 subjects all (except one who engaged only in unprotected oral sex) engaged in either protected (i.e. used a condom)
or unprotected penetrative sex with the majority (77.6%) being sometimes or never protected. In addition to vaginal sex 2 subjects said they engaged in anal sex.

Table 14 shows the reasons for wanting a HIV test and it can be clearly seen that unprotected sex accounts for less than 17% of responses. This response must be seen in the context of the frequency of unprotected sex. Table 17 shows that 77% of the sample "sometimes" or "never" had protected sex with only 13% reporting that they consistently had protected sex. This indicates that for this sample unprotected sex is the norm and thus, when it comes to the reasons for HIV testing, accounts for less than 17% of responses. The reasons for testing which accounted for the biggest percentages were "new relationship" and "fidelity issue". Having a HIV test as a pre-marital check and as a precaution before ceasing condom use accounted for 10% each.

It emerges from this data that there seem to be 2 distinct categories of people who are using the test for different reasons. Firstly, there are the people who have a concern about HIV which seems to be based at least on the vague possibility that they may have been exposed to the virus either through unprotected sexual activity, unprotected sex with a partner who has emerged as having other risk factors (e.g. IVDU) or through exposure to blood. The second group of people do not cite having been at risk as a reason for testing but are still concerned about HIV and want to make absolutely sure they are, presumably, HIV-. Their reasons include worries about their partners fidelity, taking the test before making a lifestyle change such as marriage and/or stopping condom use. This data reflects the research by Waddell (1993) in which 21% of heterosexual men gave engaging in unprotected sex as a reason for HIV testing as compared with 41% of gay and bisexual men.

Those who cited some past possible risk for HIV account for 37.3% of responses to the question "why do you want a HIV test"? This group consists of 24.1% of the sample who has had unprotected sex (whether accidental or not). 3.9% had been exposed to blood and 9.3% had concerns about the HIV status of their current or ex-
partners. These results indicate that within the group with some kind of past risk the reasons for testing vary and seem to confirm other studies which indicate that the reasons for testing among heterosexuals are often unclear as this group account for only 37.3% of those attending for a test.

3.4 AIM 3 The study will identify the samples' sources of HIV/AIDS information

Table 14 From where do you get your HIV/AIDS information?

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>radio</td>
<td>3.4</td>
<td>2</td>
</tr>
<tr>
<td>television</td>
<td>36.2</td>
<td>21</td>
</tr>
<tr>
<td>newspapers</td>
<td>27.5</td>
<td>16</td>
</tr>
<tr>
<td>magazines</td>
<td>10.3</td>
<td>6</td>
</tr>
<tr>
<td>books</td>
<td>3.4</td>
<td>2</td>
</tr>
<tr>
<td>family</td>
<td>3.4</td>
<td>2</td>
</tr>
<tr>
<td>friends</td>
<td>55.1</td>
<td>32</td>
</tr>
<tr>
<td>leaflets</td>
<td>60.3</td>
<td>35</td>
</tr>
<tr>
<td>other</td>
<td>2.0</td>
<td>7</td>
</tr>
</tbody>
</table>

These figures are based on 58 responses. Responses were pre-coded with an "other" category and participants could give more than one response. Few gave more than 2 responses and the most popular responses were "friends" and "leaflets". Leaflets was not a pre-coded response and none of the participants were specific about what kind of leaflets or where they obtained them. Only one subject was able to exactly identify her newspaper or magazine information source (The Guardian). Sources identified by
subjects in the "other" category were the national AIDS helpline (2), professional nursing literature (1), the blood transfusion service (1), the local community drugs team (1) and school (1).
3.5 HYPOTHESIS 1 It is hypothesised that subjects who attend for testing have high levels of accurate information about HIV.

Table 15 Reliability of the AIDS knowledge scale

<table>
<thead>
<tr>
<th></th>
<th>Scale mean if item deleted</th>
<th>Scale variance if item deleted</th>
<th>Corrected item - total correlation</th>
<th>Alpha if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>50.2632</td>
<td>23.9565</td>
<td>.3139</td>
<td>.6537</td>
</tr>
<tr>
<td>B</td>
<td>50.1053</td>
<td>23.7488</td>
<td>.4437</td>
<td>.6440</td>
</tr>
<tr>
<td>C</td>
<td>50.9342</td>
<td>22.9423</td>
<td>.1876</td>
<td>.6678</td>
</tr>
<tr>
<td>D</td>
<td>50.1711</td>
<td>22.9704</td>
<td>.4410</td>
<td>.6377</td>
</tr>
<tr>
<td>E</td>
<td>50.6447</td>
<td>21.9654</td>
<td>.3427</td>
<td>.6463</td>
</tr>
<tr>
<td>F</td>
<td>50.5263</td>
<td>21.8260</td>
<td>.4430</td>
<td>.6306</td>
</tr>
<tr>
<td>G</td>
<td>50.9211</td>
<td>21.4604</td>
<td>.3671</td>
<td>.6419</td>
</tr>
<tr>
<td>H</td>
<td>50.7632</td>
<td>24.2098</td>
<td>.1930</td>
<td>.6679</td>
</tr>
<tr>
<td>I</td>
<td>50.5921</td>
<td>22.0314</td>
<td>.4394</td>
<td>.6320</td>
</tr>
<tr>
<td>J</td>
<td>51.8684</td>
<td>23.6091</td>
<td>.1151</td>
<td>.6930</td>
</tr>
<tr>
<td>K</td>
<td>50.4868</td>
<td>24.1198</td>
<td>.1886</td>
<td>.6690</td>
</tr>
<tr>
<td>L</td>
<td>50.5263</td>
<td>22.5193</td>
<td>.4174</td>
<td>.6370</td>
</tr>
<tr>
<td>M</td>
<td>50.1447</td>
<td>24.2854</td>
<td>.2612</td>
<td>.6594</td>
</tr>
</tbody>
</table>

Alpha = .6715

The AIDS knowledge scale proved to be a reliable measure.
The mean score for the AIDS Knowledge Scale

The mean score on this scale was $x = 50.93$. This is out of a possible total of 60. This indicates that this sample had a high level of correct knowledge about HIV. This compares well with the application of this scale to similar populations (cf. Clift et al, 1992; Campbell et al, 1996).

3.6 HYPOTHESIS 2 It is hypothesised that in this population there will be high levels of susceptibility, severity and benefits and a low level of barriers

Table 16 Mean scores for the reliable HBM scales

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (Max. score poss)</th>
<th>Std Dev</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar</td>
<td>13.0 (20)</td>
<td>1.51</td>
<td>2.2</td>
</tr>
<tr>
<td>Sus</td>
<td>8.84 (15)</td>
<td>2.37</td>
<td>5.6</td>
</tr>
</tbody>
</table>

This table displays the mean scores for each of the revised reliable scales (of which there are only two). The figure in brackets shows the maximum possible score in each scale. The scales were constructed so that the higher the score the higher the construct measured i.e. a score of 14/15 on the susceptibility scale would indicate that the respondent thought s/he was very much at risk for HIV. It should be remembered that as these are newly constructed scales there are no norms. It can be seen that the susceptibility score is just above the midpoint indicating that this sample as a whole did not seem to feel very susceptible to HIV. The mean barriers score seems to indicate that this sample had moderately strong barriers to changing their sexual behaviour.
3.7 HYPOTHESIS 3  It is hypothesised that there will be a high level of anxiety in the heterosexuals attending for testing. The level of depression in this group will be explored.

Table 17  Mean Anxiety and Depression scores

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>9.11</td>
</tr>
<tr>
<td>Depression</td>
<td>3.47</td>
</tr>
</tbody>
</table>

These results show that the sample was within the normal range of scores for depression (0-8) based on the standardised scores for a hospital attending non-psychiatric population (Zigmond & Snaith, 1983). This indicates that this sample was not depressed. However, the mean anxiety score is higher and places the whole sample within the borderline anxious category (9-11) as defined by Zigmond & Snaith (1983). This result confirms the first part of the hypothesis.
Table 18  Percentage of sample by HAD category

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>not anxious (0-8)</td>
<td>41.7%</td>
</tr>
<tr>
<td>borderline anxious (8-10)</td>
<td>23.6%</td>
</tr>
<tr>
<td>definitely anxious</td>
<td>34.7%</td>
</tr>
</tbody>
</table>

This table shows that over half the sample (58.3%) were anxious or were vulnerable to anxiety. Over one third of the sample were definitely experiencing problems with clinical anxiety (Zigmond & Snaith, 1983).

Table 19  Variables included in discriminant analysis on groups defined by fear

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tolerance</th>
<th>Min tolerance</th>
<th>Sig. of F to enter</th>
<th>Min F Between groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>1.0</td>
<td>1.0</td>
<td>.001702</td>
<td>10.8876</td>
</tr>
<tr>
<td>Depress</td>
<td>1.0</td>
<td>1.0</td>
<td>.019711</td>
<td>5.76950</td>
</tr>
<tr>
<td>Bar</td>
<td>1.0</td>
<td>1.0</td>
<td>.727956</td>
<td>.122236</td>
</tr>
<tr>
<td>Sev</td>
<td>1.0</td>
<td>1.0</td>
<td>.556728</td>
<td>.349658</td>
</tr>
<tr>
<td>Sus</td>
<td>1.0</td>
<td>1.0</td>
<td>.032809</td>
<td>4.79447</td>
</tr>
</tbody>
</table>

For the purpose of this discriminant analysis a new variable "fear" was created. This variable is comprised of those who attended for HIV testing because of some identified risk in the past (e.g. unprotected sex, exposure to blood, ex-partner who says they are now HIV+), the "past risk" group (fear 1) and those attending because of a concern but with no identified risk factors (e.g. worries about partners' infidelity, pre-marriage check, start of a new relationship) the "just checking group" (fear 2). The variable was based on the responses given to the question 'why do you a HIV test'?.
were sorted into two categories by the author and checked by an independent person for inter-rater reliability (100% inter-rater reliability).

**Table 20 Discriminant analysis - summary table**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Eigenvalue</th>
<th>% of variance</th>
<th>Canonical corr</th>
<th>Wilke’s Lambda</th>
<th>Chi-Square</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anx</td>
<td>.1980</td>
<td>100.0</td>
<td>.4065</td>
<td>.8347</td>
<td>9.844</td>
<td>1</td>
<td>.0017</td>
</tr>
</tbody>
</table>

This table shows that anxiety was the only variable left in the discriminant analysis after step 1. This result indicates that anxiety is the only variable which discriminates between the "past risk" group and the "just checking" group.

**Table 21 Canonical discriminant functions**

<table>
<thead>
<tr>
<th>Canonical corr.</th>
<th>Wilke’s Lambda</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>.4065</td>
<td>.834754</td>
<td>9.844</td>
<td>1</td>
<td>.0017</td>
</tr>
</tbody>
</table>

The only variable remaining in function 1 was anxiety.
Table 22 Discriminant analysis - classification results

<table>
<thead>
<tr>
<th>No. of cases</th>
<th>Predicted Grp. membership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Group 1</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>54.5%</td>
</tr>
<tr>
<td>Group 2</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>25%</td>
</tr>
</tbody>
</table>

Percentage of "grouped" cases correctly classified: 68.18%

Table 23 T-tests on groups defined by fear

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>t-value</th>
<th>df</th>
<th>2-tail Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear 1 Depression</td>
<td>5.18</td>
<td>2.43</td>
<td>64</td>
<td>.018</td>
</tr>
<tr>
<td>Fear 2 Anxiety</td>
<td>2.72</td>
<td>2.18</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Fear1 Susceptibility</td>
<td>9.91</td>
<td>2.67</td>
<td>67</td>
<td>.010</td>
</tr>
<tr>
<td>Fear2</td>
<td>8.36</td>
<td>2.69</td>
<td>67</td>
<td></td>
</tr>
</tbody>
</table>

This table shows that there were significant differences between the "past risk" group (fear 1) and the "just checking" group (fear 2) on the variables of depression and susceptibility. These variables when considered with the anxiety variable do not discriminate between groups but nonetheless seem to play a role.
Table 18 shows the sample categorised by HAD category and it emerges that 58.3% of the sample are either borderline anxious (23.6%) or definitely anxious (34.7%). Table 20 shows that anxiety as the variable which discriminates between the two groups ("past risk" (PR) group anxiety score x=12.18 and the "just checking" (JC) group x=7.68). The "past risk" anxiety mean is indicative of the presence of clinical anxiety. The "just checking" anxiety mean, while not so high, is still relatively high in clinical terms and would be cause for some concern as a proportion of this group would be experiencing problems coping with anxiety.

Table 23 shows that there was a significant difference between the PR group and the JC group on the measure of depression. The PR group scored more highly on this measure (x=5.18) than the JC group (x=2.72) but the scores do not fall within a range that indicates the presence of a clinical depression.

These results further confirm that within this data are two quite distinct groups of people who have come for HIV testing for very different reasons. The PR group are more anxious and the level of anxiety falls into the clinical range, they score more highly on the depression measure and they feel more susceptible to HIV. The JC group, in contrast, do score not so highly on the measures of anxiety and depression and they do not feel as susceptible to HIV.

3.8 HYPOTHESIS 4  It is hypothesised that none of the participants who attend for testing will test HIV+

Results of the HIV tests

The results of the HIV tests were examined and none of the participants had a positive result.
4.0 DISCUSSION

4.1 AIM 1 The study aims to construct reliable scales of susceptibility, severity, barriers and benefits, the constructs of the HBM.

This study, in contrast to many which have utilised the HBM constructs, aimed to use only reliable measures of the HBM and this aim was successful to some extent. It emerged that the scales as originally constructed were not reliable measures but it can be clearly seen from tables 7 and 8 that items from the factor analysis which were constructed into reliable scales for barriers and susceptibility respectively.

The author has been unable to locate any other HBM scales developed for this population and which have been tested for reliability. These scales offer, therefore, a basis from which additional research in this area can proceed. However, the factor analysis indicates the reliable scales account for only 37.3% of the variance. Thus, it may be that the items in the scales generated from the factor analysis did not completely reflect the constructs of the HBM. This is a criticism which has been made of many HBM based studies and occurs, to some extent, because the constructs have to be operationalised in different ways according to the health problem under examination.

It can be seen that the items in factor 1 (table 4) contain four barrier items, two benefit items, one susceptibility item and two severity items. Taken together the items on factor 1 account for 11.2% of the variance. This outcome reflects the finding by Janz & Becker (1984) that barriers is the most powerful component of the HBM. There is a sense that changing one’s own sexual behaviour and habits is not easy (bar1) and the scale contains two condom related items which seem contradictory (bar 5,6) and which on the one hand say that condom use in all circumstances is desirable but on the other that condoms are unreliable. These items seem consistent with an underlying sense of confusion about the effectiveness of condoms. There seems to be an additional element
also; people may well be able to control their own sexual desires and behaviour but they are unable to control their partners sexual behaviour. Thus, no matter how careful they are in their own sexual behaviour they may still get a sexually transmitted disease from their partner. This seems to be also reflected in the ben4 item. Take together, the items become a set of barriers to changing sexual behaviour. However, only four of these items construct a reliable barriers scale (three barrier and one benefit item). Thus, it seems that the items do not completely capture the construct and additional research may be required to identify items which may more completely reflect it. Many studies which have used this construct (e.g. Calnan, 1984) have operationalised the construct with either a single item measure or have collapsed barriers and benefits into a single measure. In comparison this study has managed to construct a reliable scale and this must not be underestimated.

Factor 2 yielded four susceptibility items, two barrier items and one benefit item. Factor 2 accounted for 10% of the variance. Three of the susceptibility items formed a reliable scale of susceptibility (table 8). These items form a scale which clearly reflect feelings of susceptibility. Two of the items are concerned with a personal sense of vulnerability (sus1 & 5) whereas sus3 reflects a judgement of the how much risk one is placed at through lifestyle.

Factor 3 yielded five severity items, one susceptibility item and one barriers item. Three of the severity items and the one susceptibility item constructed a scale with an alpha (.5130) which approached reliability. Factor 3 accounted for 8.5% of the variance and it is interesting to note that in the 1984 review of the HBM Janz & Becker noted that severity was the least important construct of the model in explaining health behaviours. The items did not construct a reliable scale but it can be considered that the extracted items might be the basis for the development of a reliable severity scale. It is thus worth considering the items in which the link seems to be about helplessness/powerlessness. The three severity items reflect a powerlessness in response to social approbation and disapproval. This seems to reflect the social stigma
attached to HIV as a disease in which the infected person is considered to get what they deserve. In popular culture the link between socially disapproved of behaviour (e.g. sex between men, IV drug use, commercial sex) and HIV has often been made and it may be that the feeling expressed in this scale is that if the respondents had HIV they would also be presumed to have membership of a socially disapproved of group. In other words people would think they were a slut, a whore, a queer or a junkie. The susceptibility item was originally considered helplessness to avoid the disease. However, in this context it may be that it more accurately reflects the inevitability of the progression of HIV to certain death.

The items from factor 4 did not form a reliable scale nor was there a theoretical coherence among the items. The items were not used any further in the analysis and as a reliable benefits scale could not be constructed it also was no longer used in the study.

Affective factors have not been considered to play a part in the constructs of the HBM which has been considered to be a completely cognitively based model. However, it could be considered that each of the constructs is based on a set of feelings from which particular cognitions or attitudes about health behaviour/illness avoidance are generated. The HBM emphasises thoughts rather than the emotions underlying or associated with them but yet as the cognitions are influenced by emotions the HBM measures may not, therefore, be true measures of pure cognitions but may also be measuring some aspect of affect. In this context it is interesting that the reliable scales contain what might be considered affective items e.g. "I never worry that my partner might pass a sexually transmitted disease to me" (item 4 from the barriers scale) and "I believe there is nothing I can do to avoid HIV" (item 1 from the severity scale). The HBM is a cognitive model of health behaviour but, as has been noted, many criticisms have been made of this emphasis especially in relation to sexual behaviour. The extraction of these items through the factor analysis may indicate that feelings about
one's own and other's sexual behaviour may have to be included in the application of
the model to the area of sexual behaviour.

4.2 AIM 2 The heterosexual population attending for HIV testing is
considered to be at low risk for HIV. A profile of the different reasons for
attending will be developed and the relationship between those reasons and other
variables will be explored

This study has extracted two groups from the data for whom different factors account
for their decision to have a HIV test. While participants could give more than one
reason for attending two groups clearly emerged with little overlap. The PR group
identify themselves as having been at some risk for HIV. This is within the context of
the finding that unprotected sex seem to be the norm for this sample as a whole. If this
is so why did this group become concerned about what seems for them to be a
common or usual activity? McKirnan et al (1996) has suggested that unprotected sex
can occur even when people are highly HIV aware and fully subscribe to protected sex
as a HIV prevention measure. They suggest that the situational and relational contexts
in which unprotected sex occurs are important in understanding this behaviour. This
notion has been supported by Miller (1993) who has suggested that unprotected sex is
seen as more trusting, more exciting and more meaningful and Sherr et al (1990) who
has written that it might be considered "the only acceptable form of sexual expression".
Thus, unprotected sexual activity may occur within the context of HIV knowledge but
in the sexual situation other factors such as closeness, demonstration of trust or simply
lust become more important than HIV attitudes or knowledge. This may be particularly
important for younger people who are more likely to take sexual risks, may have less
assertive or behavioural skills to put their knowledge into practice, may be more likely
to use alcohol or recreational drugs before sex and may have less access to
contraceptives especially condoms. These factors may have relevance to this group
some of whom have had unprotected sex with partners whom they knew or suspected to HIV risk factors.

What might be the relationship between the JC group and reasons for HIV testing? In all of the categories the sexual relationship between two individuals seems to be the pivot around which concern is generated. It is notable that in all categories the relationship reaches a point where the decision must be made. This may be in relation to planning for the future (stopping condom use, pre-marital check) which may include pregnancy at some stage, something has happened which places the value of the relationship in doubt (fidelity issue) or simply the newness of the relationship may be contributing to feelings of concern about past or previous partners. Even more simply, the newness of the relationship may have raised an issue of trust between the couple. Can they have an unprotected sexual relationship without worrying about a deadly infection? It seems that HIV becomes a salient issue not because there has been a risk of infection but rather it comes to symbolise other issues that are happening in the relationship.

4.3 AIM 3 The study will identify the samples' sources of HIV/AIDS information.

In relation to where this group gets their HIV/AIDS information the data shows that friends and leaflets were the most commonly identified sources (table 14). Information from TV and newspapers were less commonly identified but remained important sources. Thus, the data shows that information comes from a variety of sources. It is not possible from the data to identify the producers of leaflets or the outlets of the leaflets to which the sample referred. Leaflets about HIV are produced by many statutory and non-statutory agencies and are intended to be accessible to the widest possible audience. Agencies producing such information include family planning clinics, community and street drug teams, sexual health centres, national AIDS helpline, national drugs helpline, youth agencies and local authority education units.
Outlets for this information are also very diverse and include GP surgeries, other health care centres, youth clubs and some night clubs. The fact that the sample had a good level of knowledge shows that they, understand and retain the information contained in the leaflets.

The second most commonly cited source of information was friends. This indicates that HIV/AIDS is something about which this group are talking and suggests that it is a topic which generates interest. While this group might talk to their friends about HIV it does not seem that they talk to their families about it. This may reflect an embarrassment about talking of sexual matters with family members especially parents. HIV may also be more salient in a situation where the sample had serial sexual partners. Thus, while it is important this group had accurate written information it seems that they talked about the information within their friendship networks. This may be an opportunity in which any misperceptions are corrected, issues are clarified and personal risk assessments are made. The relationship between information, perceptions of susceptibility and protected sex will be discussed at a later point.

4.4 HYPOTHESIS 1 It is hypothesised that participants who attend for testing will have a high level of accurate information about HIV.

Table 15 shows that the AIDS knowledge scale was a reliable measure on which the mean score was 50.93 out of a maximum possible score of 60. This indicates that this sample was well informed about HIV and the ways in which it is transmitted and thus did not attend for testing on the basis of inaccurate or misleading information. This result confirms the hypothesis.

The sample appears, therefore, to be well informed about HIV and information from friends and leaflets appear to be the main sources of their information (60.3% and
55.1% of responses respectively). Television and newspapers account for less substantial information sources (36.2% & 27.5% respectively). Although this is a well informed group it is interesting to note that only 13.2% always had safe/protected sex. The rest of the sample sometimes (40.8%) or never (36.8%) had protected sex. This seems to indicate that although they are aware of the sexual ways in which HIV is transmitted only a small proportion is sufficiently concerned to always have protected sex. This may be a reflection of the meanings of unprotected sex in their relationships. As discussed earlier, unprotected sex may be perceived as more committed, demonstrates a trust of the partner or may be a norm within a group. It may also reflect the situations in which people have sex and in which they suspend their HIV information. These situations may include a highly charged sexual encounter or places in which sex is initiated e.g. clubs, bars. Finally, substance use may also facilitate the suspension of normally adhered to beliefs about unprotected sex. The result may also be a reflection to some extent of the age of the sample in which 64.21% are aged 25 years or younger (table 1). The literature suggests that younger people are less likely to be concerned with such issues as contraception or STD's and are more likely to take risks (Abraham & Sheeran, 1994). Of particular interest is the proportion of young women in the sample below the age of 18 who are concerned about HIV. The very fact they are attending for HIV testing indicates they are already sexually active (perhaps at a younger age than are men), are not having consistently protected sex and are at risk for STD's other than HIV. It is reasonable to assume that as their HIV information is good that they are also aware of the other STD's they may be exposed to as a result of unprotected sex. It is interesting to speculate if through attending for testing they are using it as a route to services other than HIV testing (e.g. STD information, relationship counselling). Richard et al (1995) suggest that many adolescents, while HIV aware, do not possess the behavioural skill necessary to insist on protected sex. Given the relative youth of a substantial proportion of the females attending it may be that they find it difficult to implement their HIV knowledge in a sexual relationship.

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4.5 HYPOTHESIS 2 It is hypothesised that in this population there will be high levels of susceptibility, severity and benefits and a low level of barriers.

The benefits and severity scales as originally constructed did not prove to be reliable measures and new benefits and severity scales could not be constructed from the factor analysis items. Thus, it was decided to drop these variable from the study rather than use unreliable measures.

As mentioned previously, as these are newly constructed scales there are, as yet, no norms. Therefore, any analysis of the results must be considered preliminary.

Table 16 shows the mean scores from the reliable scales and it can be seen that the mean score for the susceptibility scale was 8.84 out a possible maximum score of 15. As this score is just above the midpoint it seems that the sample, in general, did not feel highly susceptible to HIV. The mean score from the AIDS knowledge scale showed that the sample had a good level of knowledge about HIV and were thus not attending on the basis of inaccurate information and had the necessary information on which to make an accurate assessment of their level of susceptibility. However, there is a significant difference between the susceptibility scores of the past risk group and the just checking group (table 23). The PR group assessed themselves as more susceptible than the JC group and this is reflective of the reasons they gave for attending for testing i.e. condom breakage, risk from current/past partner. This indicates that susceptibility is more highly associated with HIV testing among the PR group than the JC group. However, it is worthy of note that the susceptibility score for this group does not seem to indicate the personal assessment of a high degree of susceptibility. This may be a fault of the measure and it may indicate that the susceptibility scale as currently constructed does not completely capture the construct. Alternatively, it may indicate that an assessment of personal susceptibility is not the most important factor in determining whether or not to have a HIV test.
The mean barriers score is 13.0 (maximum score possible = 20) which seems to indicate that this group had a set of barriers to changing their sexual behaviour. This result needs to be considered in the context that unprotected sex seems to be the norm for this group and they have a good knowledge about HIV transmission.

These results thus indicate that while the past risk group assesses themselves as susceptible to HIV they nonetheless also seemed to consider that changing their sexual behaviour was not necessary. This seems to conflict with the prediction from the HBM literature that high susceptibility, benefits and severity scores and a low barriers score would predict a health action.

4.6 HYPOTHESIS 3 It is hypothesised that there will be a high level of anxiety in the heterosexuals attending for testing. The level of depression in this group will be explored.

The results indicate that anxiety discriminates between the PR group and the JC group. The mean anxiety scores indicated the presence of clinical anxiety in the PR group. A significant difference between the two group was also found on the depression variable.

It appears that the PR group feel that they have something to be concerned about. This is reflected in the reasons they gave for attending for the test which are assessments of HIV risk. While this group may have been at a higher HIV risk their objective risk is low (Department of Health, 1996). Furthermore, this anxiety does not seem to have translated into protective behaviours as unprotected sexual activity is the norm for the sample as a whole. Thus, it seems that this group of HIV aware people normally had
unprotected sex (and potentially a HIV risk, albeit objectively low) but subsequently became anxious about HIV and decided therefore to have a HIV test.

It should be remembered that the HAD scale is a measure of general anxiety in which the respondent is invited to respond about how they have felt over the last week. Thus, it is a measure which is generally considered to be a good measure of longer term anxiety. It may be, therefore, that the anxiety felt by this group was not a specific HIV anxiety but rather a generalised anxiety which they had felt for some time and which came to include a focus on HIV. The anxiety and depression literature referred to in the introduction included a number of studies which reported that anxious people are more likely to have a biased judgement that negative events will happen to them (Butler & Williams, 1983; Williams et al, 1988), anxious people direct their attention toward threatening information (Foa et al, 1991; McNally et al, 1990), people with induced negative affect are more likely to judge their decisions as risky (Maule & Hockey, 1996) and depressed people are more likely to remember information (i.e. sad, worrying, self-accusatory, despairing memories) which reinforces their mood (MacLeod & Matthews, 1991). This literature indicates that already anxious and/or depressed people will attend to threatening (HIV) information in their environment, are likely to judge their past sexual activities as risky, and are likely to recall information which adds to their concerns. Why should HIV become the focus of their anxiety? Several authors have reported that media reports seem to stimulate HIV concerns in people whose HIV risk factors would be objectively assessed as low (Ross & Scott, 1993; Lewin & Lewis, 1988; Miller et al, 1988). Sexual behaviour which is clandestine, secret (e.g. an affair) or conflicts with individual morality or that of a larger group (e.g. family) may also find expression in concerns about HIV (Miller et al, 1988; Bor et al, 1989; Salt et al, 1989). Thus, it seems that sexual behaviour which is judged by the individual to be illicit, foolish or "bad" may result in worries of punishment (HIV) for the sexual activity. This worry of punishment may be confirmed by information in the media or elsewhere (e.g. from friends) which states that everyone is at risk for HIV and it is a deadly, fatal disease. There is also a public perception that
people with HIV are promiscuous and are therefore deserving of the fate that awaits them (McKinnan et al, 1996). HIV in this context becomes the worst possible punishment for previous moments of passion. The scores from the severity items, while they do not form a reliable scale, indicate that the sample thought that HIV was a severe illness.

The just checking group, by contrast, are not as anxious or depressed and do not consider themselves so susceptible to HIV. Why then have they come for HIV testing? Several previous studies have commented that people attending for testing have not considered themselves to be at risk for HIV (Hong & Berger, 1994; Waddell, 1993) but this behaviour has not been well explored in the literature. This group was extracted from the data on the basis of the reasons for attending for HIV testing (table 10) and includes people from the following categories; new relationship, stop condom use, fidelity issue and pre-marital check. These categories share in common a question about past sexual activity and whether or not it will effect the future. This group is well informed about HIV and is sufficiently concerned about it to have a test. This does not mean, however, that they feel susceptible to it and it seems that the test has acquired other meanings. Stopping condom use implies that pregnancy is being considered, testing pre-maritally may also mean that pregnancy is being considered and may also be a way of proving HIV- status which may be part of an agreement that monogamy (and thus unprotected sex) will be the relationship style. Testing as part of entering a new relationship may also be part of an agreement to have unprotected sex (presumably if the result is negative) and may also be a way of ensuring monogamy. A joint negative test result may be a way of placing each other on their honour to be monogamous which may be reinforced by the process of going through the test. It may be a way of saying to a sexual partner "I don't think I am HIV+ but I consider it a serious enough illness to have a test and we will only have unprotected sex if the result is negative. Furthermore, I want to remain HIV- and we must therefore be monogamous to protect my status". The data implies that this group had agreed with their partners that they would have a HIV test and it further implies that each of the partners had had a HIV
test. Unfortunately, the study cannot identify those participants who attended as part of a couple who had agreed that they would each have a test.

4.7 HYPOTHESIS 4 It is hypothesised that none of the participants who attend testing will test HIV+.

None of the participants tested positive for HIV. This result further indicates that prevalence of HIV is low for heterosexuals tested in the Tudor Wing (0.006%). This prevalence rate must be treated with caution as it is very difficult for methodological reasons to establish a true rate. Confounding factors include HIV+ people moving into the area because HIV services are better than in other areas and the presence of a mobile African refugee community who use the test centre but are not resident in the borough because of their political status. This factor may account for the over-representativeness of black Africans in the study. The borough has Heathrow airport within its boundaries and asylum seekers are initially dealt with by the local social services. Services used by asylum seekers may include HIV testing and they may have originated in an area of high HIV prevalence but will not necessarily ultimately live in the borough or the medical services catchment area. People who test positive thus give the false impression of the presence of higher prevalence.

The participants were not asked about any STD's they may have had at the time of HIV testing but it is interesting to note that only a small proportion reported consistently safe sex. While this might not be a problem if both partners are monogamous it would be expected that, on the basis of the youth and single marital status of the sample, that they will have new sexual partners in the future. As this sample seems to prefer unprotected sex this may leave them vulnerable to other STD's, which, although not as serious as HIV may still be distressing and physically uncomfortable.
4.8 Theoretical implications of the study

The data from this study suggest that while the HBM is useful to some extent to explain HIV testing behaviour other affective factors play a role in this decision. The HBM assumes that the individual is a "rational operator" (McKirnan et al, 1996) where the individual behaves in a logical way consistent with knowledge or attitudes towards the avoidance of illness and/or the maintenance of health. This study has shown that contrary to the expectation of the model the JC group did not attend for testing because they thought they had been at risk. Rather, the HIV test seems to have come to assume other meanings for them. Thus, perceived susceptibility was not a motivating factor for this group even though on the face of it they were engaging in a particular health behaviour which seems to imply a susceptibility to HIV. It seems the clinically anxious PR group overestimated their susceptibility to HIV, and it has been suggested that the cognitive processes associated with anxiety partly explain this result. The sexual relationship in which the unprotected sex took place must also be considered as a factor to explain why this well informed group took what they objectively knew to be a risk at the time and later became concerned about it. The desirability of the sexual relationship or partner, substance use and high sexual excitement may facilitate the suspending of the knowledge and attitudinal frameworks within which people would normally operate. McKirnan et al (1996) refers to the phenomenon of "cognitive escape" in which individuals depart from beliefs, knowledge and attitudes held about HIV and engage in unprotected sex. They speculate that factors which contribute to this phenomenon are negative affect, the pressure of the high and consistent standards of sexual behaviour demanded by protected sex (after all, it only takes one time to become infected), and the overarching desirability of unprotected sex. The model thus needs to take account of any confounding factors which facilitates suspension of knowledge even in people who may consider themselves to be susceptible to HIV.
It seems that the HBM as a cognitive model to explain HIV testing has limited utility. It ignores probably the most important factor of human sexual relationships, namely, we have sex on the basis of how we feel and not necessarily on the basis of what we think. This is the emotionally charged background to HIV testing. Factors which are associated with sexual behaviour, therefore, should be considered within any framework which attempts to explain the decisions made about the consequences of sexual activity. Finally, it has to be considered that while the HBM as a model might have a utility in certain ways with certain groups of people around certain health issues it may not be always useful with every group regarding every health issue.

4.9 The methodological implications of the study

An obvious limitation of this study is that the measures developed (barriers and susceptibility) seem not to have completely captured the constructs of the HBM. Reliable benefits and severity scales could not be developed from factor analysis items and thus it is impossible to say what impact these constructs had on the behaviour of the participants. In order for a full exploration of the HBM in relation to HIV test seeking behaviour it is necessary to include these measures. This is an obvious area for further research development. The reliable scales which were developed (susceptibility and barriers) contain three and four items respectively. It is unlikely that the constructs were completely captured by scales which contain a limited number of items. Further development of these scales is required.

The study did not include a comparison group and thus findings should be considered preliminary. The inclusion of a comparison group in any future research would clarify the replicability of the findings of the present study and would highlight any other differences that might exist. It is possible that the issues involved in HIV testing are
very different for other groups of people including heterosexuals from high HIV prevalence areas, drug using heterosexuals and gay men.

The representativeness of the sample in this study is also an issue which requires consideration. No data were collected on those who were not asked to participate in the study or those who chose not to participate. This sample may thus comprise people who are particularly anxious and who self selected to participate. It could be argued that they chose to participate in order to express their anxiety to a health professional and were using the interview to alleviate their anxiety or seek reassurance. Thus, it is unclear whether or not the sample is representative of the population attending for HIV testing. Any future research development in this area would have to consider this issue carefully and develop a methodology which would clarify the findings of this study. The interview schedule used in the study also has a number of limitations. It would have been useful to ask the participants to assess the riskiness of their own sexual activities. This would have given another measure of susceptibility other than the HBM derived measure and may have allowed a more accurate assessment of susceptibility. It would also have been useful to develop a tool which would have allowed an objective assessment of the riskiness of each of the participants' sexual behaviour. This was attempted in the development of the methodology but was considered to be too unwieldy and the present approach of always/sometimes/never protected was adopted.

This study has established that within the study group there were two distinct groups of people who had different motivations for taking a HIV test. This study has suggested that the PR group were a generally anxious group whose anxiety included a focus on HIV. This study has speculated about why this might be so but further research is required to explore why HIV has become such a salient issue for this group of people. A qualitative approach might be of particular use to this end and the author is currently developing a protocol to explore this issue further.
Further analysis of the data could usefully explore the relationships between attending for HIV testing, gender and age. It is possible that differences exist between men and women and between different age groups but this study has not explored any potential relationships which is another obvious area for further exploration.

4.10 The clinical implications of the study

The data presented in this study suggests that heterosexual people coming for HIV testing attend for different reasons. Clinically, it is of relevance that there is a high level of clinical anxiety in the group of people who judge that they have been at risk for HIV. Implied in their attendance is that a negative test result will relieve their anxiety but it is not clear whether or not this is so. The underlying reasons for their HIV concern are unclear and it may well be that HIV becomes the focus for their anxiety but HIV is not the underlying cause of it. If this is the case this group may well require an intervention different from a HIV test. There are several studies which report that anxious people may not be reassured by a negative test result and indeed may become re-attendees for HIV testing. It thus seems important to identify this group of anxious people at the start of the HIV testing process. The administration of the HAD scale or face to face questions which reflect the HAD items may be very helpful to the clinician to identify this group. People who are identified as anxious may not benefit from HIV testing alone and different interventions could be discussed with them. These might include anxiety management, short term relationship counselling and assertiveness training. These interventions might well be available within sexual health centre which have clinical/counselling psychologists or counsellors. Alternatively, referral to the clinical psychology department or community based facilities (e.g. adult education assertiveness classes) might be considered.
The factors which facilitate the suspension of HIV knowledge which allows people to engage in unprotected behaviour about which they may later become concerned may need to have a more prominent place in the pre-test discussion. Attendees may need assistance to identify strategies to cope with similar situations in the future.

Training for the counsellors/health advisors who perform the bulk of pre-test discussions may also be an important component in this process. They may need more specialist training about the identification of generalised anxiety states and interventions to reduce or cope with anxiety. They may benefit from consultation with a clinical psychologist about people with more difficult anxiety problems and this may serve to prevent, at the earliest possible stage, problems which may become more intractable in time.

4.11 Future research directions

As a model which is cognitively based the HBM may need to be reviewed regarding it's utility to explaining sexual health behaviours. Affective factors, situational and relational components may need to be considered to construct a model which more accurately reflects the ways in which decisions are made about sexual activity and consequent HIV testing decisions. Research could address the conditions under which the HBM is useful and equally importantly the conditions under which it is not useful. The constructs may be particularly useful with one group but not with another group. Addressing this issue would help in the planning and delivery of intervention strategies.

Qualitative research about the process which leads to the decision to have a test would be useful as would research about the meanings of HIV testing for different groups of people.
Reliable HBM scales developed with larger samples is indicated. In this way the utility of the HBM as a complete model could be explored.

Agreement among researchers using the HBM about how the constructs are operationalised would be helpful. Different studies have interpreted the constructs in slightly different ways making it difficult to clearly assess the usefulness of the model in different situations. The model has also be used in conjunction with constructs from other models (most notably the concept of self-efficacy) making it again very difficult to identify the usefulness of the HBM components.
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APPENDIX 1

CONSENT FORM

I agree to participate in the study which has been explained to me. I understand that any results will not be kept in my medical file and will have no bearing on the treatment I receive at the clinic.

Signed

Date
APPENDIX 2 INFORMATION FOR PARTICIPANTS

People attend for a HIV test for many different reasons. We are interested in researching some of these reasons and thus require the participation of people who are attending here for a HIV test.

The study will focus on the role that emotions (such as feeling low and worried) have on the decision to have a HIV test. Some people are very worried about HIV which may be the result of already feeling low and worried or which may cause these feelings. The study aims to clarify the function of these feelings in the decision to come to the clinic for a test.

You will be asked to fill out a number of questionnaires. The first will focus on feelings (e.g. anxiety, worry, feeling low). The second will look at how much you know about the way in which HIV is transmitted. The third will ask how much you feel you are vulnerable to HIV.

The questionnaires will not take more than 15 minutes to fill in.

The questionnaires will not be kept in your medical file and will have no effect whatsoever on the treatment you will receive at the clinic.

If you agree, you may be asked to meet with the psychologist for an in-depth, one-off discussion about your concerns. This will be separate to any counselling you receive for the HIV test and is for research purposes only. It is completely confidential.
APPENDIX 3

SEMI-STRUCTURED INTERVIEW

1. Clinic No..............

2. Male
   Female

3. Age................

4. Hetrosexual
   Gay
   Bisexual

5. White British
   White European
   Asian
   African
   Other (please specify) ............... 

6. How many sexual partners have you had 
   ever..............
   in the last year..............

7. Which kinds of sex have you had in the last year?
   Vaginal unprotected
   Vaginal Protected

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Anal unprotected
Anal protected
Oral protected
Oral unprotected

8. Why have you come here today

- unprotected sexual encounter
- change to usual sexual practice
- sex in endemic country
- sex with someone at high risk
- other (specify)

NB check

9. Where do you get your information about HIV from?

- Radio
- TV
- Newspapers (which one(s))
- Magazines (which one(s))
- Books
- Family
- Friends
- Other (specify)
APPENDIX 4

Hospital Anxiety and Depression scale

Doctors are aware that emotions play an important part in most illnesses. If your doctor knows more about these feelings he will be able to help you more.

This questionnaire is designed to help your doctor to know how you feel. Ignore the numbers printed on the left of the questionnaire. Read each item and underline the reply which comes closest to how you have been feeling in the last week.

Don’t take too long over your replies; your immediate reaction to each response will probably be more accurate then a long thought out response.

I feel tense or “wound up”.
Most of the time
A lot of the time
From time to time, occasionally
Not at all

I still enjoy the things I used to enjoy
Definitely as much
Not quite as much
Only a little
Hardly at all
I get a sort of frightened feeling as if something awful is about to happen
Very definitely and quite badly
Yes, but not too badly
A little, but it doesn’t worry me
Not at all

I can laugh and see the funny side of things
As much as I always could
Not quite so much now
Definitely not so much now
Not at all

Worrying thoughts go through my mind
A great deal of the time
A lot of the time
From time to time but not too often
Not at all

I feel cheerful
Not at all
Not often
Sometimes
Most of the time

I can sit at ease and feel relaxed
Definitely
Usually
Not often
Not at all
I feel as if I am slowed down
Nearly all the time
Very often
Sometimes
Not at all

I get a sort of frightened feeling like "butterflies" in the stomach
Not at all
Occasionally
Quite often
Very often

I have lost interest in my appearance
Definitely
I don't take so much care as I should
I may not take quite as much care
I take just as much care as ever

I feel restless as if I have to be on the move
Very much indeed
Quite a lot
Not very much
Not at all

I look forward with enjoyment to things
As much as I ever did
Rather less than I used to
Definitely less than I used to
Hardly at all
APPENDIX 5 AIDS KNOWLEDGE SCALE

PLEASE CIRCLE THE STATEMENT WHICH BEST DESCRIBES HOW YOU FEEL

(a) It is easy to recognise people infected with HIV (5-1)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(b) Only homosexuals and bisexuals are infected with HIV (5-1)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(c) It is possible to catch HIV by coming into contact with the blood of someone who has HIV (1-5)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(d) A person can avoid catching HIV by taking a vaccine, like for measles (5-1)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(e) A person can catch HIV from deep kissing with someone who is infected with HIV, even if there are no cuts in the mouth (5-1)
Strongly disagree neither agree agree strongly disagree nor disagree agree
(f) A person can catch HIV from light kissing (inside the mouth) with someone who is infected with HIV, even if there are no cuts in the mouth (5-1)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(g) A person can avoid catching HIV by using a clean needle and syringe when injecting drugs (1-5)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(h) A person can catch HIV from taking drugs even without injecting them (5-1)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(i) If properly used condoms can prevent you catching HIV (1-5)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(j) If properly used condoms are totally safe (5-1)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(k) Anal intercourse without a condom is very risky (1-5)
Strongly disagree neither agree agree strongly disagree nor disagree agree

(l) Vaginal intercourse without a condom is very risky (1-5)
Strongly disagree neither agree agree strongly disagree nor disagree agree
Heterosexuals are not at risk from HIV (5-1)

Strongly disagree neither agree agree strongly disagree nor disagree agree

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APPENDIX 6

SUSCEPTIBILITY SCALE

1. I believe I will be not infected with the HIV virus (1-5)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

2. I believe there is nothing I can do to avoid HIV (5-1)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

3. My lifestyle does not put me at great risk for HIV (1-5)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

4. Even if I tried to avoid HIV I would end up being infected (5-1)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

5. I believe I am less susceptible to HIV than other people (1-5)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

6. There is no point in using condoms during sex (5-1)
   Strongly disagree neither agree agree strongly disagree nor disagree agree
APPENDIX 7

SEVERITY SCALE

1. HIV would lead to the worst illnesses I could ever get (5-1)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

2. If I had HIV my family would treat me as well they have always done (1-5)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

3. If I were ill everyone would see it was HIV related (5-1)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

4. If I had HIV I would not be treated unfairly at work (1-5)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

5. If I had HIV I would be able to have sex as often as I do now (1-5)
   Strongly disagree neither agree agree strongly disagree nor disagree agree

6. People would feel disgusted if they saw me with an HIV related illness (5-1)
   Strongly disagree neither agree agree strongly disagree nor disagree agree
7. If I had HIV I would be able to tell everyone (1-5)
Strongly disagree  neither agree  agree  strongly disagree
nor disagree  agree

8. If I had HIV people would feel that I got what I deserved (5-1)
Strongly disagree  neither agree  agree  strongly disagree
nor disagree  agree
APPENDIX 8

BENEFITS SCALE

1. Being responsible for my sexual behaviour is the only way to avoid HIV (5-1)
   Strongly disagree neither agree agree strongly
disagree nor disagree agree

2. I always have unprotected sex (1-5)
   Strongly disagree neither agree agree strongly
disagree nor disagree agree

3. If I (or my partner) wears a condom I can have sex with anyone I like without worrying about HIV (5-1)
   Strongly disagree neither agree agree strongly
disagree nor disagree agree

4. I never worry that my partner might pass a sexually transmitted disease to me (1-5)
   Strongly disagree neither agree agree strongly
disagree nor disagree agree

5. Safer sex means I don't have to worry about anything (5-1)
   Strongly disagree neither agree agree strongly
disagree nor disagree agree

6. As I am not concerned about HIV I never practice safer sex (1-5)
   Strongly disagree neither agree agree strongly
disagree nor disagree agree

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APPENDIX 9

BARRIERS SCALE

1. Changing my sexual behaviour is easy (1-5)
   Strongly disagree neither agree agree strongly
   disagree nor disagree agree

2. As I am not promiscuous there is no point practising safer sex (1-5)
   Strongly disagree neither agree agree strongly
   disagree nor disagree agree

3. I would never feel embarrassed buying condoms (1-5)
   Strongly disagree neither agree agree strongly
   disagree nor disagree agree

4. If I want to use a condom my partner will think I have an infection (5-1)
   Strongly disagree neither agree agree strongly
   disagree nor disagree agree

5. I find that as condoms often split or tear there is little point in using them (5-1)
   Strongly disagree neither agree agree strongly
   disagree nor disagree agree

6. I always use a condom even if my partner doesn't want me to (1-5)
   Strongly disagree neither agree agree strongly
   disagree nor disagree agree
7. Condoms enhance my sexual pleasure (1-5)

Strongly disagree  neither agree  agree  strongly disagree
nor disagree  agree

8. For me, condoms are not 100% effective against pregnancy or infections (5-1)

Strongly disagree  neither agree  agree  strongly disagree
nor disagree  agree
APPENDIX 10  RELIABILITY OF THE HBM SCALES

Reliability of the susceptibility scale

<table>
<thead>
<tr>
<th></th>
<th>Scale mean if item deleted</th>
<th>Scale variance if item deleted</th>
<th>Corrected item total correlation</th>
<th>Alpha if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sus1</td>
<td>10.7067</td>
<td>6.8587</td>
<td>.3234</td>
<td>.3799</td>
</tr>
<tr>
<td>Sus2</td>
<td>12.2933</td>
<td>7.0750</td>
<td>.1827</td>
<td>.4534</td>
</tr>
<tr>
<td>Sus3</td>
<td>10.5467</td>
<td>5.5214</td>
<td>.4158</td>
<td>.2966</td>
</tr>
<tr>
<td>Sus4</td>
<td>12.2267</td>
<td>8.0695</td>
<td>.0064</td>
<td>.5429</td>
</tr>
<tr>
<td>Sus5</td>
<td>11.5067</td>
<td>5.9290</td>
<td>.4324</td>
<td>.3004</td>
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<tr>
<td>Sus6</td>
<td>12.5867</td>
<td>8.2728</td>
<td>.0657</td>
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Alpha = .4692

This table shows that the susceptibility scale was not a reliable measure.
Reliability of the Severity scale

<table>
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<th>Severity</th>
<th>Scale mean if item deleted</th>
<th>Scale variance if item deleted</th>
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</thead>
<tbody>
<tr>
<td>Sev1</td>
<td>18.7746</td>
<td>6.3199</td>
<td>-.1677</td>
<td>.0140</td>
</tr>
<tr>
<td>Sev2</td>
<td>19.4930</td>
<td>5.7107</td>
<td>-.0816</td>
<td>-.0753</td>
</tr>
<tr>
<td>Sev3</td>
<td>20.5070</td>
<td>5.3107</td>
<td>.0780</td>
<td>-.2514</td>
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<tr>
<td>Sev4</td>
<td>20.2394</td>
<td>5.4990</td>
<td>.1042</td>
<td>-.2542</td>
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<tr>
<td>Sev5</td>
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<td>6.4708</td>
<td>-.1916</td>
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<td>.0907</td>
<td>-.2421</td>
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<td>5.6913</td>
<td>.0291</td>
<td>-.1895</td>
</tr>
<tr>
<td>Sev8</td>
<td>20.2535</td>
<td>5.9920</td>
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<td>-.0644</td>
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Alpha = -.1411

This table demonstrates that the severity scale was not a reliable measure.
Reliability of the Barriers scale

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<th>Scale variance if item deleted</th>
<th>Corrected item total correlation</th>
<th>Alpha if item deleted</th>
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</thead>
<tbody>
<tr>
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<td>20.4706</td>
<td>6.4917</td>
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<td>-.1195</td>
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<tr>
<td>Bar2</td>
<td>20.2206</td>
<td>6.8014</td>
<td>-.1158</td>
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<tr>
<td>Bar3</td>
<td>22.0735</td>
<td>6.5468</td>
<td>.1104</td>
<td>-.1414</td>
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<tr>
<td>Bar4</td>
<td>21.3971</td>
<td>6.0639</td>
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<td>Bar6</td>
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<td>-.1643</td>
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<tr>
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<td>20.7353</td>
<td>5.5110</td>
<td>.2112</td>
<td>-.2906</td>
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<tr>
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<td>21.1324</td>
<td>6.7136</td>
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<td>.0342</td>
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</table>

Alpha = -.0552

This table indicates that the Barriers scale was not a reliable measure.
Reliability of the Benefits scale

<table>
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<th>Scale mean if item deleted</th>
<th>Scale variance if item deleted</th>
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<th>Alpha if item deleted</th>
</tr>
</thead>
<tbody>
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<tr>
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<td>6.7140</td>
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<td>6.1040</td>
<td>.0633</td>
<td>.1927</td>
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<tr>
<td>Ben4</td>
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<td>5.0477</td>
<td>.1443</td>
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<td>17.1304</td>
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<tr>
<td>Ben6</td>
<td>17.4203</td>
<td>6.4531</td>
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</tbody>
</table>

Alpha = .2039

The results displayed in the table indicate that the Benefits scale was not a reliable measure.