A PORTFOLIO OF STUDY, PRACTICE AND RESEARCH

The Sexual Risk Cognitions Questionnaire: A reliability and validity study.

Submitted for the Doctor of Psychology (PsychD)

in Clinical Psychology

CONVERSION PROGRAMME

By Deepti Shah

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CONTENTS

ACKNOWLEDGEMENTS	1
PROFESSIONAL AUDIT: PERSONAL STUDY PLAN	2
PART 1: ACADEMIC REVIEWS	6
The relationship between psychological factors and recurrent genital herpes	7
Critical review of group interventions for sexual dysfunction: Advances in the last decade	35
Psychological approaches to pain in HIV/AIDS	56
PART 2: CLINICAL COMPONENT	86
Safer sex service for HIV positive gay men	87
Intorduction	87
Clinical service	94
Intervention	98
References	108
Appendix	115
PART 3: RESEARCH COMPONENT	123
The Sexual Risk Cognitions Questionnaire: A reliability and validity study	124
Introduction	124
Method	148
Results	152
Discussion	162
References	168
Appendix	185
Implicit and explicit memory bias in chronic pain patients. (Msc thesis). University of London. 1992.	191

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PROFESSIONAL AUDIT: PERSONAL STUDY PLAN

This section contains my original proposal for the PsychD conversion programme. All the topics were selected with the intention of developing greater expertise in the psychology of HIV/AIDS, genito-urinary medicine and HIV prevention strategies. I am currently employed in these fields.

PART 1: ACADEMIC COMPONENT

Title: The relationship between psychological factors and recurrent genital herpes.

Aims: To develop a greater understanding of the role of psychological factors in genital herpes recurrences.

Objectives: Firstly, to critical review the research examining the relationship between psychological factors, genital herpes and its recurrence. Secondly, to gain a greater understanding of the effects of psychological factors, particularly stressors on the immune system. Finally, to explore the role of psychological interventions in patients with genital herpes

Rationale: Over the past decade there has been an increasing interest in the role of psychological factors in genital herpes recurrence. A number of studies and anecdotal reports have suggested that stress causes recurrence. This has led to the application of stress management techniques for patients with genital herpes. I am currently exploring the possibility of setting up a cognitive behavioural group for patients with genital herpes. Before, undertaking this project it is essential to review the research, particularly the role of stressors, in the field.

Title: Critical review of group interventions for sexual dysfunction: Advances in the last decade.

Aims: To develop a greater understanding of the effectiveness of group interventions for sexual dysfunction.

Objectives: Firstly, to understand the application of group approaches to sexual dysfunction. Secondly, to evaluate the effectiveness of group versus individual approaches for sexual dysfunction. Finally, to understand the suitability of the group approach in relation to type of sexual dysfunction and client group.

Rationale: Over the past two decades there has been a significant increase in the number of patients seeking psychological help for sexual problems. The group format makes it a viable and attractive alternative to traditional individual or couples therapy, particularly in the current climate of the National Health Service where the pressure to reduce waiting lists and provide cost-effective treatment is increasing. This paper examines whether the group approach for sexual dysfunction is therapeutically effective.

Title: Psychological approaches to pain in HIV/AIDS.

Aims: To examine the role of psychological pain management strategies in patients with HIV/AIDS

Objectives: The first objective is to review the prevalence of pain in HIV. This is followed by a critical examination of the role of psychological factors in pain and the application of cognitive behavioural approaches to pain management. Finally this review explores whether these approaches may be applied to patients with HIV/AIDS.

Rationale: The effectiveness of cognitive behavioural approaches for pain management has been extensively examined in a variety of areas, including oncology and arthritis. This has led to clinical psychologists playing a key role in the pain management of these patients. To date, the work has not been extrapolated to patients with HIV/AIDS, who often suffer a painful and debilitating

disease. This paper examines the possibility of applying psychological strategies to the management of pain in patients with HIV/AIDS.

PART 2: CLINICAL COMPONENT

Title: Safer sex group for HIV positive gay men

Aim: The aim of the group will be to reduce the incidence of unsafe sexual behaviour in HIV positive gay men.

Objectives: To develop psychological interventions to enable HIV positive gay men to adopt and maintain safer sex. To reduce incidence of sexually transmitted diseases, particularly gonorrhoea in HIV positive gay men attending Chelsea and Westminster hospital.

Rationale: The continued incidence of HIV infection in gay men in London and the high rates of sexually transmitted diseases, particularly gonorrhoea in HIV positive gay men indicates that some HIV positive gay men are having difficulty adopting safer sex strategies. Surprisingly, this group has largely been neglected in targeted interventions to reduce HIV incidence. The aim of this service is provide a safer sex intervention for HIV positive gay men.

PART 3: RESEARCH COMPONENT

Title: The Sexual Risk Cognitions Questionnaire (SRCQ): A reliability and validity study.

Aim: To develop a reliable and valid instrument to measure sexual risk cognitions in people having difficulty maintaining safer sex.

Objectives: To develop an instrument that can measure sexual risk cognitions and can be used to assess the effectiveness of a cognitive behavioural intervention to increase safer sex practices.

Rationale: A number of instruments already exist that measure knowledge of HIV and sex, attitudes, self efficacy, situational factors and actual sexual behaviour. However, none of the published instruments specifically measure automatic cognitions related to unsafe sexual behaviour. This instrument is a further development of the self justification questionnaire devised by Gold et al., (1992). However, Gold's questionnaire has poor reliability and validity.

The SRCQ will be used to measure the effectiveness of cognitive behavioural intervention for safer sex currently provided by the Riverside HIV sexual risk reduction project. The theoretical framework for the measure is derived from contemporary social cognitive models applied to HIV risk (Gold et al., 1994; Tallis, 1995; Catania et al., 1990; Fisher and Fisher, 1992).

Plan: To distribute at least 150 questionnaires to people attending Gay Pride, 1995. This is a three day event promoting gay issues. Participants will also complete a series of questions on actual risk. Actual risk behaviour will compared with ratings of frequency of sexual risk cognitions. If the questionnaire is valid there should be a high correlation between cognitions and actual risk behaviour.

Title: Implicit and explicit memory bias in chronic pain patients: MSc Thesis, University of London. (1992)

PART 1: ACADEMIC REVIEWS

THE RELATIONSHIP BETWEEN PSYCHOLOGICAL FACTORS AND RECURRENT GENITAL HERPES SIMPLEX VIRUS

ABSTRACT

Although there is anecdotal evidence to suggest that the genital herpes virus is reactivated by negative mood, in particular in response to stress, the research evidence is equivocal. The evidence for the overall relationship is poor, due largely to the plethora of methodological problems in this area. There is, however, conclusive evidence that having genital herpes is associated with psychological distress. This paper aims to provide an overview of the clinical features of genital herpes virus, its relationship to psychological factors and critical review the research in this field.

THE RELATIONSHIP BETWEEN PSYCHOLOGICAL FACTORS AND RECURRENT GENITAL HERPES SIMPLEX VIRUS

1. INTRODUCTION

Genital herpes is a common sexually transmitted disease. It is the most frequent cause of genital ulcers in the Western world (Schmid, 1990) and its presence increases the risk of HIV transmission. (Corey, 1990, Cannon et al., 1988). This review focuses on the relationship between psychological factors and reactivation of the genital herpes simplex virus. Much of the research to date suggests that negative mood particularly in response to stress (Stout and Bloom, 1986, Vanderplate and Kerrick, 1985) directly reactivates the virus. However, it is unclear whether psychological distress is a consequence or cause of recurrent genital herpes simplex virus (HSV). For example, Wickett, (1982) and Marks and Patrick, (1983) have suggested a relationship between stress and recurrences, however, Kennedy et al., (1989) and Harris et al., (1988) found no link.

1.1 Clinical features

Genital herpes may be caused by herpes simplex virus type 1 (HSV-1) usually associated with cold sores and non-genital areas, or HSV-2 associated with genital ulcers. HSV-1 and HSV-2 are clinically indistinguishable (Becker et al., 1986). Brock et al., (1990) suggest that 25% of all those infected may be asymptomatic.

After the initial infection, HSV remains dormant in the sacral ganglia and capable of periodic reactivation in 90% of those infected. Recurrences vary in frequency and severity, with an average

of four recurrences a year (Haemal, 1981). During recurrence, patients experience ulcerative lesions in the genital area that may be accompanied by pain, itching, vaginal or urethral discharge. Primary infections can cause systemic illnesses as well as severe genital disease. This includes increased risk of cervical cancer, encephalitis, meningitis, neuralgia, urethral stricture (Corey et al., 1983) and spontaneous abortion (Edwards, 1978). Women report more severe recurrences than men (Jadaack et al., 1990, Mindel et al., 1988), but men report more frequent recurrences (Corey 1990); and longer duration of outbreaks (Swanson and Dibble, 1993; Mindel et al., 1988).

1.2 Transmission

The virus is transmitted by contact of mucous membranes, lesions or during viral shedding in asymptomatic people (Harger et al., 1986). Incubation lasts between three to seven days after exposure. Cross infection may occur via oral sex i.e. HSV-1 on the mouth can be transmitted to a partner's genital area (Corey, 1990). It can also be transmitted vertically to babies if the mother is infected. Approximately 0.5 per 1000 of newborns are infected and about 50% of these infants die (LaRussa, 1984). Transmission of HSV can be prevented by safer sex methods and by using condoms with nonoxynol-9, which inactivates the virus (Feldblum and Fortney, 1988).

1.3 Treatment

Only palliative treatment is available for herpes. Topical and oral forms of acyclovir have some effect (Mindel, 1993). Anecdotal reports of alternative treatments such as vitamins, warm baths and stress reduction, also exist (Bierman, 1983).

2. PSYCHOLOGICAL FACTORS AND IMMUNE FUNCTION

It is now well established that psychological factors, such as stress, may influence disease aetiology and progression (see reviews Cohen and Williamson, 1991; Adler and Matthews, 1994). The most conclusive evidence is found for cardiovascular disease (e.g. Rosengren et al., 1991). There is also some evidence for the role of stress in the aetiology of cancer (Forsen, 1991) and endocrine disease (Cox and Gonder-Frederick, 1992). Stress may also increase susceptibility to infectious disease such as the Epstein-Barr virus (e.g. Glaser et al., 1987); rhinovirus (Stone et al., 1992); disease progression in HIV/AIDS (see review Burgess, 1995) and reactivation of herpes simplex virus (Blondeau et al., 1993).

The mechanism by which psychological factors influence the immune system is unclear. Stressors may influence the pathogenesis of disease by causing negative affective states which in turn either directly stimulate pathogen reproduction or suppress immune defence. Reviews by Herbert and Cohen, (1993) and Kiecolt-Glaser et al., (1992) in humans and Ader and Cohen, (1993), in animals, show that psychological stress lowers immune competence. Negative affective states, also, influence health behaviours that may increase susceptibility to illness. For example, stress is related to more adverse health behaviours such as smoking, alcohol abuse and a lack of physical exercise (e.g. Rosengren, 1991).

2.1 Concept of stress

Negative life events have been operationalised in two ways, objective discrete events (e.g. bereavement) or self reports of cumulative stressful events (e.g. daily hassles). The theoretical model proposed by Cohen and Williamson (1991) and Herbert and Cohen, (1993) -suggest that

negative events lead to negative affective states or distress, only if imposed demands are perceived to exceed ability to cope (Lazarus and Folkman, 1984).

The relationship between traits, states and objective clinical events is important. Several researchers have suggested that experimentally induced negative mood increases reports of physical symptoms (e.g. Salovey and Birnbaum, 1989); people who are high on neuroticism report more stressful events (Affleck et al., 1992) and magnify the effects of a given stressor (Bolger, 1990). Introverts are more susceptible to infection (Broadbent et al., 1984). Additionally concepts related to positive cognitive styles such as optimistic expectations, self-efficacy (Bandura, 1989) and high self-esteem, contribute to better physical health (Scheier and Carver, 1992). Furthermore, effects of stressors on disease may be modified by social support factors (Cohen, 1988).

Studies in this literature are primarily based on a combination of self reported measures of objective life events (e.g. Life events scale devised by Brown and Harris, 1989), perceived stress (e.g. Daily Hassles) and distress measures (Beck Depression Inventory, BDI, (Beck et al 1961), Hospital Anxiety and Depression Inventory, Profile of Mood states, POMS, (McNair et al 1971)). Evidence is generally stronger for studies using subjective evaluation of stress rather than only measures of objective events. This is consistent with the emphasis on the subjective components of stress, including appraisal processes (Lazarus and Folkman, 1984). However, scores on cumulative events and psychological distress measures may be partly or wholly confounded by stable personality characteristics (negative affective or neurotic) rather than impact of environmental stressors (Watson and Pennebaker, 1989).

2.2 Theoretical model of HSV

At present there is no general accepted theoretical basis for the relationship between stress and herpes recurrences. Bierman, (1983) has suggested that stress may influence hypothalamic function which then triggers neurohumoral mediators which affect immune function. Also, two stress related hormones, noradrenaline and adrenaline, block the capacity of gamma interferon to activate murine macrophages to kill HSV-2 infected cells in vitro (Koff, 1986). Immune parameters such as the helper-inducer (CD4+) and suppressor cytotoxic (CD8+) have been shown to play a role in HSV recurrences (Sheriden et al., 1982). Longo and Colum, (1989), has argued that stress arising from the disease itself primes patients for subsequent attacks, and that stress affects immunocompetence and thus causes recurrence, setting up a vicious cycle.

3. PSYCHOLOGICAL IMPLICATIONS OF GENITAL HERPES

Studies suggest that the psychological consequences of having genital herpes are numerous and varying in severity. Patients with genital herpes have low self-esteem (Drob et al., 1985; Luby and Klinge, 1985; Lynch, 1988); depression (Derman et al., 1986; Levinson et al., 1987; Longo et al., 1988), guilt and shame (Bierman, 1985) and interpersonal difficulties (Nahmias and Norrid, 1979). The most frequent responses are generalised anxiety (Lynch, 1988; Derman, 1986) and sexual dysfunction (Shaw and Rosenfield, 1987; Lynch, 1988). In 1981, Luby and Gillespie described a syndrome similar to Kubler-Ross' stages of bereavement that patients may experience when they realise that they have genital herpes. The results, however, should be viewed with caution because of the lack of standardised instruments and small, biased sample sizes.

3.1 Studies reporting stress and recurrences

A number of studies have measured stressors and other psychological factors during an outbreak. Studies of first year medical students indicate elevations of HSV-1 antibodies during and before exam periods (Glaser et al., 1985). When compared with non-stressed control groups, higher levels of antibody levels to HSV-1 have been found among separated and divorced men (Kiecolt-Glaser et al., 1988); in people living near the Three Mile Island nuclear plant (McKinnon et al., 1989); and in depressed patients (Cappel et al., 1978). In animal studies, Bonneau et al., 1993 found that repeated and prolonged periods of restraint increased the primary development of HSV-specific cytotoxic T lymphocytes. Also, higher concentrations of infectious HSV was found in restrained mice compared to non restrained mice. Blondeau et al., (1993) also found that latent HSV-1 ganglionic infection was reactivated in the rats exposed to cold-restraint stress. However, the increased antibody levels to latent herpes virus ratio is not a reflection of stress induced

herpes activation, but only a reflection of non-specific increase in serum antibody levels in response to stress.

3.2 Retrospective Studies

The evidence linking psychological factors to HSV recurrences is based largely on studies in which subjects reported retrospectively on stressful life events, psychological factors and HSV recurrence. A number of these studies have failed to find a relationship between stress and recurrences (e.g., Vanderplate et al., 1988), but studies have suggested a correlation between psychological factors and symptoms. For example, Levenson et al., (1987) found factors such as depression, anxiety, and somatisation was associated with symptoms of pain and itching. Similarly, Silver et al., (1986) found that psychological factors were related to duration of symptoms and coping with recurrences. Contradictory results were found in cross-sectional surveys (e.g. Taylor, 1978). Bierman, (1983), in a retrospective study on 375 patients with genital herpes attending a private clinic, found approximately 86% of the sample believed that recurrences were related to stress, these findings are similar to surveys by Brookes et al., (1993); Swanson and Dibble, (1993) and a large scale survey by the American Herpes Association (HELP, American Social Health Association, 1981).

Other researchers have suggested that factors resulting in fewer recurrences include having an internal locus of control (Watson, 1983); lower levels of depression, anxiety, isolation and preoccupation with health concerns (Stout and Bloom, 1986); and having better coping strategies (Manne and Sandler, 1984).

These studies should be viewed with caution. They suggest only a correlation between stress,

psychological factors and recurrences, rather than a casual relationship.

3.3 Prospective studies

Prospective studies offer a more valid opportunity to understand the relation between psychological factors and recurrences. Goldmeier and Johnson, (1982) conducted a 28 week longitudinal survey of 58 patients after primary diagnosis of herpes. They found that patients with higher scores on the General Health Questionnaire, GHQ, (Goldberg, 1972) had their first recurrence sooner than those with lower scores. Unfortunately 13 of the 29 subjects without recurrences were lost to attrition, it is possible that distressed subjects without recurrences may have dropped out of the study. A further study by Goldmeier et al., (1986) of 57 patients suggests that age was the only variable associated with recurrences. The younger the patient the sooner the recurrence occurred. The authors reanalysed this data with that from the previous study and found that the only significant factor to predict recurrence was the GHQ scale. One of the criticisms against the use of the GHQ is that some of the responses may be influenced by concurrent illness. It may have been more appropriate to use the Hospital Anxiety and Depression Questionnaire, HAD, (Barczak et al 1988), which avoids responses which may have a somatic cause.

With a larger sample size, Hoon et al., (1986) followed 122 subjects (83 women and 39 men) for six months using monthly evaluations of major and minor life events. They found no correlation between negative life events in the preceding year and the number of reported recurrences in that year, however there was a weak but significant relationship when monthly life events were correlated with concurrently reported monthly recurrences. 82 of the subjects were, also, asked to rate perceived stress weekly for 26 weeks. The results showed that there was no significant

increase in stress ratings in the two weeks preceding a recurrence, although the physical health rating increased during the week of the recurrence.

Similarly, Kemeny et al., (1989) studied 36 patients with chronic genital herpes. Stress did not predict recurrence. Although data were collected monthly for 6 months, the data analysis was based on average of monthly outcome values across the study and therefore is retrospective.

The frequency with which perceived stress is measured may be significant in determining outcome. Rand et al., (1990) proposed that stress should be measured daily, rather than weekly as in the previous study. 64 subjects with at least one culture-proved recurrence of genital HSV were recruited. Subjects daily monitored their stress levels, recurrences and unusual events (e.g. exams, menstruation) for at least three months or until they had at least one recurrence. The data suggests that HSV recurrences are not preceded by increased levels of normal, daily perceived stress.

The effects of long term acyclovir were investigated by Carney et al., (1993) with 102 subjects to assess the effects of long term acyclovir. There was a 50% drop out rate. The results showed that there was a significant decrease in GHQ scores, acute anxiety on the HAD and illness concern after three months. Carney suggests that mood improves with the decrease in physical symptoms, rather than the patients emotional state causing recurrences. However there may be a positive feed back loop where fewer recurrences improve emotional state which in turn reduce recurrences.

In one of the few studies with a control group, Carney et al., (1994) compared 91 patients with first episode of genital herpes with 61 GUM controls who had other sexually transmitted diseases

and 56 dermatology controls. All patients were followed for a year and given the same questionnaires as in the previous study at three monthly intervals. They found that there was a significant decrease in GHQ scores only for people who did not experience recurrences during the follow-up stage.

Hoon et al., (1991) in a further study measured multiple factors including HSV recurrence rates, stressors, locus of control, arousal seeking and social support and other illnesses in 153 university students for 6 months. Serum levels of thymosin alpha 1, a peptide sensitive to psychosocial stress were also measured. Unfortunately, only one sample was taken for each subject and since levels fluctuate diurnally, this measure was not useful. The results suggest that stress did not affect HSV recurrence. Subjects who were arousal seekers had lower recurrence rates and more satisfactory social support networks. Locus of control was unrelated to recurrence rates or psychological stress. Hoon suggests that the construct "illness vulnerability" (total number of major and minor illnesses) in the 6 months prior to study is a central mediator of HSV recurrence. That is, that stress affects illness vulnerability which in turn affects recurrence rate. The construct is vague and constitutes a very crude measure, the measurement of immunological parameters would be more fruitful in increasing the understanding of the relationship between stress and HSV recurrences. Thus, if stress affects illness vulnerability, this should be reflected in changes in immune function indices which should also be symptomatically related to HSV recurrence.

A comprehensive study by Kemeny et al., (1989) investigated the relationship between stressful life experiences. Measures included major life events, ongoing daily stress, negative mood, helper-inducer (CD4+) and suppressor-cytotoxic (CD8+) T cells, general health behaviour (amount of sleep, physical exercise, alcohol consumption and fatigue), presence of other infections

and HSV recurrence. 36 subjects with recurrent herpes were followed for 6 months. The results showed that subjects with high levels of stressors tended to have significantly lower CD4+ and CD8+ cells. Subjects with high levels of negative mood (anxiety, depression or hostility) only had lower CD8+ cells. Decreased levels of CD8+ cells were found to precede and follow recurrent episodes. Only depressive mood averaged over the 6 months, in the subjects without many symptoms of other infections, was associated with herpes recurrence rate. The depressive mood HSV recurrence relationship was not dependent on changes in health behaviours. However, monthly changes in depressive mood levels did not predict when subjects would be most susceptible to HSV recurrences. Kemeny et al suggest that chronic levels of depressive affect may result in decreased levels of CD8+ cells or a related immune parameter which may result in HSV recurrence. Thus it is possible that short term changes in mood states are not sufficient to create immune changes, but depressive disorders or traits are necessary to trigger recurrences.

The use of CD8+ and CD4+ as a measure of psychoimmunology may be questionable. One of the difficulties with measuring lymphocytes such as CD4 and CD8 is that they are relatively unreactive over the short term (Burgess, 1995). Additionally in the Kemeny et al., study only 19 of the 36 subjects had immune assessments on a monthly basis. There are large individual differences, significant diurnal variations and systematic variation between immunological assays taken on different days. Blood should have been analyzed at the same time for all members of the group, but this is not made clear in Kemeny's report.

Unfortunately it is difficult to draw conclusions from these studies because of the small sample sizes (e.g. Goldmeier and Johnson, 1982); the failure to measure traits (Hoon et al 1986); lack of control group (Carney et al., 1993); and failure to measure factors known to affect recurrence e.g.

UV light (Kemeny et al., 1989).

3.4 Psychological Interventions

Although there is no clear evidence relating psychological factors with recurrence, there have been a number of studies seeking to demonstrate the positive effect of psychological intervention. In line with other physical conditions (e.g. in HIV, see Catalan, 1995, for review), the role of psychological intervention has been to enhance coping strategies and management of pain during HSV recurrence.

A number of studies (e.g. Longo et al., 1988) have investigated the effects of psychological interventions on frequency of recurrences. Anecdotal case reports by Vanderplate and Kerrick, (1985) using relaxation techniques and Gould and Tissler (1984) using hypnosis suggest a reduction in rate of recurrence and decrease in pain intensity following intervention.

Burnette et al., (1991) conducted a study, using seven sessions of progressive relaxation, on eight subjects. Standardised pre and post treatment measures included the BDI, State-Trait Anxiety Inventory (Spielberger, 1983) and the symptom checklist. The results suggest a significant reduction in recurrences rates for five of the eight subjects following treatment. However, only within subject data was reported by the study. It is possible that if all the pre baseline data and post baseline data was grouped together for all the subjects, no overall significant change in rate of recurrences would be detected.

McLarnon and Kaloupek, (1988) studied 16 subjects with genital herpes receiving 5 weeks of cognitive behaviour therapy. Anxiety levels were higher four days prior to a self-reported

recurrence compared to the four days after the symptoms had occurred. Higher recurrence rates were associated with greater loneliness and poor coping strategies. However, there were a large number of analyses in this study which did not correct for Type 1 errors. Additionally, given the small sample sizes it is not possible to draw conclusions about the effects of psychological intervention in reducing recurrence rates.

4. METHODOLOGICAL ISSUES

The design of the studies makes it difficult to understand the relationship between psychological factors and HSV recurrences. Retrospective studies are limited since any conclusions are only correlational. The few longitudinal studies are difficult to compare because of the variety of instruments used to measure psychological factors, the frequency with which measures were administered, variation in follow-up and a lack of control groups.

The majority of the studies have been based on biased samples e.g. patients seeking help for the psychological difficulties associated with genital HSV (Drob et al., 1985; Luby and Klinge, 1985; Manne and Sandler, 1984) and biased recruitment methods. For example, some studies use people who are recruited through newspaper adverts who may be those who are having greater difficulty coping with the HSV. Others have recruited patients belonging to support groups (Watson, 1983) or patients attending GUM clinics (Brookes, 1993). GUM clinic attenders may be more distressed compared to patients belonging to a herpes association who may have more support and different coping mechanisms; within groups patients differed in seriousness and frequency of recurrences (Waddis, 1983; Silva and Auerbach, 1986; Levinson et al., 1987; Longo et al., 1988); studies using female patients only (Taylor, 1978; Stout, 1986; Shaw and Rosenfield, 1987) neglect to address the issue of gender differences in clinical features. The early studies of HSV focused on people with more severe symptoms of herpes, largely ignoring those who were asymptomatic or had milder symptoms. There are very few studies that address the variability and degree of infection in the general population. The use of biased samples make it difficult to generalise the results.

Criteria for inclusion have varied from study to study, for example patients had to have herpes for at least one year (Corey et al., 1993), six months or were studied immediately after primary diagnosis (Goldmeier and Johnson 1982). Patients with HSV for longer may have adapted to having herpes and thus the impact of the recurrence would be less severe. Additionally, the method for verification of the presence HSV virus varied. Symptoms are not necessarily observable. Many of the studies use unverified self-reported symptom methods as their initial criterion for disease. Although these reports may reflect underlying infectious pathology, they may also reflect influences of stress on cognitive processes and self perceptions that are not associated with the herpes virus. Unfortunately procedures for detecting HSV and their antibodies are invasive, time-consuming and expensive.

The types of measures used to assess psychological distress and stress also varied. More sophisticated techniques for measuring life events in the context of meaning to the individual (Brown and Harris, 1989), examining the effects of single stressful events (Glaser et al., 1987) especially serious or traumatic events are needed. Studies, also, failed to examine coping strategies, social support and underlying traits. All these factors are known to modify the impact of stressful events.

One major difficulty in studies of immune function is that the immune system is affected by a wide range of social and behavioral factors including substance use (drugs, alcohol, caffeine and smoking), diet, sexual activity, social class, occupation and age (Burgess, 1995). Most studies have not measured these or stress related behaviours such as smoking, exercise or factors known to affect HSV recurrence e.g. Hoon et al., (1986) did not ask about menstrual cycle or exposure to UV sunlight.

5. CONCLUSION

These results suggest that exposure to stressors alone are not sufficient to trigger a HSV recurrence. Although a correlation between stress and number of recurrences suggests that stress makes patients more susceptible to recurrences, it may also be that recurrences causes greater stress, or that a third factor (e.g. socioeconomic status) puts people at greater risk of both stress and recurrences. Personality traits, coping mechanisms and interpersonal factors, also determine the extent of the impact of the stressor on the individual. Although state measures may show good correlations with immunological measures cross-sectionally, measures of transient mood states do not have strong predictive value longitudinally. Thus, relatively stable psychological features such as personality, dispositional style and social support should be included in addition to measures of mood in future studies on HSV recurrences.

More progress is required in developing tools that adequately measure these concepts, and in establishing the external validity of self reports of stress. More prospective studies, larger more representative samples with control groups and use of randomised trials are required. Finally there is a need to examine potential pathways linking stress to genital herpes simplex virus. Future studies in HSV and recurrences need to consider all these factors before any conclusions can be drawn.

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CRITICAL REVIEW OF GROUP INTERVENTIONS FOR SEXUAL DYSFUNCTION: ADVANCES IN THE LAST DECADE

ABSTRACT

The current review aims to examine what, if any progress has occurred in group interventions for sexual dysfunction over the past decade. In particular, the effectiveness and the advantages and disadvantages of the group approach are discussed, followed by a review of the current research. The studies are reviewed in the context of methodological improvements and short comings. The author concludes that most of the studies lack rigorous research methodology, and any claims about the effectiveness of group intervention for sexual dysfunction has to be met with caution.

CRITICAL REVIEW OF GROUP INTERVENTIONS FOR SEXUAL DYSFUNCTION: ADVANCES IN THE LAST DECADE

1. INTRODUCTION

Therapeutic approaches to sexual dysfunction have reflected overall trends in therapeutic techniques for the treatment of a wide range of psychological problems. Thus the emphasis has shifted from the psychoanalytic approach where sexual dysfunctions were regarded as symptoms of disturbances of personality originating in early childhood (Freud, 1947) to a behavioural approach in the 1950s and 1960s. Behavioural approaches were found to be successful in the treatment of vaginismus (Haslam, 1965), erectile dysfunction (Freidman, 1968) and premature ejaculation (Semans, 1956). The most significant development in this field occurred in 1970 with the publication of 'Human sexual inadequacy' by Masters and Johnson. They used a combination of techniques including behavioural, psychotherapeutic and educational. The emphasis of the therapy was the couple and their relationship. Over recent years there have been significant advances in sexual therapy (Hawton, 1993) including of group approaches.

Group approaches increased at a rapid rate during the seventies. This led to the development of group interventions for orgasmic dysfunction (Barbach, 1974), premature ejaculation and erectile dysfunction (Zilbergeld, 1978). The benefits of the group format make it a viable and attractive alternative to traditional individual or couples therapy, particularly in the current climate of the National Health Service where the decrease in resources allocation and the pressure to provide cost-effective treatment is increasing. During the early eighties, Mills and Kilman (1982) reviewed 36 studies of group formats composed of either individuals, couples, mixed or single gender. They suggested, tentatively, that the group method may be effective in the treatment of

orgasmic dysfunction. This paper reviews current research in group approaches and discusses the effectiveness of the group format for sexual dysfunction.

Group format can offer patients' insights into their own difficulties through the sharing of information and the experiences of others. Yalom, (1985) suggests several important therapeutic factors in group therapy including interpersonal learning (encompassing catharsis, self-understanding, and interpersonal interactions); Group cohesiveness, which is the patient's relationship not only to the group therapist but to the group members; universality, realising that others have similar experiences and the corrective recapitulation of the primary family group. These factors may help attitude and behaviour change and increase compliance with homework exercises. A group can provide a desensitization experience in relation to discussing sexual issues, by increasing confidence and communication skills about sexual topics. Group approaches are also thought to be less expensive than individual therapy, although this is questionable when the total assessment time and follow up with individual sessions is considered (Milan *et al.*, 1988).

A major disadvantage of the group format is the difficulty in tailoring the intervention to individual needs and the reduction in individual therapy time. Although, groups are useful in counteracting outdated or maladaptive social attitudes, they may also elicit undue pressure for conformity in sexual values held by most of the group. Therefore, individuals may submit to peer pressure because of fear of ridicule or exclusion. In a comprehensive article on ethical issues, Gregory and McConnell (1986) emphasis that therapists are obliged to protect client values by highlighting the uniqueness of sexual values among individuals.

Finally, many clients are reluctant to discuss their difficulties with strangers. Wilson and Wilson

(1991) studied treatment acceptability of alternative sex therapies. Eighty female subjects were asked to rate therapy descriptions of a case involving the treatment of inhibited female orgasm in group and individual formats. A clear preference for individual to group format was consistently found in credibility and acceptability ratings. Therefore, offering only group formats may reduce the number of patients seeking help. Also it would be unethical to offer patients' their preferred treatments, if their treatment of choice is not effective. The rest of this article discusses the effectiveness of group intervention in the context of methodological issues.

2. DEFINING SEXUAL DYSFUNCTION

The descriptions of both the disorder and the outcome criteria have to be precise, if data is to be compared. Most studies reviewed here have been clear about the definition of sexual dysfunction (e.g. Spence, 1985; Kilmann, 1987). Difficulty in defining criteria is partially related to lack of commonly accepted definition of 'normal' sexual functioning and sexual dysfunction. However, two recent reviews by Seidman and Rieder, (1994) in American and Know et al., (1993) in Britain, provide comprehensive data on normative sexual behaviour across the life cycle. Such data should help in sexual dysfunction diagnosis and in the development of treatment goals that rely on assumptions regarding normative behaviour. Sexual dysfunction can be grouped into four broad categories, problems affecting orgasm, sexual interest, arousal and other problems

2.1 Orgasmic problems

In men orgasmic dysfunction can result in premature ejaculation, retarded ejaculation or ejaculatory pain. There is no satisfactory definition of premature ejaculation. In young men, rapid ejaculation is common. However, most men develop some control with experience. Masters and

Johnson (1970) defined it in terms of the extent to which a man can delay ejaculation in order for his partner to reach orgasm. This is unsatisfactory since the woman may have orgasmic dysfunction which is unrelated to the man's problem. Ejaculation that occurs before vaginal penetration or immediately after penetration is probably the best definition of premature ejaculation. Both retarded ejaculation and ejaculatory pain are uncommon. Retarded ejaculation includes a range of problems. These include a total failure of ejaculation under any circumstances, partial failure and difficulty in ejaculating, where ejaculation only occurs after prolonged stimulation. In women, failure to reach orgasm is not necessarily a problem, it largely depends on the extent to which the woman thinks she has a problem. In 1987, Jeremy Wakefield re analysed the data from the influential studies of Ersner-Hershfield and Kopel, (1979) using stricter criteria. Wakefield argued that the partner orgasmic success rates of 82% for Ersner-Hershfield and Kopel, (1979) and 87% for Wallace and Barbach (1974) are misleading. This is because they reflected very broad definition of "nonorgasmic", "orgasmic success" and "partner orgasm". For example, the term "primary orgasmic dysfunction", as defined by Masters and Johnson states that it is a total lack of orgasm. Wakefield noted that at least 31% of Barbach's original sample and 27% of Ersner-Hershfield and Kopel's sample had succeeded in reaching partner orgasms before the group began. His re analysis suggest outcome rates of only 20% with partner present and 47% if a vibrator is also used. Wakefield concluded that if a woman entering treatment for primary orgasmic dysfunction wants to reach orgasm with her partner (but without a vibrator), than pre orgasmic women's groups are not the appropriate treatment.

Clearly, it is important to state how many and how frequently orgasms should be achieved. Personal goals for the clients need to be defined in operational terms before treatment, for example, is self masturbation without the partner sufficient or is orgasm during coital stimulation

by partner necessary for the treatment to be considered a success. Fichen et al., (1986) examined the method of operationalising therapeutic goals and their measurement in cognitive behavioural therapy for secondary orgasmic dysfunction. Twenty-three couples were assigned to one of three conditions, individual therapy, group therapy and minimal contact bibliotherapy. Unfortunately the data from the three formats was combined for analysis, because the authors assumed that there is no difference in formats. They examined the relationship between method of data collection, outcome criterion, i.e. was it behavioural (frequency of interpersonal orgasms) or cognitive (increase in satisfaction or enjoyment), and time of measurement. They found retrospective measurement was more optimistic than ongoing measurement, cognitive changes were twice as likely to occur as changes in behaviour, and that women benefited more than males. This study suggests that sex therapy for secondary orgasmic dysfunction can produce significant changes in cognitive factors without behavioural change. Therefore, the type of outcome measure may affect the nature of the results and the conclusions.

2.2 Impaired sexual interest

Impaired sexual interest is more common in women than men. This includes a wide range of difficulties. Some women lack spontaneous interest in sex but they are able to be sexually aroused by their partner. Other women are averse to any type of sexual activity. Again when defining the problem, one needs to be specific.

2.3 Impaired sexual arousal

In women impaired sexual arousal is often associated with impaired sexual interest. In men, erectile dysfunction is very common. Primary, total erectile dysfunction is rare, and usually has a physical basis. The erectile response is affected by psychological factors, particularly anxiety,

physical disorders and side-effects of drugs and alcohol.

2.4 Other types of sexual dysfunction

Dyspareunia and sexual phobias are found in men and women. Dyspareunia refers to pain during intercourse and generally has a organic cause. In women it is also related to impaired sexual arousal. Sexual phobias may occur as an isolated problem or associated with other dysfunctions, such as impaired sexual arousal or interest. The phobia may be very specific such as aversion to genitalia or foreplay. In women vaginismus, vaginal muscle spasm during penetration, often results from a specific phobia about penetration.

From the above discussion it can be seen that it is difficult to define sexual dysfunctions, which often occur in combination but also include a range of difficulties within each category.

3. METHODOLOGICAL

There has been a significant improvement in many methodological areas over the last decade, particularly in reporting demographic details, therapist characteristics, and the structure and content of interventions (including length and spacing of sessions). These factors will enable studies to be replicated in the future. Group formats are multifaceted, thus, adequate evaluation of therapeutic effectiveness must consider many factors, particularly conceptual and methodological issues. There are three central areas of difficulty: Definition, sampling and measuring outcome.

3.1 Sampling

Although there has been an improvement in defining the criteria for selection of subjects, there has been little reported improvement in physiological screening. The importance of extensive medical screening to rule out organic etiology of erectile dysfunction was shown in a study by Kilman *et al.* (1987). They randomly assigned 20 couples with erectile dysfunction to one of five conditions, communication skills training, sexual training, a combination of communication and sexual techniques, an attention placebo control and no treatment. All conditions received an initial four hours of sex education. The control group and no treatment group were therefore confounded. All the men received an extensive medical screening. The attention placebo condition included an extended version of the sex education procedure, combined with relevant material to read at home. Validity of this procedure as an attention placebo is questionable. There were no significant differences between the groups. The results of all three treatments found 81% of the men, at 6 month follow-up experienced successful penetration with subsequent ejaculation during intercourse in at least 80% or more attempts. This is more successful than individual approaches where the success rate is approximately 52%. However, Heiman and LoPiccolo (1983) suggest that the poor results for individual treatment of secondary erectile dysfunction may reflect poor physiological assessments before treatment, leading to inclusion of organic cases in some studies. Clearly, Kilman's study was exemplary in its initial screening for excluding organic cases. Further studies would need to compare this group format with an individual format with larger sample sizes.

The sample sizes for the majority of studies are too small (e.g. Bogat *et al.*, 1987), compared to the likely experimental error or variance attributable to factors other than the treatment. Researchers assume variables are evenly distributed by random allocation to treatment groups

(e.g. Spence, 1985). However, this is only true if the sample size is large, or the results are based on several similarly designed studies. Bias, also, occurs if the subjects in one treatment group have a more favourable prognosis. This can inflate or cancel a treatment effect that does exist or produce an effect where none existed (type I and type II errors). If prognostic variability is not considered in the analysis it will remain part of the experimental error thereby increasing the error. Since statistical significance of a treatment effect is measured in relation to this residual error, small treatment effects will not be detected, unless sample size is increased to maintain power (Hulbert, 1993). The only exception is the study by Dekker *et al.* (1985).

Few studies provided information on the comparability of treatment groups before treatment. Others, reported a lack of significant difference between groups (Kilman, 1987) and measures were chosen arbitrarily (e.g. Bogat *et al.*, 1987). Furthermore, source of referral and recruitment strategies varied considerably from study to study, and even within studies. A clear example of differing recruitment methods for control and experimental groups, non random allocation of subjects and small sample size is shown by Bogat *et al.*, (1987). They proposed that a central feature for successful change for pre orgasmic women be change in self efficacy expectations. They recruited 11 women, five of which were placed in the treatment group and the remaining six were on a waiting list control. The treatment group was recruited through professional health referrals. However the controls were recruited through 208 women who completed a screening questionnaire, of which six women were willing to complete further questionnaires. Thus, members of the control group were interested in treatment, but had not sought it. Although the authors noted that there were no significant differences between the two groups in terms of demographic details, it is possible that other prognostic variables such as general relation with partner, the presence of other sexual dysfunctions may have been significantly different between

the two groups. The results showed no statistically significant findings.

To overcome some of these obstacles, Warner and Bancroft (1986) suggests that treatment research should incorporate three factors. First, the study of 'common sense' prognostic variables such as motivation and general relationship (see review by Hawton and Catalan, 1986). Secondly, there is a need for the development of methods for measuring these variables and producing composite prognostic scores and finally, patient characteristics relevant to the treatment process need to be identified. To date, this has largely been ignored in group interventions for sexual dysfunction.

3.2 Treatment

The type of treatment offered is specified in all the studies reviewed here, however the majority of studies did not isolate the relative effects of the different components in producing therapeutic change. Treatment consists of three essential components. These include homework assignments which provide the couple with a graduated program for rebuilding their sexual relationship. Secondly, the Masturbation training (LoPiccolo and Lobitz, 1972) plays a central role in the treatment of *primary orgasmic dysfunction* (Nairne and Hemsley, 1983). The training consists of genital self-examination with Kegel exercises (Kegel, 1952). These exercises enable the development and control of pubococcygeus muscles which surround the vagina. This is followed by masturbation and use of sexual fantasies until orgasm is reached (Barbach, 1974). Treatment for *erectile dysfunction* include masturbation with waxing and waning exercises (Zilbergeld, 1978) and exploring anxieties about specific sexual situations. Other specific techniques include the squeeze technique (Masters and Johnson, 1970) and the stop-start technique (Semans, 1956) for *premature ejaculation*. Programmes consist of a variety of interventions including changing

sexual attitudes (via information giving and/or cognitive restructuring), masturbation exercises and social skills training. The first two components deal with sexual functioning directly, the latter focuses on social interaction. The efficacy of each of these components may depend on the type of dysfunction, e.g. primarily sexual or social. Additionally, the use of techniques such as relation training and challenging sexual myths, although having face value, have little support in the literature.

3.3 Group Composition

There have been two examples of heterogeneous composition of groups over the past 10 years. These groups make it difficult to distinguish which components of the therapy are affecting which dysfunction. Dekker *et al.*, (1985) studied 45 sexual dysfunctional men. The treatment consisted of rational emotive therapy, masturbation exercises and social skills training administered to groups of four to six men. The group was heterogeneous: four were gay men, two were bisexual, and 23 did not have a steady partner. The authors reported "complete cure" in 16 patients, undefined improvement" in 14 patients, and "slight improvement" in two. These vague statements make it difficult to define exactly what the criteria for success for the different problems were. Improvement in sexual functioning was measured using a four-point scale with 'worsening' and 'complete cure' the two extreme points of the scale. Presence of partner was the significant variable in predicting sexual functioning. Stravynski, (1986) suggests that when working with men without partners, the therapy should also focus on the difficulties in establishing and maintaining relationships, not only the sexual dysfunction. Also, when partners refuse to participate in a therapeutic programme it may reflect a relationship difficulty primarily, rather than sexual difficulty.

Another study on the treatment of psychosexual dysfunction in a mixed group was conducted by (Kayata and Szydlo, 1988). The subjects were five men and three women (without partners) with a mixed range of sexual dysfunctions. Treatment included three individual sessions and 15 group sessions. Measures were given at pre and post treatment and six months follow up. On the Golombok-Rust Inventory of Sexual State (Rust and Golombok, 1986) measure of sexual dysfunction there was no overall post treatment improvement, however there was a 75% improvement at follow-up. Unfortunately, given the small sample size, it is only possible to draw tentative conclusions.

Even within homogenous samples there are individual differences in sexual response patterns. The human sexual response is complex consisting of at least three phases: interest, arousal and orgasm. Within each phase, three basic components may be identified: sensory, affective and cognitive (Schover *et al.* 1982). The sexual problem may occur in one or more of these stages. Studies have largely ignored these components with the exception of Fichen *et al.*, (1986).

The number of adequately controlled studies in group format is small. However a controlled trial by Spence (1985) compared the effectiveness of group versus individual therapy for primary and secondary female orgasmic dysfunction. Primary orgasmic dysfunction was defined as never having achieved an orgasm and secondary orgasmic dysfunction was defined as not achieving orgasm during intercourse with male partner, but able to attain orgasm under some other conditions. Subjects were randomly assigned to either group, individual or waiting list control, whilst maintaining the primary vs secondary distinction. Subjects were assessed at pre and post treatment and three month follow-up. The evaluation involved a comprehensive battery of tests including a 2 week self-monitoring of sexual activities diary completed at all three assessments.

For primary orgasmic dysfunction, orgasm was achieved by 25% of the sample following group treatment, 45% following individual treatment and 1% in the control group. These rates were maintained at three months follow up. For secondary orgasmic dysfunction, 12% of the sample achieved orgasm following group treatment, and 39% following individual treatment. At three months follow up there was a significant increase in the number of people achieving orgasm success. 28 % for those who had group treatment and 73% for those who had individual treatment. There was no significant improvement in sexual arousal or ratings of sexual satisfaction. Also, no differences were found between primary and secondary orgasm dysfunction subjects on the measure of dyadic adjustment. This challenges the view that secondary dysfunction is associated with disturbance of the marital relationship, whereas primary orgasmic dysfunction is not. Interestingly, all conditions including the waiting list demonstrated improvements in sexual arousal. This study demonstrates that both group and individual therapy approaches are superior to no intervention on measures of orgasmic ability. However, the individual approach is more effective than the group approach.

Another controlled study that investigated the impact of group treatment on women with secondary orgasmic dysfunction was conducted by Kilman and his colleagues (1987). They examined 55 women with partners, who reported coital orgasm on less than 50% of occasions, with or without clitoral stimulation, for at least the past five months. They were randomly assigned to a combination treatment format consisting of communication skills followed by sexual skills, or the opposite sequence. No significant differences were found between the two sequences. The results were compared with similarly recruited control couples in a previous study. Significantly more couples reached or exceeded the 50% criterion for coital orgasmic functioning following group treatment. Unfortunately, at six months follow-up, no difference was found between patients who had treatment and the control subjects. Kilman et al suggest that

lack of treatment effect at follow-up may be due to the heterogeneity of the sample in terms of pre-treatment level of sexual functioning. The subjects differed in duration of dysfunction, mode of sexual stimulation under which the dysfunction occurred, in coital orgasmic frequency, and feelings experienced during sexual activity. These subjects were included in a two to six year follow-up study of 66 women by Milan *et al.*, (1988). Only 38 (58%) of the couples responded, therefore some degree of caution is warranted in generalising the results to the entire sample. It is possible that couples who were separated, divorced or those who had failed to benefit from therapy did not respond to request for long term follow up. The mean pre-treatment frequency of coital orgasm was 9.2% of all sexual activity, compared to 34% at the 2-6 year follow-up. Although there was an increase in coital orgasm at follow-up it is still lower than the 50% criterion. There was also a decrease in coital frequency at long term follow up. Therefore long term maintenance of therapeutic gains in secondary orgasmic dysfunction was poor. Additionally, 10 of those followed up had received further help for marital or sexual problems.

There is only one reported study of sexual desire. This was conducted by Hulbert (1993). He suggested that low sexual desire may be partially due to infrequent orgasms. 39 women with hypoactive (inhibited) sexual desire were randomly assigned to two treatment groups. The inclusion and exclusion criteria were clearly stated in the study. The standard treatment consisted of marital therapy and the four step sexual intervention of LoPiccolo and Friedman (1988). This was compared to the standard treatment plus orgasm consistency training.

Women in both groups reported significant improvement in sexual desire and sexual arousal, but no improvement was found in sexual assertiveness and sexual satisfaction.

This may be because the measures for sexual desire and sexual arousal measure individual characteristics. The measures of sexual assertiveness and satisfaction may be

conceptualised as measures of relationship characteristics. Therefore treatment is initial effecting individual change. The lack of significance may also be due to the small sample size and the accompanying lack of power to identify changes in these measures. At post treatment, three month and six month follow-up, the standard treatment with orgasm consistency group reported significantly greater sexual satisfaction, sexual arousal and assertiveness compared to the standard treatment group. Unfortunately the study did not measure the effect on the relationship as a result of treatment, although Hulbert found significant relationship problems at assessment. Also the results were obtained from military wives and thus, it is difficult to generalise these findings. Compliance with homework exercise was also not recorded among the sample.

4. CONCLUSION

Many of the conclusions drawn by the studies have to be met with caution, either because of the biased nature of the sample (Hulbert, 1987), the absence of follow up, or the inadequacy of the methodology of recording outcomes. Additionally, between group differences before treatment, uncertainty about their prognostic significance and small treatment groups add to poor methodology. The lack of consistency in criteria used to assess outcome and variation in evaluation measures used makes it difficult to compare studies. Libman *et al.*, (1985) state that in order to identify the effectiveness of different interventions, the methodology has to be more rigorous than it often is. Homogenous categories should be used, the components of the intervention held constant and precise multidimensional assessment and outcome criteria employed. Additionally control groups or placebo treatment groups. need to be used. In conclusion there has been some improvement over the last decade in clearly defining the sexual dysfunction, stating the treatment package, and using objective outcome measures. However,

given the very small sample sizes and the limited number of studies over the past decade it is not possible to make any conclusive statements about the effectiveness of group format. Indeed, if the total amount of time (including assessment time) is calculated, it is possible group formats reviewed here are not cost effective.

The few controlled studies reported here have suggested that individual therapy is more effective than group, and should be the treatment of choice for sexual dysfunction.

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PSYCHOLOGICAL APPROACHES TO PAIN IN HIV/AIDS

1. Introduction

Over the past decade, there has been an enormous effort aimed at understanding the aetiology, pathogenesis, prevention, and treatment of the Human Immunodeficiency Virus (HIV). These advances have led to early diagnosis, prolonged life, and a reduction in the frequency of opportunistic infections (Graham et al., 1992). As a consequence, people with HIV are living with a more chronic, but progressive and debilitating disease. The virus affects multiple organ systems, especially the central nervous system. This results in an immense variety of clinical syndromes (McArthur, 1987), including illnesses found in the general population, but also illnesses which are unique to AIDS and the immunosuppressed state. These clinical syndromes, as well as their medical treatments lead to pain, which is responsible for impaired quality of life. The pain is often chronic and punctuated by acute exacerbations. Unfortunately, there is a dearth of literature in the area of pain management specifically for HIV/AIDS patients, particularly the role of psychological technique.

The literature (e.g. Pearce, 1983) suggests that both psychological and physiological factors make an important contribution to the experience of pain. Psychological factors can influence pain and pain behaviour even when the mechanism is primarily of an organic origin. Factors such as personality, learning processes, social modelling, cognition and attribution have been shown to affect pain perception. For example, pain is a common complainant in patients with generalised anxiety (Large 1980) and depression (von Knorring et al., 1983). In addition , stress, fatigue and

insomnia (Moldofsky, 1976) and the presence of secondary gains (Fordyce, 1976) can increase pain behaviours. While, reassurance (Kendall et al., 1981), suggestion (Wolff et al., 1967) and cognitive strategies (Turk, 1978) may decrease pain perception.

This review presents an overview of the prevalence of pain syndromes found in people with HIV/AIDS. The psychological theories of pain perception are, also, described. This is followed by an examination of the psychological interventions and assessment for pain management and their possible role in patients with HIV/AIDS.

2. Prevalence of pain syndromes in people infected with HIV

The prevalence and types of pain syndromes were examined by Lebovits et al., (1989). They conducted a chart review of 96 cases of AIDS patients. 54% of the charts had at least one note of nonprocedural pain or analgesic prescription. 11% had a note regarding pain, but not intervention. The most prevalent pain location was chest (22%), than headache (13%), oral cavity (11%), abdominal (8%), peripheral neuropathy (6%), musculoskeletal (6%), low back (3%) and thrombophlebitis (1%). There was no significant relationship between specific AIDS syndromes and the incidence of pain, or between intravenous drug abuse and incidence of pain, and pain medication. All patients received standard drugs for their treatment of pain, two of the patients also received antidepressants. No psychological approach to pain management was offered.

In another chart review Barone et al., 1988 examined 235 patients with AIDS and found a prevalence rate of 12% for abdominal pain. They, also, found that homosexual men have a significantly higher incidence of anorectal disease compared to intravenous drug users.

Homosexual men with AIDS have an incidence of 34% of diseases of the anorectal area and 50% require surgical intervention. Similar high incidence levels of pain have been found in patients with advance HIV (Schofferman, 1988); in AIDS patients (O'Connell et al., 1991) and those with terminal stage AIDS (Eldridge, 1994). Some (Lebovits et al., 1989; Schofferman, 1989) suggest that approximately 50% of all HIV positive individuals admitted to hospital suffer from pain related syndromes. However, this is probably an underestimate of the incidence of reported pain (Penfold and Clark, 1992).

A recent study of quality of life in 270 HIV patients by Burgess et al., (1993) examined patients' self reported ratings on bodily pain experienced during the previous four weeks. Only a fifth said that they had experienced no pain. 20.4% reported very mild pain, 16.3% reported mild pain, 31.5% reported moderate pain, 10.4% reported severe pain and 1.5% reported very severe pain. Patients with AIDS generally reported greater pain, than those with symptomatic HIV followed by asymptomatic HIV. Nearly two thirds of the asymptomatic patients (n = 60) reported some pain. Pain correlated significantly with all the quality of life factors including social and physical function.

One of the few studies to examine pain in children with HIV infection was conducted by Oleske et al., (1993). They reviewed 150 charts. Apart from the chronic and acute pain syndromes found in adults, they found that children experience procedural pain from invasive tests. They found that only a third of the children with documented pain received appropriate pain management. The authors suggest that the barriers to pain management include an inability to assess pain in young children (many of whom have severe neurological impairments), severe parental denial of the disease and thus their child's pain, and strong family resistance to the use of narcotic. However

techniques such as visualization and distraction were used as part of the pain management program.

Unfortunately, the usefulness of chart reviews (e.g. Lebovits et al., 1989; Barone et al., 1988) as a measure of pain syndromes is limited. Poor charting methods do not allow careful evaluation of the severity, quality and etiology of pain. It is also difficult to examine the efficacy of the pharmacological and psychological interventions. Unfortunately in retrospective chart reviews it is difficult to determine the acute versus the chronic nature of pain, also patients perception of pain can not be examined. Therefore inferences regarding the appropriateness of pain management intervention are limited.

The studies are further limited by small sample sizes, for example, O'Connell et al., (1991) had only fifty one patients in their sample. Additionally most studies have biased samples who may not be representative of all HIV patients, for example few studies have examined pain syndromes in patients with asymptomatic HIV (e.g. Burgess et al., 1993). O'Connell et al., (1991) surveyed patients attending a rehabilitation service and Eldridge surveyed patients in a hospice (Eldridge et al., 1994). Obviously, given the advance nature of their HIV and the fact that they are in hospitals or hospices will mean a higher prevalence of pain syndromes. Studies also fail to examine the various psychological components of pain or use standardised measures.

The majority of people infected with HIV experience one or more pain syndromes. For a full discussion of the aetiology of pain syndromes and the drug therapies used in the treatment of HIV-related pain syndromes, the reader is referred to a comprehensive review by Penfold and Clark (1992). A brief outline of the syndromes and treatment is presented here. The high incidence

of chest pains (Lebovits et al., 1989) reflects a high incidence of pneumonia (Lewis and Warfield, 1990), particularly pneumocystis carinii. Chest discomfort may also arise from oesophageal pathology such as oesophageal candidiasis (Raufman, 1988), herpes simplex virus, cytomegalovirus (Rabeneck et al., 1990), Kaposi's sarcoma and lymphomas (Lucente et al., 1988). Herpes zoster radiculitis causes chest pain in 2% of all HIV infected individuals. Oral candidiasis is the most common cause of oral cavity pain. The causes of headaches include central nervous system lymphoma, metastatic Kaposi's sarcoma, toxoplasmosis, herpes simplex, papovavirus, and HIV ((Gabuzda and Hirsh, 1987; McArthur, 1987). Of course, tension and vascular headache and sinus infections, which cause headaches in the general population are also seen in people with HIV. Also, nearly 50% of all patients get headaches from Zidovudine drug therapy. Peripheral neuropathy, (Dalakas and Pezeshkpour, 1988) related to both HIV and its treatment, is a frequent problem with painful dysesthetic sensory symptoms predominating (Parry, 1988). The pathogenesis of these peripheral neuropathies is unclear, although Mah et al., (1988) suggests it may be related to loss of myelinated fibres. Toxic effects of antiretroviral drugs and metabolic abnormalities can cause peripheral neuropathies.

Treatment for the majority of the pain syndromes is of course directed by its aetiology. Current pain management techniques include analgesics, tricyclic antidepressants, anticonvulsants, physiotherapy and very occasionally psychological management. The treatment approach should model that used for chronic cancer patients, however, Lebovits et al., (1989), suggests that this is often not the case. For example, Lebovit found that no HIV infected patient was prescribed a tricyclic antidepressant, although it is frequently used in the treatment of chronic pain. From the above studies it can be seen that the prevalence of pain in HIV patients is high, but that studies have failed to examine the psychological components of pain.

3. Theories of pain perception

The theoretical models of pain are described here in detail because they influence the actual psychological approaches for the management of pain and suggest how pain should be assessed.

Melzack and Wall proposed their influential *Gate Theory* in 1965 to account for several clinical features observed in pain patients. For example, why the relationship between injury and pain is so variable; why seemingly innocuous stimuli may produce pain; why the location of pain may be different from the location of injury; why pain persists in the absence of injury and after healing; why the nature and location of pain changes with time; why pain is not a single sensation but has many dimensions.

The gate theory acknowledged the role of physiological and psychological factors in pain perception. Melzack and Wall suggested that the Gating mechanism can increase or decrease the flow of nerve impulses from the peripheral nociceptors to the central cortical areas via the T-cell system found in the spinal cord. The modulation by the gate occurs both before the afferent neural activity from peripheral nociceptors evokes pain perception and by descending influences from the central cortical areas. The Gate theory of pain perception was expanded by Fordyce (1978), who proposed a *three system model* incorporating physiological, behavioral and subjective factors. He suggested that stimulation of the physiological system is perceived at the subjective level as both, a sensation and unpleasant affect. The negative affect motivates pain behaviours such as communicating the pain experience to others. Thus, psychological factors modulate the physiological input, which play a primary role. This model was elaborated on by Karoly, (1985) to include the influence of life style and information processing. Karoly suggested that all these

factors play a primary role and a feedback loop exists between the factors. According to the model, pain can be experienced even in the absence of physiological stimulation. Unfortunately Karoly's model was limited since it was a descriptive model, rather than a predictive model (Pearce et al 1989).

The *parallel processing model* had a greater predictive value. The model is based on the information processing theory of emotion first proposed by Leventhal and Everhart in (1979). Leventhal (1984) proposed the existence of two separate and parallel pathways for the development of pain. One is a sensory perceptual pathway dealing with physical attributes of the stimulus and the other is the emotional pathway involved in the perceptual experience of distress. Thus, information about the stimulus, its sensory properties and location are processed simultaneously with the feelings of emotional distress. Importantly the theory states that the processing of pain and distress occurs preconsciously. There are three central features involved in this mechanism. Firstly, Leventhal suggests that parallel processing begins with the encoding of the noxious stimulus via receptor specialization. Different receptors are reactive to different properties of the stimulus, for example, for cold, touch, pressure etc. The two major paths interact with each other very early in the signal conduction sequence. This interaction can be explained by Melzack and Wall's Gate Theory. Secondly, the model suggests specific interactions occur between the parallel systems. Finally the model suggests that elaboration of the perceptual experience is generated by a set of processing mechanisms arranged hierarchically. The theory states that from the gate upwards, the informational and emotional systems take different, though interacting paths.

Bias occur at different stages of information processing, such as attention, integration into the schema, elaborative encoding and retrieval.

The few findings, so far, in information processing of pain experience appear to be less conclusive compared to other emotional disorders. Attention biases were found in a study on colour naming of pain related words. However, two separate studies using the dot-probe paradigm (Pincus 1989; Moses 1989;) have failed to find attention biases towards pain stimuli in pain patients. This indicates that any biases that are occurring towards pain related information must be occurring at a latter stage of information processing. The tendency for pain patients not to selectively attend to pain words does not imply there are no corresponding differences in the way that pain related information is presented in memory. Previous studies have traditionally relied on tests focusing on the accuracy of memory for pain intensity (see review by Erskine 1990), rather than memory biases for mood congruent information. However, recent studies (Edwards et al., 1992; Pearce et al., 1990) have found that chronic pain patients recall significantly more pain related information, this suggests that pain patients have developed an elaborate pain schema. Pearce et al., (1990) devised two experiments to investigate mood congruity and state dependent learning in the experience of pain. In the first experiment, chronic pain patients and controls were presented with pain-related, negative and neutral stimulus words. They were than asked to perform a delayed and immediate recall task. The results demonstrated that pain patients selectivity recall pain-related words (i.e. mood congruent). The second experiment investigated state dependent and mood congruity effects in experimentally induced pain. Volunteer subjects were either given a painful stimulus (cold presser test) or a non-painful test (warm water), this was followed by the presentation of a stimulus word list for encoding. The subjects were than asked to perform a recall task immediately following further exposure to stimulus conditions

which were congruent with the original stimulus or non-congruent. Overall, all subjects recalled more words when the state at encoding was the same as the state at recall, thus, a state dependency effect was found. However no mood congruity effects were found in the experimentally induced pain subjects, the results showed no significant difference in type of word recalled between the groups. The researchers postulate that chronic pain patients may selectively process pain-related material and possess a pain node in accordance with the Associative network theory and that mood congruity effects in pain are related the status of being a pain patient rather than to the state of being in pain. These psychological theories have led to the development of psychological techniques for the management of pain.

4. Psychological approaches to the management of pain

Very few studies have applied psychological techniques to the management of pain in HIV patients. The literature in other areas of pain is reviewed here to gain a greater understanding of which techniques may be usefully extrapolated to HIV/AIDS patients.

Fordyce's view of chronic pain as a behavioral or operant problem lead to the development of **contingency management** methods for chronic pain. Fordyce (1982) suggests that whatever the underlying cause of chronic pain, pain behaviours such as inactivity, complaining of pain or taking medication are reinforced and therefore maintained. Pain behaviours can be positively reinforced, by social factors such as concern from friends and family, or negatively reinforced, e.g. by avoidance of unwanted responsibilities. The aim of these programs is to increase frequency of adaptive behaviours and decrease habitual maladaptive pain behaviours (Turner and Romano, 1990). Reduction in pain intensity is not the specified aim. The underlying assumption is that once the patient is active and engaged in more distracting activities, attention to the pain sensations will

be reduced and thus pain intensity will diminish. Another aim of contingency programmes is to reduce amount of medication. Outcome studies of operant methods have generally lacked methodological rigour, thus any conclusions must be tentative. For example outcome studies are often confounded by the inclusion of other therapeutic strategies within the program. Cinciripini and Floreen (1982) included biofeedback and relaxation training in their four week program. A review by Linton, (1986) of operant programmes found that these programmes are successful in increasing activity and reducing medication, but less reliable in reducing subjective ratings of pain intensity.

Relaxation training appears better at reducing pain intensity (Pearce and Beard, 1990; Turner, 1982) For some conditions, such as tension headaches, the rationale behind its use has been that relaxation may produce a direct physiological change in the muscles thought to play a role in the aetiology of the pain. Relaxation may alter pelvic blood flow or prevent vascular responses to stressful stimuli. However, the relaxation technique may itself be a distraction technique or it may act to increase the patients' perceived control over the pain.

The information processing theories led to the development of **cognitive techniques** used in pain management. They generally involve the modification of patients cognitions, both explicitly through interventions such as cognitive restructuring and coping self statement training (Turner et al., 1990; Puder, 1988; Kerns et al., 1985, Turner and Romano, 1990) and indirectly as a result of patient education and other treatments. The reduction of maladaptive cognitions such as 'catastrophising' pain can, also, decrease depression and maladaptive functioning (Turner, 1991).

There is vast amount of anecdotal evidence suggesting that *distraction* is a useful technique for

the management of pain (e.g. Melzack and Wall, 1982; Wall and Jones, 1991). The tasks may be numerical distraction (e.g. Hodes et al., 1990), distracting slide shows (McCaul and Haugtvedt, 1982), watching a black spot on the wall (Stevens and Heide, 1977), and listening to white noise (Riley and Levine, 1988). However, the experimental evidence for the efficacy of attention based strategies are less conclusive (Fernandez and Turk, 1989; Eccleston, 1995). For example, McCaul et al., (1992) failed to find any effect of various distracters on laboratory induced pain for students. The important issue is under what conditions is distraction a useful technique for pain management.

Eccleston further suggests pain is designed to gain access to conscious by interrupting all current processing, therefore the characteristics of the pain are important for the success of pain processing. Numerous studies have found that distraction works well when the pain is acute and the stimulation is persistent (e.g. Brewer and Karoly, 1989; Holmes and Stevenson, 1990). For acute pain, the positive effects of distraction are magnified if the patient knows that the pain will be short lived (Rachman and Arntz, 1991; Suls and Wan, 1989) and if the coping strategy used is within the patient's existing coping framework (Keefe et al., 1990).

However, the evidence for the use of distraction techniques for chronic pain is equivocal. Many studies have failed to demonstrate pain distraction because the tasks are not demanding of the central attentional resources used in pain processing (e.g. Arntz et al., 1991; McCaul et al., 1992). Eccleston (1995) in a recent study clearly demonstrated that distractional coping strategies will work as a strategy for pain control only if the tasks are ones that require higher controlled attention than the persistent pain. However, the author recommends that maybe chronic pain patients should not use distractional techniques for a number of reasons. Firstly, for a distraction

task to be effective it must be designed as a central attention task, but such tasks are effortful and tiring to maintain (Logan, 1988). Secondly, the positive effects of the tasks will be short lived because the human attentional system works to automate tasks that are repeated (Shiffrin, 1988). Thus a repeated task will gradually require less central resources and will eventually fail to require supervisory control. This will increase the possibility of pain entering consciousness. Thirdly, recent studies have emphasised that maintaining an avoidant coping strategy may be ineffective, and possibly have adverse and maladaptive effects (Wegner, 1992; Cioffi and Holloway, 1993; Cioffi, 1993).

Directing attention towards the pain and engaging in a positive adaptation of the pain thought may be more beneficial than distracting away from the pain. Although pain is experienced as a strong somatic sensation, it is a malleable sensation and its negative characteristics can be adapted (Anderson and Pennebaker, 1980; Pennebaker, 1982; Cioffi, 1991). Laboratory studies of attentional coping strategies based upon a redefinition of a painful stimulus are promising (Berntzen, 1987; Stevens et al., 1989; Ahles et al., 1983). Eccleston further suggests that persistent pains that vary unpredictably in their sensory qualities or which fluctuate in intensities are more likely to be processed, therefore patients will find it more difficult to maintain a redirected attention.

Imagery is also extensively used (Linton and Gotestam, 1984; Philips, 1988). For example in *imaginative inattention*, the patient is required to imagine a scene generally considered incompatible with the experience of pain, for example, lying on a sunny beach. *Imaginative transformation* requires the patient to relabel the sensations as numbness or tightness, or any other experience that is less distressing than pain itself.

Techniques for chronic pain problems often involve treatment package of a variety of the above cognitive and behavioral methods (Turk et al., 1983; Keefe et al., 1992; Turner and Jensen, 1993). Few studies have examined the efficacy of various components of these packages. For example with headache patients, some studies found that coping skills training was more effective than biofeedback techniques (Holroyd and Andrasik, 1982). Whereas other studies found no difference between relaxation techniques and cognitive coping skills training (Anderson et al., 1981). With chronic low back pain patients in a group format, Turner found that both relaxation training and cognitive behavioral therapy (CBT) with relaxation were effective.

In 1991, Nicholas et al., examined the effects of six different groups in 58 chronic low back pain outpatients. The groups were cognitive therapy, behaviour therapy and physical therapy, each with and without relaxation training. All patients received some physiotherapy. At post treatment the behaviour therapy groups showed significantly greater improvement compared to the cognitive therapy groups on self-rated functional disability, but there was no difference in the other measures. Relaxation training did not enhance the effects of either cognitive or behavioral therapy. Unfortunately, the number of subjects in each condition was small, resulting in low statistical power to detect differences between treatments. Also, the relaxation training was not practised in the presence of a therapist, thus raising the possibility that the relaxation training was inadequate in terms of frequency and type.

A year later, Nicholas et al., (1992) compared CBT plus physiotherapy with attention control therapy plus physiotherapy. The CBT consisted of education, goal setting, identification and modification of maladaptive cognitions, progressive muscle relaxation, imagery and distraction techniques. At post treatment, there was no difference between groups in changes on self report

measures of pain intensity, depression, pain beliefs, and disability. However, active coping strategies, medication use and self-efficacy beliefs improved following CBT treatment. Unfortunately, this study was limited by a small sample size (20 patients). Other studies (e.g. Anderson et al., 1981; Nicholas et al., 1992) have failed to examine the effectiveness of CBT independent of relaxation training.

A more recent study by Turner and Jensen (1993) compared the effects of group cognitive therapy, relaxation training, and cognitive therapy plus relaxation training and a waiting list control. 102 chronic low back pain patients were studied. Pain intensity decreased significantly following all three interventions. No change was found in the control group. At six months and 12 months follow-up, all three groups maintained improvements they had made. There was no significant difference among the three treatment groups at follow-up.

Flor et al., (1992) conducted a meta analytic review on sixty-five studies that evaluated the efficacy of multidisciplinary treatments for chronic back pain. Most of the treatments included a combination of psychological interventions, medical treatments, and physiotherapy. The average duration of the treatments was seven weeks, ranging from one to 31 weeks. The majority of the studies were conducted in inpatient settings, with approximately a quarter in outpatient settings. Their results show that for both within and between group effects, multidisciplinary treatments for chronic pain were significantly more effective compared to no treatment, waiting list, as well as single discipline treatments such as medical treatment and physiotherapy. The effects remained stable over time. The multidisciplinary approach lead to improvements in pain, mood, and occupational and social functioning. The results support the efficacy of multidisciplinary pain treatment, although the authors recommend caution in interpreting their

results because of poor methodology.

There have been only a handful of studies describing the use of psychological interventions for the management of pain in HIV individuals. Lewis and Warfield, (1990) used techniques such as biofeedback and stress management as an adjunct for the management of headaches in HIV patients,. O'Connell et al., (1991) used mental imaging and relaxation techniques for some patients. In children with HIV/AIDS, techniques such as visualization and distraction have proved helpful for pain management (Oleske et al., 1993). Unfortunately, all these studies in HIV have failed to report the specific strategies used or their effect on pain. It is also unclear which components of pain were affected by the pain management strategies and to what extent.

5. Assessment of pain

From the different types of pain management techniques and the theories of pain, it can be seen that there are four core components of pain , the affective component, the behavioral component, the sensory component and finally the lifestyle impact of pain. There are a number of psychometric instruments available for the measurement of different components of pain. The sensory/discriminative component of pain can be measured by the visual analogue scale and the verbal rating scale (Woodforde and Merkey, 1972; Downie et al., 1978). The affective component of pain can be measured by standard measures such as the Spielberger State Trait Inventory (Spielberger et al., 1970) or The McGill Pain Questionnaire (Melzack, 1975), which is one of the few instruments that assess the affective component of the pain experience itself rather than the general mood state. The most direct method available for measuring the behavioral component of pain is via observer recordings (Swanson et al., 1979) or patient self ratings (Collins and

Thompson, 1979). The final component of pain is lifestyle impact. It is intended to measure the more general psychosocial factors associated with chronic pain, such as relationship difficulties, social interactions, recreational activities, and employment.. Many of the quality of life measures and other measures developed in clinical psychology are also appropriate. The Sickness Impact Profile (Bergner et al., 1976) has attempted to incorporate assessment of most lifestyle into one questionnaire. Few measures have assessed patients' coping strategies or their use of strategies taught as part of treatment. For example, the Vanderbilt Pain Inventory (Brown and Nicassio, 1987) measures the frequency with which patients use active or passive coping strategies, the Pain Response Questionnaire (Pearce, 1986) measures negative cognitions, avoidance disruption and positive responses. Any comprehensive survey of pain must measure all four components. To date, there are no published studies of pain in HIV/AIDS patients that have measured these components.

6. Conclusion

There is a need for a prospective, longitudinal study of a large sample comparing techniques for pain management in patients with HIV/AIDS. One group could be the standard pharmaceutical intervention and other group would receive a multidisciplinary approach, with psychological techniques for the management of pain. Both groups would have to be matched for type of pain syndrome and stage of HIV disease, as well as demographics. Importantly, the patients actual perception of pain should be monitored using well established outcome measures on all levels relevant to pain. Adequate control groups, preferably with random assignment are required. An initial step is to conduct a cross-sectional study assessing the prevalence of the different components of pain using standardised measures. Since a multitude of pain syndromes can occur

in HIV/AIDS, the type of pain management strategies will depend on the type of syndrome, the extent of disability, the chronicity of the pain, and of course the stage of HIV illness. Pain management techniques may also be helpful following medical interventions.

The current situation in AIDS/HIV pain management techniques may be analogous to that of oncology a decade ago. Treatment should be based on similar principles of those applied to the management of oncology patients. A multidisciplinary, comprehensive approach to pain management will significantly improve the quality of life for people infected with HIV.

7. References

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PART 2: CLINICAL COMPONENT

SAFER SEX SERVICE FOR HIV POSITIVE GAY MEN

The fact that some HIV positive people continue to place others at risk for infection through sexual activity underscores the importance of identifying effective means for modifying such behaviour and the importance of setting up services specifically targeting this group. The emergence of HIV infection and AIDS has focused concern on the obligations of infected individuals in the prevention of viruses. This document describes the development of a new safer sex service for HIV positive gay men in which I have been the primary instigator. The service is shortly to be put into operation at the Kobler Centre for the Riverside Mental Health Trust. In accordance with the requirements for the Practitioner Doctorate portfolio, I will pay special attention to the integration of the clinical literature with the practical application of the service. Thus, an initial review of the salient issues identified by the clinical research and practice will be provided. Some needs analysis work is presented although this is covered briefly since it forms a large part of the research project to be found later in the portfolio. Practical considerations including legal-ethical concerns which impinge upon the service will then be discussed. Following this, a description of the service itself is provided and details of evaluation procedures to be put in place are presented.

1. Introduction

In the U. K., gay and bisexual men have been disproportionately affected by the HIV epidemic. In the Riverside area (South West London) from the beginning of the epidemic up to September 1992, 88% of residents known to be HIV positive were either gay or bisexual men. Of new infections in Riverside residents, approximately 82% is accounted for by gay and bisexual men (Ridley, 1993). By the end of 1992, 723 residents of Riverside had been reported as AIDS cases

and over 1400 Riverside residents have been diagnosed HIV positive. In the U.K., much of the prevention work has focused on enabling safer sex practices in HIV negative or unknown serostatus individuals, that is, on helping men to reduce their own risk of becoming infected. Predominately, the research has concentrated on identifying factors related to gay men's likelihood of being exposed to HIV (Kelly et al., 1990). The research into predictors and correlates of HIV risk sexual behaviour has identified a wide range of factors in gay men who are HIV negative or unaware of their HIV status. These include demographic, social, cultural, lifestyle, situational and psychological variables (for review see Thornton and Catalan, 1993).

Unfortunately, there has been limited work in placing the onus to be sexually safer on HIV positive people. Since most HIV infected people are informed that unprotected intercourse bears a risk of secondary infections, their motivation to avoid unsafe sex is primarily altruistic, that is to protect their sexual partner. There has also been a widely held belief that HIV positive people who are aware of their status are more likely to be safer (Gold, 1995). This notion has been contradicted by studies which suggest that HIV positive men continue to practise unsafe sex (e.g. Marks et al., 1994). This is indicated by the incidence of sexually transmitted diseases in HIV positive gay men. Anonymous surveys conducted by the Department of Health in 1993 found that there were 808 consultations by gay/bisexual men for acute sexually transmitted diseases, of which 68 already knew they were HIV positive (Lawrence, 1987). In another survey, Robins et al., (1994) interviewed 156 HIV positive men. Their survey showed 35.5% had recently engaged in unsafe sex which placed others at risk. However, the reported prevalence rates may not accurately reflect the extent to which partners are placed at risk of infection because some HIV positive individuals may be engaging in high risk activities exclusively or primarily with other infected people. An examination of this question must also consider the extent to which sexual

partners are informed of their risk.

Despite wide spread HIV testing in gay men, the majority engaging in high risk sex are unaware of their partner's HIV status (Dawson et al., 1994). Some argue that individuals who are aware of their HIV status and who engage in sexual relations have a social and legal responsibility to disclose their HIV status to their partners (Gostin et al., 1987, 1989; Dicken et al., 1988). Marks et al., (1991) examined self disclosure of HIV infection to current sexual partners in 138 seropositive men. 45% had been sexually active since learning their serostatus. Of these 52% had kept their infection secret from one or more partners. Stempel et al., (1989) found that of 107 gay men, only 31% had informed their new partner about their HIV status. A longitudinal study (Perry et al., 1994) found that after two years, 104 HIV positive individuals, 29% had not disclosed their HIV status to their present partner, and 30% to any past partner. Casual sex and lower perceived social support were significantly associated with non-disclosure. These studies suggest that the likelihood of disclosure decreased in direct proportion to the number of partners. Non-disclosure occurred in conjunction with unprotected receptive and insertive anal intercourse.

Anecdotal and clinical reports (Chuang et al., 1989; Siegal et al., 1989), as well as cases publicized in the media (e.g., Boffrey, 1988) suggest a variety of possible differences between HIV positive individuals who do and do not practice safer sex. Those who do not practice safer sex may be less educated about issues related to HIV (Siegal et al., 1989). Their behaviour may reflect levels of psychological distress such as anxiety and anger-hostility (Chuang et al., 1989). Some studies have suggested that individuals who expose others to risk are more likely to do so in the presence of drugs or alcohol (Davidson et al., 1992; Martin, 1990). Joseph et al., (1989) speculated that men who are better able to maintain their psychological well being seem to do so

at the cost of continued high risk behaviour. Robins et al, (1994) found that unsafe men had lower levels of depression. These findings are similar to other studies (e.g. McKusick et al., 1986). Additionally, Robins et al., (1994) hypothesised that some men may have an illusion of security or invulnerability which increases their likelihood of engaging in unsafe sex. They contradict widely held views that strong feelings of self-efficacy will promote positive health behaviours. For example, Bandura (1989) reports that the stronger the person's beliefs in their own self-efficacy, the more likely they are to engage and sustain the effort needed to make positive health changes. Robins et al suggest that this may hold with HIV negative individuals who attempt to reduce their own risk of infection, but very different concerns and difficulties are likely to arise when attempting to promote sexual practices to reduce others' risk of HIV infection.

Other studies (Sandfort et al., 1992; de Wit, 1994) have shown that risk behaviour in HIV infected individuals is dependent on situational and interpersonal factors rather than intrapersonal factors such as stress, coping strategies and sexualization.

Finally, knowing one is HIV positive has important public health implications. An individual who becomes aware that he or she is infected has the opportunity to obtain medical care which may postpone opportunistic infections and prolong life and avoid infecting others. Unsafe sex in HIV positive individuals may also have adverse health effects and complicate the treatment process for some seropositive individuals due to potential co-infection with human T-cell lymphotropic virus type 1 (Cotuzzo et al., 1992) as well as with other types of viruses (Webster, 1991).

2. Use of the Legal framework to deter HIV positive people practising unsafe sex.

A number of countries have used legislation to deter HIV positive people practising unsafe sex.

In discussing legislation, two important ethical issues arise. Firstly, is there a general duty not to spread infection and secondly, does the mode of transmission of the disease affect the ethics of transmission. There seems to be a strong *prima facie* obligation not to harm others by making them ill where this is avoidable. However this depends on society reciprocating the obligation in the form of providing protection and compensation for those who are infected (Harris and Holm, 1995). It is possible to classify high risk sexual behaviour in HIV positive individuals into two broad categories. Firstly, the extent to which the behaviour is intentional and the second category includes those who *intend* to practise safer sex, but occasionally lapse.

The current legislation allows compulsory admission under the *Mental Health Act 1993* to occur on the fulfilment of 2 basic criteria. Firstly, that the patient requires admission in the interests of his health or safety or protection of others and secondly the patient is suffering from a mental disorder. Where "mental" is defined under a set of categories of mental illness: mental impairment, severe mental impairment and psychopathic disorder. Although the criteria for admission (i.e. in the interests of his own health or protection of other persons) may be possible, proving a mental disorder is more difficult and thus admission under the mental health act is likely to fail.

Under the *Public Health (Infectious Diseases) regulations 1985 (SI19985/434)* the following provisions which apply to notifiable diseases were also applied to "AIDS": removal to hospital of person with notifiable disease (Section 37) and detention in hospital with notifiable disease (Section 38). However the legislation refers to AIDS only and not to HIV infection and there is some uncertainty whether this can be applied to HIV positive people. Cases using the public health legislation are rare since there are difficulties over continuing custodial care for a condition that cannot be treated and has a life expectancy of years. Also, patients cannot be detained in

prison hospitals unless the individual has been charged with a criminal offence. *Civil Law* arguments for prosecution could include negligence or invalid consent with assault and battery. However, difficulties in proving the case for the victim exist. Under *criminal law* malicious intent has to be proven under the *Offences Against Person Act 1891*. It has to be proved that the person had "specific intent" to harm his victim rather than having sex without taking care not to harm them, to prove a crime has been committed. The final legislation is *blackmail*, for example, threatening to inject with a syringe of blood which is HIV infected unless goods are handed over.

The laws in other countries differ with some having created specific offences relating to deliberate transmission of HIV. For example in the USA an individual who knows they are HIV positive but continue to have unprotected sex can be prosecuted by federal authorities under the existing charge of "assault with a deadly weapon". This law has generally been applied to prostitutes and cases of revenge sex. In Sweden those who "fail to take adequate measures to protect others from infection" can be compulsory detained and isolated.

However it is questionable whether one would want to use the law to enforce safer sex practises by HIV positive people. Apart from infringement of the individual's rights the effect of harsher powers may deter people from knowing their HIV status. Therefore alternative strategies are required for HIV positive individuals practising unsafe sex.

3. Current intervention strategies

At present in Riverside, all patients diagnosed as HIV positive are given post-test counselling. In 1985 the Department of Health recommended that pre and post-test counselling be a necessary part of the procedures involving HIV antibody testing. Currently the counselling exists in two

phases: a pre-test discussion to supply information and obtain informed consent for the test and a post test counselling session to give the result and discuss its implications. Further advice is given for those found to be positive and includes health education about risk avoidance. Reviews of post-test counselling procedures have underlined the fact that it does not promote a sustained behaviour change in all individuals (Zenilmann 1992). The decrease in risk behaviour evident in the mid 80s with the resultant decrease in incidence of STDs was probably unrelated to post-test counselling and more generally high levels of knowledge in the gay community about safer sex. Any immediate change due to fear following knowledge of serostatus are not automatically always sustained.

Unfortunately, there appears to be inconsistency in the way post test counselling is implemented; from purely 'information giving' to a more complicated psychological approach where counselling is defined purely in relation to the emotions and fears expressed by the patient (Silverman 1990). Thus, there appears to be a need to evaluate the effectiveness of counselling for safer sex practices, particularly for those diagnosed HIV positive.

Social learning principles underlie contemporary approaches to the treatment of many health related behaviours including smoking and substance abuse (Marlatt & Gordon, 1985; Wilson, 1987). Alternative strategies for behaviour change have included: motivational interviewing; relapse prevention strategies (O'Reilly et al., 1990); community level intervention where key opinion leaders influence community behaviour by peer outreach work (Kelly et al., 1991) and cognitive behavioural therapy (Tallis, 1995). The available literature indicates that cognitive behavioural interventions derived from treatments used in a range of psychological disorders (Hawton et al., 1989) are effective in reducing HIV sexual risk behaviour in gay men (Kelly et al.,

1989; Valdiserri et al., 1989). Cognitive factors are proposed to be the main determinants of an individual's affect and behaviour. Clinical experience suggests that among individuals reporting repeated unsafe sexual encounters, these cognitions derive from basic maladaptive assumptions or beliefs about themselves and the world (Tallis, 1995). Altering risk behaviour, especially when it is long standing, also requires accurate knowledge about risk of infecting others, but also risk of becoming infected with other sexually transmitted diseases. Thus, behavioural skills for changing these high risk behaviours are required. These skills include applications of behavioural self management, sexual assertiveness, and the development of social supports, relationships, and health beliefs conducive to safer life-styles (Kelly et al., 1989). Similar group based cognitive behavioural interventions have also produced change in the sexual risk behaviour practices of inner city African American adolescent males (Jemmott et al., 1992) and homeless adolescents (Rotheram-Borus et al., 1991). The content of the proposed group intervention is based on these cognitive behavioural factors.

A description of the safer sex service for HIV positive gay men is now presented. Initially, the HIV service in Riverside, The Kobler centre is described. This is followed by a description of the HIV sexual risk reduction service. Finally the aims and objectives of the safer sex group for positive gay men is presented followed by an outline of the intervention and evaluation.

4. Kobler centre: Specialist clinic for people with HIV, Chelsea and Westminster hospital.

The Kobler Centre based in the Chelsea and Westminster Hospital, opened in 1988. It provides care for people infected by HIV and AIDS. Currently, there are approximately 2000 HIV positive people registered at the centre. The philosophy of the centre is to keep people as healthy as

possible by providing out-patient monitoring and care, including investigations and treatment. The Centre is funded by the Department of Health and also receives funding from charities, particularly, The Crusaid Charity.

The centre is staffed by consultant physicians, nurses, health advisors, occupational therapist, psychotherapist, dietitians, and social workers. The department of psychological medicine provides a full time clinical psychologist, a psychiatric liaison nurse and a psychiatrist. Patients with a range of difficulties including sexual problems, depression, anxiety, adjustment disorders and neuropsychological difficulties are seen by the Department of Psychological medicine. Additionally, it provides an HIV sexual risk reduction service.

5. The HIV sexual risk reduction service

The HIV Sexual risk reduction service is funded by the Department of Health. Funding was initially provided for three years, but has now become permanent. The service was established in 1993 staffed by one clinical psychologist and one research assistant to serve a population referred from three HIV/GUM clinics in central London.

The aims of the service are:

1. To develop psychological interventions for safer sex tailored to the needs of vulnerable individuals. There is also a commitment to evaluate service provision.
2. To provide staff with support and instruction with respect to safer sex issues in clinical practice.
3. To deliver the above services in a number of settings.

The service targets patients attending genito-urinary services in Chelsea and Westminster. Patients

who are having difficulty maintaining safer sex can be referred by any member of staff or self-refer. To date, a service has not been provided specifically for HIV positive patients attending the Kobler Centre.

6. Aims of safer sex group for HIV positive gay men

The aims of the service will be to reduce the incidence of unsafe sexual behaviour in HIV positive gay men.

7. Objectives

(a) to develop psychological interventions to enable HIV positive gay men to adopt and maintain safer sex.

The definition of safer sex in this context is:

1. Anal intercourse (both active and receptive) WITH a condom
2. Oral intercourse with a condom
3. A reduction in number of casual sexual partners

(b) to identify specific elements of cognitive behavioural intervention which are effective in modifying high risk sexual behaviour among HIV positive gay men.

(c) to increase social skills and enable participants to disclose their HIV status to their sexual partners.

8. Target population

In planning the service it was clearly important to estimate the size of the target problem in the target population, i.e. how many HIV positive gay men attending the Kobler centre were having difficulty maintaining safer sex? A recent survey (Flynn et al, 1993) at the centre examining the

sexual practices in HIV positive gay men suggests that at least 13% of all attenders have difficulty maintaining safer sex. This finding is supported by the incidence of rectal gonorrhoea in this population. Approximately, 2000 patients are registered at the Kobler centre, of which 88% are gay. This suggests that at least 230 gay men attending the Kobler centre must be having difficulty maintaining safer sex.

HIV positive gay men attending the Kobler centre concerned about adopting or maintaining safer sex, will be recruited by formal or self referral. During routine interview with HIV physicians the following question will be asked of all patients " during the last six months have you had unprotected anal intercourse with a person of unknown or negative HIV status". Those who respond positively will then be provided with a leaflet explaining the service and given an appointment with the group facilitators for an initial assessment.

A record of all patients who were offered the service, including those who refused a referral will be kept by the HIV physician. This will be in the form of a check list. The facilitators will monitor attendance and drop out rates during the intervention. This will allow the coverage efficiency to be monitored, i.e. what proportion of the actual participants seen are equal to the target population. Those who drop out of the service will be compared to those who participate. The drop out rate may indicate client dissatisfaction, or conditions that prevent participation (e.g. the evening times of the group). This will enable subgroups of the target population that are not receiving the service to be identified..

9. Criteria for referrals

The group will be offered to any HIV seropositive gay man who has had at least one episode of unprotected sexual intercourse in the previous six months with an HIV negative person or person whose serostatus was unknown. Also HIV positive gay men with the following medical history since HIV diagnosis should be referred:

1. Recurrent gonorrhoea, chlamydia, trichomonas.
2. Repeated unsafe sex and attending for check-ups to see if infection acquired.
3. Multiple change of partner or multiple casual partners.
4. Unprotected rectal intercourse.
5. Rectal gonorrhoea in men.

10. Exclusion criteria

Individuals with psychotic illness, brain impairment, major alcohol or substance use will be excluded because it is felt that these difficulties would prevent them from participating in the group. However, individual therapy will be offered to these individuals if required. Also, newly diagnosed HIV (less than six months) patients will be excluded since a period of adjustment to the diagnoses is necessary.

11. Intervention

After an initial assessment, six sessions of group cognitive behaviour therapy will be offered. This will be followed by another session after three months. Standardised measures will be given at pre-treatment, post treatment and three month follow-up to evaluate the effectiveness of the intervention. The group will be facilitated by both a clinical psychologist and a health advisor. The clinical psychologist had 18 months experience in working in the HIV sexual risk reduction project and the health advisor has 6 years experience in working with HIV and AIDS patients and training in group therapy.

Each session will last for two hours with a maximum of eight participants in each group. The sessions will be run in the Kobler Centre in the evenings. An evening session will enable patients who work to attend. After each session, a debriefing session will be held by the facilitators, this will be supervised by the clinical psychologist heading the HIV/GUM services in Riverside Mental Health.

11.1 Assessment interview: All participants regardless of their mode of referral will be assessed by both facilitators for their suitability to participate in the group. This is carried out in the form of a structured interview. The interview covers the following areas:

- ◆ demographic characteristics, current relationships
- ◆ Sexual risk behaviour in the previous month, frequency and type of risk behaviour, number of partners, situational antiscience,
- ◆ Medical and previous psychiatric history .
- ◆ Anxieties and potential barriers about attending group

11.2 Standardised self report measures will include:

- ◆ *General health Questionnaire* (Goldberg and Williams, 1988) to assess psychological morbidity. This instrument was chosen because it is a widely used instrument spanning a range of items indicative of psychological distress. This scale can be also used as a repeated measure to assess changes in psychological distress.
- ◆ *The sexual risk cognitions questionnaire* for HIV positive gay men will be used to assess the type and frequency of sexual risk cognitions (Appendix 1).
- ◆ *The situational confidence questionnaire* (Wanagaratne, 1992) to assess safer sex self-efficacy in specific situations. Measures of self-efficacy are reliable predictors of specific

behaviours in specific circumstances.

- ◆ *Social activities and distress scale* (Watson and Friend, 1969) to assess anxiety in social situations. Since a number of studies (e.g. Sandfort et al., 1992) have shown that risk behaviour in HIV infected individuals depends on interpersonal factors. This measure can be used to measure social anxiety and interpersonal difficulties. The scale consists of 28 items self-report questionnaire consisting of statements which are responded to as 'true' or 'false' (e.g. 'I feel relaxed even in unfamiliar social situations').
- ◆ Frequency *unsafe sexual behaviour* in previous month (Appendix 2)

11.3 Content of sessions

The outline of each session is briefly described. Since this is the first time the group is going to be run, it is envisaged that the content of the sessions may need to be changed as the intervention progresses. Therefore, a review of each session will be conducted at every stage of the intervention.

Session 1

1. *Welcome* : General introduction to group including aim of reducing unsafe sexual behaviour.

2. *Introduce themselves*: How would someone you know well introduce you to group.

3. *House Keeping*: security, toilets/coffees/tea, Smoking

4. *Ground Rules*: If people have been in groups before, what kind of rules did they have?

- Attendance
- Confidentially
- Space to talk without interruption
- No sexual relationships with other members of the group while attending group

5. *Cognitive Behaviour Model* (Tallis, 1995): presentation and discussion of model (Appendix

3) as applied to safer sex practices. The model will be described in detail. The relationship

between thoughts, feelings and behaviour will be examined and participants will be asked as their first homework assignment to write a detailed description of their most recent unsafe encounter. This will be discussed in detail in the next session.

6. *Effect of HIV*: each participant will be asked to describe how has HIV affected them in terms of:

- Forming relationships
- Having sex
- In social situations

Homework assignment: to write detailed description of most recent unsafe sexual encounter (detail thoughts, feelings, situation, antecedents)

Handouts: "Cognitive behavioral model of safer sex, (Tallis 1995). Appendix 3

Session 2

1. *Debriefing*: How has the week gone for each person?

Any comments?

2. *Review of cognitive behavioural model*: Each participant will be asked to describe his homework assignment in detail. Factors such as cognitions, setting, alcohol and drug use, mood state and sexual partner characteristics that preceded and accompanied an encounter will be identified.

Participants will be taught to identify and alter functional antecedents to high risk behaviour. The group leaders and other participants will discuss several management strategies that can alter risk antecedents. These include practical environmental strategies (keeping condoms readily available, limiting alcohol/drug use or avoiding settings associated with casual sex). The facilitators will

enable participants to identify their distal (earlier in time) and proximal (in the sexual situation) risk escalating thoughts leading to the unsafe encounter (Tallis, 1995).

Once the participants have identified risk escalating thoughts and have understood their role in unprotected sex, it is necessary to identify cognitive strategies. These include cognitive self-statements and risk reducing thoughts that could be used to interrupt high risk activity. This will be done through general discussion. Self statements such as 'I must use a condom' and 'I'll enjoy sex more if it's safe, because I won't feel guilty'. Ways of challenging thoughts (Hawton et al., 1989) will be discussed.

Access to risk reducing thoughts will be increased by asking participants to use risk reducing self-statements well practising masturbation training as described by Hawton, 1985. Participants will be asked to masturbate while using a condom, this will help to erotisize condoms (Tanner and Pollack, 1988). Participants will be encouraged to practice techniques in vivo and during subsequent sessions to discuss success and problems encountered.

Homework assignment: Keep CBT diary of any sexual activity and practise masturbation using condom and risk reducing self-statements.

Hand outs: "Eight common forms of distorted thinking" (Peurifoy, 1990).

"Masturbation training" (Hawton, 1985).

Session 3

1. **Debriefing:** review of homework assignments? what tasks did you complete? what tasks did you find difficult? Address any difficulties
2. **To tell or not to tell (whom, how & what):** Disclosing one's HIV status can be extremely anxiety provoking, particular to a potential sexual partner. Fear of being rejected often prevents

people from telling others. Studies (e.g. Marks et al., 1991) suggest that non-disclosure occurs in conjunction with unsafe sex. The aim of this exercise is to enable participants to disclose their HIV status to potential sexual partners. Group discussion to elicit positive and negative consequences, one facilitator will list items on a board, while the other facilitator elicits discussion.

- How do you decide whom to tell. What are the criteria and assumptions you make when telling someone?
- What can be the negative consequences?
- What can be the positive consequences?
- How do you tell?
- Do you always have to tell?

3. Safer sex - current thinking: following an initial introduction and group discussion about health concerns, information will be presented concerning risk of infecting others with HIV and becoming infected with other sexually transmitted diseases (Webster, 1991). The presentation will review basic medical and virological characteristics about HIV and other sexual transmitted diseases. Transmission mechanisms and the rationale for each transmission route are discussed. Additionally, participants will be given information of the relationship between stage of HIV disease and infectious rate. Misconceptions about transmission will be identified and corrected.

4. Setting personal goals : The group will be divided into two, with a facilitator assigned to each group. Each participants will be asked to list all the sexual and social situations they find difficult and then re-order hierarchy and set a goal for the next session (Appendix 4).

Homework assignment: Continue keeping CBT diary of sexual activity

Practice masturbation

Complete one of the goals they have set themselves during the session

Handouts: 'Graded tasks' Appendix 4.

Session 4

1. *Debriefing*- review of homework exercises, address any difficulties and give positive reinforcement for any safer sex behaviour.

2. *Roleplays- to teach assertiveness skills* when confronted by coercive pressures to engage in unsafe sex. Activities that create risk of HIV transmission are interpersonal in nature. If one member of a sexual dyad has the assertiveness skills needed to negotiate safer sex practices and, if necessary, refuse partner coercions to engage in dangerous practices, risk can be functionally lessened (Eisler et al, 1973; Helsen and Bellack, 1976; Kelly, 1982).

Each participant is encouraged to role play four simulated interactions. Each scene includes a brief narration of a situation and is role played with one of the facilitator. The facilitators will outline characteristics of effective social/ assertive skills and model for the group skilful ways to handle such situations. Elements of assertiveness in sexually coercive situations were defined to include acknowledgement of the partner's wish but refusal to engage in the unsafe practice, provision of a reason for the refusal (this did not necessarily involve disclosing one's HIV serostatus), statement of a need to be safe and suggestion of an alternative.

After discussion of various ways that coercive pressures could be handled, the group will be divided into role-play practice triads. Each triad will be given written descriptions of situations requiring assertiveness. One person will role play the partner, one will role-play himself in the situation and the third person will be the observe. The members of each triad will practice and alternate roles until each is proficient in assertiveness skills. Group facilitators will monitor the behaviour rehearsed and offer feedback.

Homework assignment: CBT diary of sexual behaviour and continue with next stage of hierarchy of personal goals.

Session 5

1. *Debriefing*: review of homework assignment

2. *Sexual difficulties and HIV*: (Scragg, 1995) current research evidence. Question and answer session:

3. *Social support and relationships*: Successful implementation of safer sex may be facilitated by the presence of positive personal relationships (Coates et al., 1987; Joseph et al., 1987;). Therefore, participants will be encouraged, through discussion, peer-feedback and problem solving to evaluate issues related to the impact of HIV/AIDS on their social support generally, and particularly on sexual relationships.

Although these issues alone are not necessarily sufficient to alter unsafe sex, they may establish 'context' supports and motivations relevant to the implementation and maintenance of behaviour change.

Session 6

Conclusion and review of previous sessions. What was helpful- what was not- what now? Each participant will be encouraged to identify for the group specific steps he has taken to reduce unsafe sex and how these changes were made. This exercise will expose each member to multiple coping strategy models, and reinforce the efficacy and desirability of safer sex. The participants will be reminded of all the various handouts that they have received through the sessions. They will be encouraged to refer to them regularly and continue practising the skills they have developed. Additionally, any participant who requires further sessions will be offered individual therapy by the clinical psychologist.

Each participant will be asked to again complete the following post treatment questionnaires and a questionnaire evaluating the group facilitators and the intervention. They will be asked to return the questionnaires by post.

* *General health Questionnaire*

* *The sexual risk cognitions questionnaire.*

* *The situational confidence questionnaire*

* *Social activities and distress scale*

* *Frequency and type of sexual risk behaviour in previous month*

* *Overall evaluation of group and facilitators*

Follow-up session: 3 months

Follow-up session will be held in 3 months to review progress. The participants will be asked to complete the above questionnaires again and return them by post.

12. Evaluation and Quality Assurance

Information from the questionnaires will be collated and analysed to evaluate the effectiveness of the intervention. Additionally, incidence of gonorrhoea and other sexually transmitted diseases will be monitored by reviewing case files. A report of the intervention, including information of effectiveness of intervention and service delivery will be fed back to the Steering Group Committee for Sexual Risk reduction. The functions of the steering group are:

1. To set priorities and overall strategy for the service
2. To monitor activity
3. To facilitate the work of the HIV Risk Reduction team.

This committee meets every six weeks and consists of the HIV consultant physicians, health promotion staff, health advisors, clinical psychologists and research psychologists. Any recommendations based on the evaluation data and suggested by the steering group will be

incorporated within the next group. This process of evaluation will be implemented after each group. This will ensure that the service is continually developing.

13. Current Status

There were some difficulties in recruiting patients for the group. This was largely because many physicians were unaware of the group and therefore failed to offer the service. A meeting was set up with the staff to promote the service. Posters and leaflets promoting the service were placed in each consulting room as well as prominent places in the reception area. Currently six patients have been assessed and the first group is due to begin in March 1996.

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APPENDIX CONTENTS

Appendix 1: Sexual Risk Cognitions Questionnaire for HIV positive gay men

Appendix 2: Sexual risk behaviour

Appendix 3: Cognitive behavioural model of unsafe sex

Appendix 4: Planning graded exercise

Appendix 5: Participant feedback

PENDIX 1

ed below are a variety of thoughts that pop into people's heads when they are having unsafe penetrative sex (sexual intercourse out a condom) whether with a casual or regular partner. Please read each item and indicate how frequently, if at all, the thought occurred u in the last month by circling the appropriate number in the following fashion:

TION A

1=never had thought 2=very occasionally had thought 3=occasionally had thought 4=frequently had thought 5=very frequently had thought

I DO NOT USE A CONDOM BECAUSE:	
) I want to show him that he's somebody special.	12345
) He will respect me more if we don't use a condom.	12345
) I feel pressurised by him not to use a condom.	12345
) If I suggest using a condom he will suspect that I have been unsafe.	12345
) I've had unsafe sex so many times so why bother being safe now.	12345
) He is the same HIV status as me so it doesn't matter.	12345
) I enjoy sex more without a condom.	12345
) He may reject me if I suggest using a condom.	12345
) He will withdraw before ejaculation and this will be safe.	12345
) My wishing to use a condom would suggest to him that I think <i>he</i> may have been promiscuous.	12345
) I have very little to look forward to in life, so there is no point in practising safer sex.	12345
) We get so far sometimes that it's not worth using a condom.	12345
) He may get angry/upset if I suggest using a condom.	12345
) He may lose his erection if a condom is used.	12345
) Unsafe sex is just one of life's many risks.	12345
) He will like me more if we don't use a condom.	12345
) Most of the time I'm careful, it won't matter just this once.	12345

I DO NOT USE A CONDOM BECAUSE:	
8) If I say I want to use a condom he may think I have doubts about how safe he has been in the past.	12345
9) I think he doesn't want to use a condom so we don't.	12345
0) If I suggest using a condom he may think that I have been promiscuous.	12345
1) Sex is more exciting without a condom.	12345
2) I've already had unsafe sex with him, what's the point of using a condom this time.	12345
) He looks so unhealthy he must be HIV positive.	12345
) It's his responsibility to use a condom. I'm not responsible for others.	12345
) I'm already infected, so I've got nothing to lose any more.	12345
) He looks like he takes more risks than me, so he's probably infected as well. There's no need to be careful.	12345
) We've both had HIV positive tests, so there is nothing to lose for either of us.	12345
) I'm sure he is HIV positive. I can just tell.	12345
) If he chooses not to use a condom he must be infected as well.	12345
) I think about HIV/AIDS all the time, I'm not going to worry about it now.	12345
) I'm always the passive/receptive partner so my partner is safe.	12345
) Any other thoughts?	12345

APPENDIX 2

Approximately how many times have you had penetrative sexual intercourse - anal or vaginal over the last month?

Approximately, how many times have you had penetrative sex WITHOUT a condom over the last month.

Approximately, how many people have you had penetrative sex with over the last month.

How confident do you feel, at present, about maintaining safer sex? (please circle a number)

0	1	2	3	4	5	6	7
Not Confident			Fairly Confident				Very Confident

Model: Cognitive behavioural model of unsafe sex

APPENDIX 4

Handout: Session 3

PLANNING GRADED PRACTICE

1. Make a list of the situations that you avoid, or that make you anxious.
2. Arrange these in order according to how difficult it would be for you to face each one.
3. Select the easiest item on the list as a first target when you practice.
4. Make yourself do this thing many times until you can manage it without difficulty.
5. Then move on to the next item on your list.

If practice is to be helpful it must be:

- regular
- frequent
- prolonged

If something is too hard, look for ways of breaking it down and practising the small parts by themselves.

Participant Feedback

- 1. What aspects of the group did you find helpful:**

- 2. What aspects of the group did you find unhelpful:**

- 3. Do you have any comments on the structure and format of the group:**

- 4. Do you have any comments about the facilitation or facilitators:**

- 5. If you had a choice, would you have a preference for the gender of the group facilitators:**

6. If you had a choice, would you have a preference for the sexuality of the group facilitators:

7. If you had a choice would you have a preference for the HIV status of the group facilitators:

PART 3: RESEARCH COMPONENT

THE SEXUAL RISK COGNITIONS QUESTIONNAIRE:

A VALIDATION AND RELIABILITY STUDY.

1.INTRODUCTION

The present research is concerned with the development of an instrument, the Sexual Risk Cognitions Questionnaire (SRCQ). It is designed to measure automatic thoughts related to unsafe sexual behaviour¹. A number of instruments already exist. However, none met the specific needs of the Riverside HIV Sexual Risk Reduction project², or specifically measured automatic cognitions related to unsafe sexual behaviour.

The current research is not intended to test a single theory of HIV risk taking behaviour. The measure was developed to tap into one facet, automatic thoughts related to unsafe sexual behaviour. It is derived from contemporary social cognitive models applied to HIV risk (e.g. Gold, et al. 1992; Tallis, 1995; Bandura, 1986; Catania et al., 1990; Fisher and Fisher, 1992). It is anticipated that the instrument will measure automatic thoughts related to condom use and this will be associated with actual risk behaviour levels.

¹In this context unsafe sexual behaviour is seen as penetrative sexual intercourse (both vaginal and anal) without a condom. This behaviour is regarded as very high risk for the contraction of the human immunodeficiency virus.

²A joint bid made by the Riverside Mental Health and Riverside Health for HIV prevention monies in 1992/3 resulted in the funding of an HIV Sexual Risk Reduction Service. The aims of the service are to develop individual cognitive-behavioural interventions for patients who put themselves at risk of HIV by repeatedly engaging in unprotected intercourse. The population attending the HIV/GUM clinics are the primary target for psychological interventions, and within this gay men have the highest priority.

Initially epidemiological evidence on the spread of HIV, emphasising the role of sexual behaviour is presented. This is followed by a review of the current literature on factors related to unsafe sexual behaviour and the theoretical models applied to unsafe sexual behaviour. The review will show that little work has been conducted on specific cognitive factors, in particular the automatic thoughts activated during sexual arousal. This is followed by a description of the development of the SRCQ and its implications for further research.

1.1 The spread of HIV and prevalence

It is estimated that by the year 2000, there will be a global, annual rate of one million new cases of human immunodeficiency virus (HIV) infection and 500,000 of AIDS cases. Although, ninety seven per cent of all new infections will be in developing countries (Dwyer 1995), the number of infections in western countries remains significantly high, particularly for certain sections of the population, namely gay men. For example, in the UK, to date there have been 24453 reported cases of HIV infection (Communicable disease report, 1995). Overall 61% of these infections have occurred through sexual intercourse between men; 18% through heterosexual transmission and 11% through injecting drug use. Significantly, fifty-six per cent of all HIV infections between men occurred in the North Thames region, where it is now the main cause of death for men aged 15-44, and the third commonest cause of death for those aged 15-64 (Aldous et al. 1992). While the incidence of HIV infection has decreased in Western countries (Ekstrand and Coates, 1990), studies suggest incidence of HIV infection remains significantly higher in younger gay men (e.g. Miller et al., 1995; Kelly et al., 1995). This was demonstrated in a recent survey in London by Evans et al. (1993). They showed that the prevalence of HIV infection in gay/bisexual men aged 15-19 infected with HIV-1 increased from an average of 2.4% in 1990 to 4.7% in 1991. These data demonstrate that HIV transmission in gay and bisexual men continues to be a major health

problem, and that preventing the spread of HIV infection remains a priority especially given the remoteness of a cure or vaccine in the foreseeable future.

1.2 HIV transmission and safer sex

The four main methods of HIV transmission are the use of contaminated drug injecting equipment, infected blood transfusion, vertical transmission from an infected mother to the new born and unprotected intercourse (anal and vaginal).

In gay and bisexual men, anal sex without a condom has the highest risk for HIV transmission. Although, there is some differential risk between insertive anal intercourse versus receptive anal intercourse, both carry high risk for transmission and most prevention strategies have not differentiated the risks involved. Even anal intercourse with a condom carries some risk for HIV as condoms occasionally fail. Despite this, the proper use of condoms is the most effective method of protection against HIV infection (US Department of Health and Human Services, 1986). For example, even using a condom only 25% of the time may be sufficient to reduce transmission to a level where the epidemic can be contained. However, as Fishbein and Middlestadt (1989) point out, safer sex is not a single behavioural act, but a category of behaviours. Therefore an understanding of the factors which will increase condom use is essential, if behavioural strategies are to be effective. The focus on condoms in the present study is not intended to perpetuate the notion that safer sex strategies must involve condom use (of course, people choose not to have penetrative intercourse as an alternative safer sex strategy). However, safer sex is generally equated with condom use and a reduction of sexual partners (e.g. Wight, 1992; Holland et al., 1991; Kitzinger, 1991).

Numerous prevention strategies have been used to change risk behaviour. Targeting interventions

for high risk groups such as gay men , injecting drug users (Stimson, 1995), commercial sex workers (Estebanez et al., 1993) and people with mental health problems (Susser, 1995) is important, but interventions should not be targeted too specifically since these groups are only a minority of the whole population. If one targets only high risk groups than there may be an increase in prejudice against them, a loss of political and financial support and the lower risk group may become complacent. On the other hand, if the whole population, much of which may be low risk is targeted, then resources can be wasted and undue alarm may be caused (Smith, 1995). The success of targeted interventions depends on the heterogeneity of sexual activity, the pattern of contact between high and low risk groups and the timing of the intervention (Anderson, 1995). The earlier the intervention, the greater the impact, both in terms of intervening with adolescents and early in the epidemic.

A significant barrier to prevention programs are the legal, political and moral restraints on frank discussions about drug and sexual behaviours. These include, restrictions on the use of explicit sexual material, limitations on where and how condoms are distributed, discrimination against "at risk" groups which prevents them from seeking services, restrictions on access to sterile drug equipment and laws against homosexual behaviour and commercial sex workers. Policy changes which allow access to explicit and age appropriate sexual information are required.

1.3 Factors affecting safer sexual practices

Psychological research into sexual risk behaviour has often relied on informal and ad hoc conceptualisation, and the systematic application of formal psychological theoretical models has been relatively rare (Coates, 1990; Kelly et al., 1993; Fisher et al., 1995). This unsystematic approach has resulted in the accumulation of relatively unintegrated findings concerning factors

that may influence risk behaviour. However, a understanding of these factors is essential in setting up a effective prevention strategy. An overview of the current literature is presented here.

Studies have generally shown that **knowledge** about HIV transmission and safer sex is high (Becker & Joseph, 1988; Gold et al., 1991; Gold et al., 1992; Weinstock et al., 1993). However, although early studies of gay men showed an increase in safer sex practices (e.g. Martin , 1987; Winkelstein et al., 1987; Siegel et al., 1988; Hunt et al., 1991 for review see Becker & Joseph, 1988), recent data has demonstrated that knowledge about HIV is necessary, but not sufficient to alter behaviour. For example, despite high levels of knowledge regarding sexual risk, condom use is very poor in sexually active adolescents (e.g. Fisher, 1990; Kegeles et al., 1988); gay men (e.g. Gold et al., 1992) and heterosexuals (Weinstock et al., 1993). Educational programs aimed at increasing knowledge have largely failed to bring about the desired behavioral changes.

Lower **socioeconomic status**, lower levels of **education** and belonging to an **ethnic** minority group are all associated with unsafe sexual behaviour (Harrison et al., 1991; Peterson et al., 1992). However in gay men income and level of education were unrelated to safer sex (see review by Hospers and Kok, 1995).

Social and **cultural norms** about safer sex are central to changes in any behaviour (Stall et al., 1990; Kelly et al, 1990). For example, Joseph et al. (1987) found a significant relationship between social norms supportive of behaviour change and actual behaviour change. More recently, Seibt et al. (1995) showed that belonging to the gay community, (measured by belonging to an organization for gay men and being a regular reader of gay newspapers), was associated with safer sex for 282 men who have sex with men. However, Kelly et al. (1991), who carried

out a longitudinal study of 68 gay men, found that those men who considered themselves as more "out" with respect to their sexuality were actually more likely to have unsafe sex. This is confirmed by Gold (1995) who suggests that the notion of a "gay safe-sex culture" is a myth in many sections of the gay community. The importance of social norms is clearly demonstrated by changes in smoking behaviour, where the changes in social acceptability of smoking have led to a decrease in smokers. Unfortunately we cannot wait 50 years for social norms to change and promote a significant change in sexual behaviour. Community based interventions that change social norms and promote social acceptability of HIV preventative behaviours are critical for effective behavioral change. If individuals believe condom use is expected and supported by their peer group, then they are more likely to conform. This has been demonstrated in studies by Kelly et al.(1995). They have attempted to change social norms by training key opinion leaders to communicate safer sex strategies to their peer group. Kelly found reductions of up to 30% in the number of men engaging in unprotected intercourse.

Surveys in the U.K. indicate that recent HIV infections are disproportionately affecting younger gay men (Evans et al. 1993). A review by Hosper and Kok (1995) of eight studies of gay men show a clear association between **age** and risk-taking sexual practices, with younger gay men having more unprotected anal intercourse than older men. Ekstrand and Coates (1990) have suggested that younger gay men take greater risks because they may have less social support they might perceive themselves to be invulnerable; or they may have poor skills for negotiating safer sex.

A number of **interpersonal** variables including non-assertive attitudes in negotiating safer sex and poor sexual communication skills have predicted lapses from safer sex (Adib, et al., 1991). Gold,

et al., (1992) found that gay men are more likely to have unsafe sex when there has been no direct or indirect verbal communication beforehand about the type of sex desired. Breakwell et al. (1994) suggest that an understanding of social representations of interpersonal behaviours is necessary. Condom use may be particularly difficult for women in heterosexual relationships because of power and socioeconomic status imbalance and cultural expectations. Some, for example, Helweg-Larsen and Collins, (1994) argue that a condom is a male controlled device, and that condom use may be inconsistent with one's gender role.

Collins (1989) proposes that the perceived implications of condom use can facilitate or inhibit condom use. For example, suggesting using a condom may give the impression that they are promiscuous. Alternatively, unprotected intercourse can symbolise love, trust and commitment. This may play a role in desirable or undesirable self-images and social impression. Individuals, also, make inferences about the likelihood of infection based on their partner's characteristics (Gold and Skinner, 1992). Thus one needs to consider the importance of cognitive factors during a sexual encounter. These findings suggest that various social cognition factors are related to unsafe sexual behaviour.

The type of relationship is another important factor, studies report that the unsafe encounter is more likely to occur within a longer term relationship, as opposed to a casual partner in injecting drug users (Rhodes et al., 1992); in female sex workers (De Graaf et al., 1992); in male sex workers (Gibson et al., 1993); with gay men (Hunt et al., 1992; Bochow et al., 1994; Gold et al., 1991) and heterosexuals (Clift et al., 1993). Gay men who have large numbers of different partners, also, have a higher risk factor (Kelly et al., 1995).

Condoms are generally perceived as reducing **sexual pleasure** or interrupting the sexual act, thus many individuals report a preference for unprotected intercourse (Hays, et al., 1992).

Intrapersonal factors such as poor social and coping skills, low self esteem (Horn et al 1989) and depression (Kelly et al 1991) have, also, been associated with high risk behaviour. Personality factors such as low agreeableness and conscientiousness (Scragg, 1995); high Eysenck P (Costa and McCrae, 1992); high levels of impulsivity and venturesome (Clift et al., 1993), have all been found to relate to unsafe sex.

Use of **alcohol and drugs** before or during unsafe sex has frequently been reported in both gay men (McKusker, et al. 1990; Ostrow et al., 1990) and in heterosexuals (Gold et al. 1992). However, two other studies found no association between alcohol and drugs and sexually risky behaviour (Adib et al., 1991; Connell et al., 1990). This relationship may be correlational rather than causative. Drugs and alcohol may have a direct effect on reducing inhibitions or increasing arousal or may reflect a third variable such as risk taking personality. On the other hand, the relationship may also be coincidental in that sexual encounters occur in environments where drugs and alcohol are readily available.

1.4 Theoretical Models

Turning now to the theoretical frameworks which have attempted to understand unsafe sexual behaviour. A number of the cognitive models that have been applied to safer sex, although generally referred to as social cognition theories, actually involve health cognition. The majority of these models still focus on rational health related beliefs about condom use fail to predict the thought processes that actually govern behaviour during sexual arousal. These models suggest

that a person's motivation to perform a behaviour is the result of the value of the goal that the behaviour is designed to attain and the expectancy that the action will achieve that goal (Feather, 1982). These expectancy value models were developed to study the process by which an individual integrates information that may affect his behaviours, attitudes, intentions and beliefs. In these models individuals are seen as consciously assessing the cost-benefit ratio of a particular behaviour.

Many of these theories have been useful in predicting 'one-off' behaviours such as vaccination or voting behaviour, but have often failed in predicted ongoing, repeated behaviours such as condom use and smoking behaviour, which are distinctively different. Additionally, like smoking, HIV has a long incubation period, so there are no immediate consequences to unsafe sexual behaviour. In the absence of negative consequences, the behaviour is reinforced and maintained. Repeated HIV testing may also reinforce unsafe sexual behaviour.

One of the most influential models, which has its origins in the expectancy-value theory (Janz and Becker, 1984), is the **health belief model** (Becker et al., 1977). This model proposes that individuals do not comply with positive health related regimes unless they perceive themselves as potentially vulnerable, perceive the condition as threatening and are convinced of the efficacy of the intervention. The various permutations of these components in terms of belief strength determines the occurrence of health related behaviours. The decision to engage in the health behaviour can be triggered by a 'cue to action', which may be internal (e.g. symptom) or external (e.g. written information). Unfortunately empirical findings have been inconsistent for each of the model components and unsafe sexual behaviour. On the one hand some researchers have found, the perceived costs and benefits associated with prevention, perceived susceptibility to HIV

infection, and the presence of cues are unrelated to safer sex behaviour (e.g. Zielony and Wills, 1990; Joseph et al., 1987). On the other hand, perceived susceptibility to HIV has been related to prevention in several studies with gay men and college students (Catania et al., 1990; DiClemente, Forrest and Mickler, 1989; Emmons et al 1986); perceived cost and benefits of prevention have been related to HIV prevention in heterosexual and in gay men (Catania et al., 1989; Emmons et al., 1986; Fisher and Misovich, 1990); and cue stimuli have been related to prevention in gay men (McKusick et al., 1985). Fisher and Fisher (1992) suggest that even in studies that show a relationship, only a small proportion of variance in behaviour change is accounted by the HBM. Typically the measures are not combined but tested independently for co-variation with the health action being studied. Critics of the HBM suggest that it ignores symptom perception, that it presents only a rational information processing model of individuals (Leventhal and Nerenz, 1985) and that it fails to specify interrelations among components.

Another theory that has influenced HIV risk reduction strategies is **The Theory of Reasoned Action**, and its elaboration **The Theory of Planned Behaviour** (Ajzen, 1985). The theory in its original form states that a specific behaviour is determined by the *intention* to ^{ex}perform that behaviour, and intention is a function of two belief types. Firstly, performing a behaviour will lead to certain, evaluated consequences and secondly the belief that certain relevant others think that the person should or should not perform the behaviour. Additional variables external to the model influence intention only through direct influence on these two belief components or on the relative weights of their components. Theory of Planned Behaviour principally differs by the introduction of the concept of "perceived behavioral control" an estimate of self-efficacy. Although the theory of reasoned action has relevance to the understanding of risk behaviours, a review of the literature reveals that only a few studies have comprehensively investigated the

model in prospective studies. Four studies used the theory of reasoned action to explore behavioural intentions to ^{er}perform AIDS preventive behaviour (Fishbein, 1990; Jemmott et al., 1991, 1992; Ross and McLaws, 1992); two used the theory to explain past AIDS preventative behaviour (Cochran et al, 1992; Ross and McLaws, 1992); one provided evidence that behavioural intentions predicted a single safer sex act, and finally the most comprehensive study (Fisher et al., 1995) provided evidence that behavioural intentions, attitudes and norms as a function of intentions predicted actual behaviour in three different populations of gay men, heterosexual university students and adolescents. However, attitudes and subjective norms are not equally salient predictors of intentions in all circumstances (Gallois et al., 1994). Similarly, Ross and McLaws (1992) reported that recent use of condoms for anal intercourse in gay men was associated with intentions to use condoms in the future, and that norms but not attitudes significantly predicted intentions.

As suggested above, the notion of **self efficacy** (Bandura, 1977) has influenced theories of HIV prevention. Self efficacy emphasises ^{16CP}the role of expectancies in behavioural outcome. Bandura suggested that individuals evaluate the extent to which they can control their own behaviour given particular situations. Therefore, the more confident they are about responding to varying demands of a task, the harder they will try to overcome any difficulty. The concept of self efficacy has ⁰became very influential in the study of health behaviour, for example, the **Protection Motivation Theory** (Rogers, 1983) states that threat appraisal (severity and vulnerability), response effectiveness and self efficacy predict behaviour and attitude change. In a review of health behaviours, Schwarzer, (1992) proposes that self-efficacy was the best predictor of behavioral intention and change for a range of behaviours such as effective use of contraception, intention to use clean needles and intentions to stop smoking. Schwarzer, in his **Health Action Process**

(HAP) **model** places self efficacy within the context of self-regulatory processes, outcome expectancies and threat appraisal. Marlatt and Gordon, (1985) further emphasize the importance of self-efficacy within their **model of relapse prevention**. This theory states that relapse is more likely to occur with low self-efficacy and an internal attribution. However, the concept of self-efficacy has been criticised by Brewin, (1988), because of its emphasis on conscious thought processes. He suggests that with complex long term behaviour, self efficacy will be a poor predictor. This is because there will be a strong contrary expectation that the individual is not consciously aware of.

In 1991, Aspinwall et al. conducted a comprehensive study on 1400 gay men to test whether three social cognition models could predict HIV risk reduction. The psychosocial variables were derived from the health belief model, self-efficacy theory and protection motivation theory. A hierarchical multiple regression analysis showed that self-efficacy, perceived risk, response efficacy and prior sexual behaviour accounted for approximately 70% of the variance in safer sex behaviour. Aspinwall et al.'s study demonstrated that an individual's HIV status and type of sexual partner affects health related beliefs relevant to safer sex. In HIV negative men without a primary partner the impact of perceived risk increased the likelihood of safer sex. However, in HIV positive men without primary partners the reverse was found. Men who did not believe that reducing the number of their sexual partners would reduce their risk, reported increases in number of partners over the six months of the study. The authors suggest that the belief that there is relationship between number of exposures to HIV and developing AIDS, and the fear of contracting a new HIV strain, may contribute to increase perception of response efficacy among HIV positive men.

Despite the fact that the above theories have received support in the research literature, a number of researchers have examined the possibility that other factors may influence behaviour. Several researchers have suggested that the best predictor of future behaviour is previous behaviour (e.g. Fredericks and Dossett 1983), an important component ignored by many theorists. As Bagozzi (1981) notes, if a person has performed a behaviour in the past, then subsequent acts of the behaviour are likely to be habitual responses, rather than rational decisions. Also, past experience is associated with at least some appropriate behavioural skills, as well as increasing the confidence to perform the behaviour in the future. This importance of having behavioural skill is emphasised in the **Information-Motivation-Behaviour** model, proposed by Fisher and Fisher, (1992). The model proposes that information about HIV transmission and motivation to reduce risk of infection, determine unsafe sex. These two largely independent factors only result in behavioral change if the individual has the behavioral skills necessary for condom use. Motivation is determined by 'attitude', which is in turn determined by beliefs about consequences and the evaluation of consequences (Ajzen and Fishbein, 1980).

Clearly, there is a great deal of overlap between the various models, factors such as motivational differences, attitudes and cognitive representations are incorporated in the majority of models, although the degree of importance assigned to each factor may vary. Overall, no single model has predicted safer sex behaviour, although certain factors appear to play a significant role in unsafe sexual behaviour.

One factor of importance is the cognitive representation of unsafe sexual behaviour. The main distinguishing feature of applying a cognitive approach to unsafe sexual behaviour is the emphasis on cognitive processes such as attention and memory, and cognitive structures such as cognitive

schemata and associated networks. Also, unlike the expectancy value models, this approach does not assume that people make rational choices based on available information. According to Beck's 1976 cognitive model, behaviour, motivation, affect and somatic change are all to some extent determined by cognitive factors. Here, the term cognitive is used to describe events (e.g. negative automatic thoughts), structures (e.g. dysfunctional assumptions), and processes (e.g. retrieval bias). It acknowledges the importance of 'preconscious' stimuli which are automatically filtered out of the material potentially available to our conscious. Beck (1967) has described 'automatic thoughts' found in depressed patients, such as 'I am useless'. These thoughts occur so rapidly and spontaneously in certain situations that patients are often unaware of their existence until their attention is drawn to them. The cognitive behaviour approach for sexual risk focuses on events, the identification of automatic or risk escalating thoughts.

Tallis, (1995) has proposed applying Beck's cognitive behavioral model to unsafe sexual behaviour. According to this model unprotected intercourse is influenced by mental events, both proximal and distal to the sexual encounter, these automatic thoughts can facilitate unsafe sex.. The accessibility of risk escalating thoughts immediately before sexual intercourse is influenced by the 'process' variables (e.g. mood congruent accessibility of safer sex information); and structural factors,(i.e.. the activation of related dysfunctional assumptions) that determine the frequency of risk escalating mental events.

It is, however generally acknowledged that affective changes can influence an individual's cognitive processing. Tallis, (1995) has suggested that relationship between arousal and cognition can be partially accounted for by context or state dependent memory effects (Teasdale and Forgarty, 1979). As the individual becomes more aroused he will increase access to sexual

thought and decrease access to controlling thoughts (state dependent memory effect). However, state-dependent effects generally have been difficult to observe, except under specific experimental conditions (Blaney, 1986), and have not always been possible to replicate (Bower and Mayer, 1985). Another important factor that may affect memory of certain material is mood. Blaney, (1986) reviewed a number of studies of mood congruity and concluded that recall is superior when there is a match between the mood in which the material is recalled and the affective valence of the material. Therefore although mood and affect may influence cognitive processes, by increasing the accessibility of material into memory. Most theorists recognise that a thought can be experienced with less or more affect at different times, therefore they must be partially independent. Controversially, Zajonc, (1980) argues that the evaluation of a stimulus, and the adoption of an attitude (and therefore behaviour) towards them, is a basic process that occurs as early as and separately from, the cognitive operations of recognition and classification. However, Isen, (1984) has criticised Zajonc, since the evidence he presents focuses on conscious recognition and affective judgements and does not rule out an alternative, plausible explanation that affect depends on some level of preconscious cognitive processing, which occur automatically and rapidly. Furthermore, Lazarus (1982) suggests that Zajonc misrepresents cognitive theories of emotion. Emotional reactions are not an eventual reaction that occur after extensive cognitive processing, but may occur almost immediately to incomplete information, and then is modified as more information becomes available for appraisal. Zajonc's proposals are based on superficial judgements made about unfamiliar and often meaningless stimuli (Brewin, 1988). It is unclear how relevant they are in the sexual situation, which concern familiar and very meaningful stimuli.

In a series of similar studies, Gold and his colleagues have investigated the type of occasions and thoughts involved in gay men's unsafe sexual encounters. (Gold, 1995; Gold, Skinner & Ross,

1994; Gold, Skinner, Grant, & Plummer, 1991; Gold, & Skinner 1992; Gold, Karmiloff-Smith, Skinner, & Morton, 1992) Gold and Skinner (1992) employed structured interviews with gay men aged 15-21 years. Subjects were asked to recall two sexual encounters from the preceding 6 months: one in which they had unprotected anal intercourse (unsafe encounter) and one in which they had resisted a strong temptation to have unprotected intercourse (safe encounter). In the interview subjects were asked to rate 81 self-justifications (e.g. "I'm sure this guy isn't infected. I can just tell" and "We take chances every day - after all, it's even taking a chance to cross a road. Taking a risk is just part of life") for having intercourse without a condom. They rated how strongly such self-justifying thoughts had been in their mind at the time they decided to have unprotected intercourse. Two factors emerged from the factor analysis of the self-justifications. Factor one suggests that subjects reacted to negative mood states by 'switching off' from the topic of AIDS by telling themselves that the risk of infection was no worse than other risks encountered in the normal course of events. The second factor revealed a strong tendency among the sample to infer from perceptible characteristics that their partner was unlikely to be infected.

More recently, Gold et al. (1994) conducted a similar study with older (20-39 years) gay men, both HIV positive and negative. For the HIV positive subjects the most common self-justification was the thought that they had nothing more to lose. The researchers also found that the desire to seek adventure and excitement related to unsafe sex, only in the infected group. Almost one third of the infected group reported having had strongly or moderately in their mind the self-justifying thought that they were not responsible for their partner. In the uninfected subjects, the most common self-justifying thought was based on their resolution to have intercourse without ejaculation. They, also, suggest that distal automatic thoughts, thoughts which occur several hours

before unsafe sex, are also an important predictor of unprotected intercourse.

Gold's work has clearly demonstrated that lack of knowledge is not the reason for most unsafe sex in gay men. Rather his work highlights the importance of cognitive, emotional and situational variables at the individual level. Therefore within the cognitive framework, automatic thinking is seen as one of the primary casual antecedent of unprotected intercourse and it is the area of interest in the present study.

1.5. Methodological issues

In designing the present study, careful consideration was given to validity and reliability issues of questionnaire design and methodology. A review of the published literature reveals a number of difficulties in these areas. The focus of the following critique is primarily on work conducted by Gold and his colleagues between 1991 and 1995. This is not intended to suggest that Gold's work is particularly poorer than other research in this field, but it is the area of particular interest in the present study.

The majority of the studies have been based on biased samples, for example, individuals attending GUM clinics (Scragg, 1995) who have a greater probability of having had unsafe sex if they are attending a clinic for sexual transmitted diseases; biased recruitment methods, for example some studies used people recruited through advertising in newspapers and gay bars (Gold and Skinner, 1992), who may have a greater difficulty in maintaining safer sex. Some studies paid volunteers (Gold and Skinner, 1992). The generalisability of these studies are limited because the subjects are self selected for participation in a study (e.g. Perkins et al., 1993; Adib et al., 1991). These subjects may differ systematically from gay men who do not volunteer to participate on the

frequency of high risk sexual behaviours and on a variety of demographic and psychosocial factors. Samples may be significantly different in gay men in small towns and rural areas or in areas of low HIV prevalence (Calabrese et al., 1986; Jones et al., 1987; Kelly et al., 1990). Even within the urban context, non-white men who have sex with men (Peterson and Marin, 1988) or younger gay men (Kellogg et al., 1990) are not always represented. Many of the studies use student population (e.g. Terry et al., 1993); and white, urban, middle class self-described gay men (e.g. Adib et al., 1991). One of the few studies to use three different samples, gay men, heterosexual university students and heterosexual adolescents was conducted by Fisher et al., (1995). The sample sizes for the majority of the studies are too small, for example, Perkins et al., 1993 only had a small size of 52 subjects, but measured several co-variables. Unfortunately, some studies even failed to ask questions about sexual orientation, the assumption being that all the subjects were heterosexuals. Sexual orientation must be considered since there are differences in sexual behaviour between homosexuals and heterosexuals. For example, with gay men, the embarrassment related to purchasing a condom is not a factor that prevents use of a condom. Catania et al., 1992 found only 9% of single heterosexuals consistently used condoms compared to nearly 50% of the gay men. The studies of unsafe sex are difficult to compare because of the variety of instruments used to measure correlates of unsafe sex. An examination of the measures used in unsafe sexual behaviour suggests that they have less than ideal reliability and validity, certainly a 'gold standard' does not exist.

Many of the instruments used to measure cognitive factors in unsafe sexual behaviour have face and content validity, what Guildford (1954) refers to as validation by assumption. For example, all the items used in Gold's questionnaires were judged by a panel of experts to assess whether the items were measuring cognitive factors relevant to unsafe sex practice. Unfortunately, a

common mistake by researchers, including, Gold, is to use a panel of experts to decide the wording level of the items, this panel is possibly quite different from the population being studied. However, face and content validity are a minimum prerequisite for devising an instrument.

Cronbach's alpha was used as the measure of internal consistency by most studies of safer sex (Adib et al., 1991), the measure ⁷represents reflects the overall inter-item homogeneity. Since this method involves only a single administration of the test, the coefficients are easily obtainable. Unfortunately, they fail to consider any variation from day to day, and thus lead to an optimistic interpretation of the true reliability of the test. Steiner and Norman, (1989) recommend that internal consistency should be greater than 0.8. Unfortunately, several studies have used questionnaires with reliability coefficients considerably lower than .8 (e.g. Adib et al., 1991)

Brown, (1984) devised a multidimensional condom attitude scale consisting of 40 questions. An examination of the factor loadings of the scale shows that 11 questions did not have a factor loading greater than .35 on any factor. Therefore at least 25% of the questions accounted for less than 12% of the common variance, suggesting that questions may be unreliable or invalid. In a more comprehensive study, Helweg-Larsen and Collins, (1994) developed and validated the UCLA Multidimensional Condom Attitudes Scale. The questionnaire consists of 187-items. Five factors were found, only 24 items were retained which had a factor loading of .3 or above. The five factors accounted for 65% of the variance in the total scale. Also, the individual items have not been correlated with the criterion variables to test the separate construct validity of the individual factors.

A principal factor analysis conducted by Gold, et al., (1991) revealed two factors which

accounted for 24.1% and 7.2% of the variance. Only 20 of the 81 justification statements had a factor loading of .4 on the first two factors suggesting 61 of the justification statements, 75% of the questions accounted for approximately 16% of the variance. Therefore, these questions may be unreliable or not valid. Gold suggests that the first factor involved with risk-taking behaviour in response to low mood state is a 'switching off' from the topic of AIDS factor (or thinking altogether), by telling themselves that the risk of infection was no worse than other risks encountered in daily life, by telling themselves they had been good and should be allowed to lapse on this one occasion, or by deciding to have unsafe sex specifically to improve mood. The second factor is related to perceptible characteristics that their partner was unlikely to be infected. Clearly, the first factor is poorly defined and includes a broad range of constructs.

The rating scale is popular with all researchers. It has a number of advantages including simplicity, and ease and speed of completion. Unfortunately, few researchers have been careful in devising their scales. Consideration has to be given to the number of categories used since the reliability drops as fewer categories are used (e.g. Nishisato and Torii, 1990). Thus, Oppenheim, (1966) has suggested that the minimum number of categories used by raters should be between five to seven. However, in all of Gold's studies only three point scales were used.

Another area that requires attention is the wording and length of the individual items of a questionnaire. One of the difficulties with the items used by Gold is that constructs are 'double barrelled', i.e. two constructs such as 'love' and 'trust' appear in the same statement "*art of being in love with a guy is trusting him and showing him that you trust him. ...*". In another statement, promiscuity is not differentiated according to whether it is the respondent's promiscuity or the respondent's partner, i.e. "*I really like this guy. I could fall in love with him. But if I say I will*

only fuck if we use a condom, he'll think I've been promiscuous or that I think he's been promiscuous. And then he'll feel turned-off or insulted and I'll lose him , I didn't want to fuck without a condom, but I couldn't find the words/ was too embarrassed to tell him" (Gold et al., 1994). A final example is in a study conducted by Kelly, 1993, the statement states *"infected person can look and feel well"*, but what if the subject wanted to say a person can look well, but does not feel well, this option is not available to the respondent.

Generally, the statements used by Gold are too long thereby reducing the validity co-efficient. Holden et al. (1985) found that , on average items with 70-80 letters had validity coefficients under .10, while items containing 10-20 characters had coefficients four times higher. It is highly likely, that a person when rating just focuses on one concept with in the question. The actual words used within the items also require further examination. For example, Gold uses colloquial language, words such as *"stuffed"*, *"fucked"*, and *"grotty"* are used liberally, this ^{which} makes generalisibility of the questionnaire difficult and can reduce its reliability (Holden et al., 1995) . In another study by Keller, (1993) on young heterosexuals and beliefs about HIV items such as *"person who is infected with HIV but doesn't have full blown AIDS will be visibly sick"*, in this context 'sick' could mean vomiting or unwell, these items are ambiguous.

Unfortunately, the subjects in Gold's studies were not asked if they had any of these justification during their safe encounter. It would have been helpful to have give the justifications in both the unsafe and safe encounter, and calculate if their was any significant difference between them and thus understand how specific these questions are to unsafe sex.

In defining high risk sexual behaviour, previous studies have often failed to ask the serostatus of

the subject or their partner (e.g. Kelly et al., 1989). Additionally, the definitions of monogamous relationships vary from study to study e.g. Perkins et al., (1993) classify a monogamous relationship in their study of seronegative gay men as " mutually exclusive seronegative partner for > 1 year" . Theoretically, partners in long term mutually exclusive relationships who are both uninfected with HIV can engage in unprotected intercourse without increased risk of HIV infection. However, this situation assumes an HIV test has occurred after at least the three month window period to seroconversion. It also assumes that partners immediately communicate to each other any breaches in their mutual monogamy. Therefore unsafe sex with in a monogamous relationship cannot be considered safe, but lower risk. Generally, the risk is considered higher if it is with multiple casual partners whether or not a condom is used. Although, type of sexual behaviour is often not distinguished, i.e. insertive anal intercourse or receptive anal intercourse, it is generally considered both carry high risk.

All studies failed to ask about correct condom use, assuming that condoms were always used properly, e.g. put condom on after insertion, breakages, slippage, correct lubricant. Some studies totally failed to ask about condom use altogether, and relied only on frequency of sex and relationship to partner (e.g. Terry et al., 1993).

There are a number of methods available to measure unsafe sexual behaviour. Scales can be either dichotomous e.g. do you use a condom yes/no; or continuous. The most common method has been to ask whether respondents used condoms 'always', 'sometimes' or 'never' during vaginal or anal sex (Rosenthal et al ., 1991, Fisher et al., 1995). The time scale over which subjects were asked to recall high risk sexual behaviour varied from the previous 6 months (Perkins et al., 1993; McCusker et al., 1992); previous two months (Fisher et al., 1995; Kelly et al, 1995)), previous

one month (Adib et al., 1991). Two difficulties with self report are recall bias and social acceptability. It is possible, but expensive and time consuming, to minimise recall bias by having daily diaries, or voice mail phones. Very few studies (e.g. Kelly et al., 1989) have asked subjects to keep prospective dairies of risk behaviour. Kelly asked subjects to complete behaviour self-monitoring forms over a 4 week baseline period, subjects marked the frequency and type of sexual activity.

The only feasible objective method to measure safe sex is to monitor incidence of STDs in the sample. However, incidence of sexually transmitted diseases (STDs) may be affected by prevalence of the STD in the general population, transmissibility of pathogens, rate of partner exchange and type and frequency of sexual practises.

From the above review, it can be seen that Gold's work has increased our understanding of automatic cognitions related to unsafe sex, however there are a number of methodological shortcomings. Criticism of his instrument centres on the individual items used to construct the scale and test development procedures and scale reliability as discussed above. Therefore, in order to better understand the cognitive characteristics of people practising unsafe sex, the current research was aimed at developing an instrument that is specifically sensitive to assessing the cognitive features seen as operative in the practice and maintenance of unsafe sex.

In the current study validity was measured in terms of construct validity. It was felt that it would be inappropriate to measure validity using concurrent validity (i.e. giving the new measure with that devised by Gold to the same sample and seeing if there was a strong correlation) because Gold measure was administered in a distinctively different way and because the criticisms already

put forward about the design of the questions. Thus construct validity was measured by exploring the difference between two groups (safer v unsafe). If the measure has construct validity, I predict there will be a significant difference in frequency of sexual risk cognitions between the two groups. Therefore, the people practising unsafe sex should have significantly greater frequency of sexual risk cognitions. If the expected relationship is found, then the hypothesis and the measure is sound.

2. METHOD

A cross-sectional questionnaire design was employed. This data was collected in 1995 at Gay pride in London, this a national rally attended by over 50, 000 people from across the U.K.

2.1 Subjects and procedure

People were actively approached and asked to complete an anonymous questionnaire, approximately 10 per cent of individuals approached refused to participate. All questionnaires were completed individually and without incentives. The subjects were asked to place the completed questionnaire in a posting box left beside the stall. This method allowed complete anonymity.

2.2 Questionnaire design

The first step of the study was to locate previous instruments, and gather from them those questions or approaches which met our needs.

The Sexual Risk Cognitions Questionnaire (SRCQ), was designed to assess the type and frequency of cognitions related to unsafe sexual behaviour. Each item consists of a five point rating scale, which measures frequency of a particular cognition. An overall score is obtained by totalling the frequency scores. Thus, the higher the overall total, the greater the frequency of cognitions related to unsafe sex. This questionnaire was based my clinical experience in The HIV Sexual Risk Reduction Service and on the results of earlier studies conducted by Gold et al., (1990, 1991, 1992). Items that had a factor loading greater than .40 from Gold's studies were chosen and reworded to ensure that each item only represented a single construct. The language was simplified to a readability age of 12 years and care was taken to exclude the use of jargon and long sentences. Negatively worded items were avoided since they lower validity coefficients than positively worded ones (Holden et al., 1985). We next showed a preliminary draft of our scale to a number of highly experienced clinicians working in the HIV field (including clinical

psychologists, physicians and health advisors). This step actually served two related purposes, they informed on content validity and ensured that all important areas were measured. A series of pilot questionnaires were initially designed. The readability and the ambiguity of the items was pretested on a number of patients attending the HIV sexual risk reduction project.

Biases in responding were considered in devising this questionnaire because the question are particularly sensitive. The implicit assumption was made that everyone occasionally does not use a condom. Social desirability (Crowne and Marlowe, 1964) and faking good were reduced by ensuring anonymity when answering the questions.

The questionnaire required under 10 minutes for most respondents to complete. It included the following measures.

Demographic data. A short questionnaire (appendix 1) including questions pertaining to demographic information. This included items on age, gender, sexual orientation, ethnicity, educational levels, their HIV serostatus, whether they were in a regular relationship defined as *'one with whom sex has taken place on more than one occasion and is characterised by some degree of sexual commitment'*, and the serostatus of regular partner. Considerable care was taken in wording the items to avoid confusion and subjective considerations. For example, sexual orientation was measured with *"Are your sexual partners - men - women - or both"* hence there is little room for confusion for men who have sex with men but do not define themselves as gay

or homosexual.

Sexual behaviour over past month. The format used to assess sexual risk behaviour was extensively piloted before its use in the study and the 'last month' time frame was selected because it has been previously shown to elicit reliable reports of sexual behaviour practices among gay men (Adib et al., 1991). An additional question on unprotected anal intercourse over past 6 months was asked to ensure anyone who occasionally relapsed was included. The items pertaining to sexual behaviour (appendix 1) were designed to give a measure of the frequency of actual acts of unsafe sexual behaviour (with both regular and casual partners) as well the number of sexual partners.

With their *regular partner only*, respondents were asked how often they used a condom 'sometimes', 'always', or 'never' and what the serostatus of their regular partner was. Monogamous individuals (those in mutually exclusive relationships) with same serostatus were considered low risk, regardless of condom use. The rationale for my classification of monogamous relationships is that condom use, while recommended, is less relevant in reducing risk of HIV exposure in monogamous relationship.

Condom use confidence. Levels of confidence in maintaining safer sex were rated on an eight point visual analogue scale, respondents were asked 'how confident do you feel, at present, about maintaining safer sex.' '0' represented 'not at all confident', and '7' represented 'Totally confident'.

Sexual risk cognitions. The sexual risk cognitions questionnaire consists of a series of automatic thoughts (beliefs and self statements) related to not using a condom. The first section of the

questionnaire contains a list of 22 cognitions pertaining to unsafe sexual behaviour irrespective of gender, sexual orientation and serostatus. The remaining series of questions are more specific. This strategy eliminated the problem of the differences in motivation that influence risk behaviour in HIV positive people and HIV negative people. Presumably, HIV negative individuals are primarily motivated to protect themselves from exposure to the HIV virus, and HIV positive people are motivated to possibly protect others from infection and themselves from other sexually transmitted diseases.

Since there is a substantial correlation between visual analogue scales and rating scales, I arbitrarily choose a rating scale in which intermediate positions were labelled and the rater circle the corresponding number. In the pilot questionnaire I used only three categories, however given that reliability increases with number of categories (Nishisato and Torii, 1990), the categories were increased to five. Each item asked the respondent to use a five point scale to rate frequency of automatic thought in the previous month (ranging from '*never had thought*' to '*very frequently had thought*'). The items used for the HIV seronegative gay men are in appendix 2.

3.RESULTS

3.1 Sample

The initial sample comprised of 353 people (295 men, 58 women). From table 1, the following table, it can be seen that the largest group was men who have sex with men, the smallest group was bisexual and lesbian women.

TABLE 1
SEXUAL ORIENTATION

	HETERO SEXUAL		HOMO-SEXUAL		BISEXUAL		TOTAL	
	n	%	n	%	n	%	n	%
Male	52	14.7	221	62.6	22	6.2	295	83.6
Female	40	11.3	9	2.5	9	2.5	58	16.4
Total	92	26.1	230	65.2	31	8.8		

Since women who have sex with men and heterosexual men numbered only 30.1% of the total sample they were not included in the present study for further analysis. Although a reliability analysis was conducted on sub sections of the questionnaire involving the whole sample (see section 3.3).

The remaining sample, comprising of 221 homosexual men and 22 bisexual men is considered a representative sample of the male homosexual population in London. The age range varied from 18 years to 71 years. The mean age was 32.82 years with a standard deviation of 8.28. Seventy five per cent of the population described themselves as "White UK"; 16% as "White other"

(including Irish); 2.1 % described themselves as "Black"; 5.6 as "Other" and the smallest group were "Asian" (1.7%).

Only 6.9% of the sample described themselves as having no academic qualifications; 22.8% had left school with either GCE 'O' Levels, CSE, or GCSE; 23.3 % had 'A' levels or vocational training. Twenty eight per cent had a degree and 19% had completed a post graduate course.

The majority of the sample did not know their HIV status (48.5%), 44.8% were tested HIV negative and only 6.6% of the sample was HIV positive.

3.2 Sexual activity

3.2.1. Table 2 gives an indication of the extent of sexual activity for men who have sex with men for both casual and regular partners. The mean incidence of unprotected intercourse in the previous month is 1.42 and standard deviation was 3.84.

TABLE 2

SEXUAL ACTIVITY	X	SD
1. Frequency of penetrative sex in one month.	4.7	7.1
2. Frequency of unsafe sex ³ in one month.	1.4	3.8
3. Frequency of unsafe sex in 6 months.	3.4	12
4. No of sexual partners (casual and regular) in one month	1.9	4.4

³In this context 'Unsafe sex' is reported intercourse without a condom.

3.2.2 Risk behaviour was operationalised in terms of percentage of unsafe episodes (i.e. penetrative sex without a condom) in the pervious month. This was calculated by

$$\left(\text{Frequency of penetrative sex without a condom} \right) / \left(\text{frequency of all penetrative sexual encounters} \right) * 100\% = \% \text{ Frequency of Risk behaviour.}$$

Therefore the greater the risk behaviour %, the more often the individual had penetrative sex without a condom. The results show that the majority of the sample (75.5%) practised safer sex all the time, i.e. every time they had sex it was safe. 14% were at risk 100% of the time, i.e. each time they had sex it was without a condom. The mean risk sex behaviour over previous month was 17.7% (SD 35.7).

3.2.3 Unsafe Sexual behaviour with regular partner: 63..1% of the sample stated that they had a regular partner (n=146), of which 78.6% engaged in penetrative sex with them. The remaining did not engage in penetrative sex. Of those who had intercourse, 21.9% *never* used a condom, 27.7% *sometimes* used a condom and just over half *always* used a condom (50.4%).

47.6% did not know the HIV status of their regular partner, 38% knew their partner was negative and 14.4% knew their partner was HIV positive.

surprisingly, there was no significant relationship between regular partner's HIV serostatus and condom use, (chi square (DF,2) =0.0043; $p < .9978$).

3.2.4. Confidence in maintaining safer sex: 46.1% of the sample were very confident about maintaining safe sex,(mean 5.57, SD 1.9, min 0, max 7). Only 2.6% of the sample were not confident about maintaining safer sex.

Confidence was highly correlated with number of episodes of penetrative sex without a condom ($r=-.35$; $p <.000$) and the number of sexual partners in the previous month ($r=-.11$; $p<.045$). No significant relationship was found between confidence levels and age or educational level.

3.3 Psychometric Analysis of scales

3.3.1 Internal consistency was assessed by Cronbach's Alpha (Cronbach, 1951) on all the completed questionnaires including questionnaires completed by heterosexual men and women (Table 3). The first 22 items were given to the whole sample, these are referred to as Sexual Risk Cognitions⁴. The Cronbach's alpha value was .91, indicating a very high reliability score. The remaining sections of the scale, also, had high reliability, however given the small sample sizes particularly for heterosexual men and women, HIV positive gay men, no further analysis was done of these items.

⁴ The sexual risk reduction questionnaire consists of only the first 22 items. Although a series of other cognitions (specifically designed for heterosexuals and HIV serostatus) were administered, they were not further analysed in the current study.

TABLE 3 **Reliability Analysis - Scale (Alpha)**

SCALE	X	SD	α	n
Sexual Risk Cognitions	32.92	13.17	.91	22
Heterosexual women risk	15.70	7.96	.89	10*
Heterosexual men risk	15.69	8.34	.89	9*
HIV Negative men risk	15.76	6.02	.81	12
HIV positive gay men risk	19.4	7.24	.85	8*

* Very small sample

3.3.2 To examine if there were any main clusters of cognitions related to unsafe sex an exploratory principle component factor analysis was performed on the 22 Sexual Risk cognitions. A seven factor solution was expected based on the theoretical work of Tallis, (1995) and Gold and Skinner, (1992)

The results are show Table 4

TABLE 4
PRINCIPAL COMPONENTS ANALYSIS ON 22 RISKY COGNITIONS ITEMS

FACTOR	EIGEN-VALUE	% VARIANCE	CUM %
1	6.91	31.4	31.4
2	2.01	9.1	40.5
3	1.87	8.5	49.0
4	1.43	6.5	55.5
5	1.31	6.0	61.5
6	1.06	4.8	66.3
7	1.0	4.6	70.9

Seven factors accounting for 70.9 per cent of the variance were extracted. However, the first factor accounted for 31.4 per cent of the factor variance. The remaining factors each account for less than 10 per cent of the variance. Unfortunately, the components of the factors were not readily interpretable, there fore the remaining analysis was conducted on the total scores of the Sexual Risk Cognitions. (Appendix 3).

3.4 Validation of Sexual Risk Cognitions

3.4.1 The Sexual Risk Cognitions Score⁵ were correlated with a number of factors. A highly significant correlation was found between the scores on the cognitions questionnaire and actual risk behaviour (r=.33; p<.001). As can be seen from the correlations table, confidence in maintaining safer sex, unprotected intercourse in previous 6 months and number of sexual

⁵ The Sexual Risk Cognitions Score was calculated by totalling each respondents actual rating s on the first 22 items of the questionnaire.

partners correlated highly with the Sexual Risk Cognitions. Also, sex without a condom in the previous month correlated highly with sexual risk cognitions. Again, age or educational levels did not correlate with Sexual Risk Cognitions, frequency of penetrative sex or number of sexual partners.

TABLE 5

	r	p<
Age	0.04	0.37
Educational level	0.06	0.23
Confidence in maintain safer sex	0.26	.001*
Frequency of unsafe sex in 1 month	0.34	.001*
Frequency of unsafe sex in previous 6	0.29	.001*
No. of sexual partners in one month.	0.19	.001*

A one way analysis of variance (ANOVA) was carried out on frequency of condom use with regular partner only and Sexual Risk Cognitions.

TABLE 6

	mean	SD	F	Sig.
Never	33.3	13.8	9.20	.000 2
Sometimes	34.96	12.48 *		
Always	26.12	11.93 *		

* LSD $p < .05$

The Fisher Least Significant Difference test (LSD) test was used to make a post hoc comparison of the above means. This test was chosen because it requires a significant F for the overall ANOVA and is recommended when comparing three means or less (Howell, D. 1987). This analysis shows that those who always use a condom are significantly differentiated from those who sometimes or never use a condom.

The following table shows the results of Wilcoxon tests. Clearly, the results show that there is no relationship between risk behaviour and the sexuality of the men, similarly no relationship was found between sexual risk cognitions and sexual orientation.

TABLE 7

	Homosexual	Bisexual	Z value	p<
	mean rank	mean rank		
Sexual Risk Cognitions	104.38	121.43	-1.2	n.s.
Risk behaviour	123.87	103.23	-1.75	n.s.

A significant difference in sexual risk cognitions and risk behaviour was found between individuals who have a regular partner and those without a regular partner.

TABLE 8

	Regular partner	No regular partner	Z value	p<
	Mean Rank	Mean rank		
Sexual Risk Cognitions	106.9	89.12	-2.11	0.05
Risk behaviour	124.2	101.92	-3.28	0.01

A Kruskal-Wallis 1 way ANOVA was performed to examine the relationship between actual risk behaviour and HIV serostatus; and between Sexual Risk Cognitions and serostatus. No significant results were found.

TABLE 9

	HIV status of respondent Chi-square	HIV status of partner Chi-square
Sexual Risk Cognitions	3.59 ns	1.51 ns
Risk Behaviour	1.47 ns	0.18 ns

3.5. Concommitants of unsafe sex

There was a significant correlation between age and actual risk behaviour. (r=.12; p <.017). The lower the age the greater the risk.

There was a significant relationship between actual risk behaviour and level of confidence (r= -.35; p<.001). The lower the confident rating, the greater the actual risk behaviour.

4.DISCUSSION

The current study examined the reliability and validity of the SCQ, a self report instrument designed to assess the frequency and type of cognitions related to unsafe sexual behaviour. The current sample is considered a representative sample of men who have sex with men in London. However, our subjects are all self-identified as gay men, and thus may be more comfortable with gay sexual orientation than the general population of men who have sex with men. The present study relied on self-report measures of risk behaviour, as well as measure of sexual risk related automatic thoughts. Candor and accuracy in self-report data were encouraged through the use of anonymous subjects and brief retrospective recall of sexual behaviour.

Although 75.2 % of the sample used a condom each time they had penetrative sex, nearly a quarter of the sample (24.5%) had unsafe sex at least once in the preceding month and approximately 60% of these never used a condom. These findings are similar to those of previous researchers (see review by Becter and Joseph, 1988) which suggest that the incidence of unsafe sex remains high for men who have sex with men.

With regular partners approximately half (49.6%) sometimes or never practised safer sex. This result confirms those of previous studies which found that gay men are more likely to practice unsafe sex with their regular partner (Hunt et al., 1992). This result may be due to the concept of "negotiated safety" (Kippax et al., 1993). This notion suggests that gay men may occasionally engage in unprotected anal intercourse, but it is low risk because it occurs between partners who identify themselves as having the same serostatus. However, the continued high incidence of HIV infection in gay men suggests that it is a strategy not frequently used (Dawson et al., 1994) or it is an ineffective prevention strategy (Stall and Ekstrand, 1994).

It is concerning that 47.6% did not know the HIV serostatus of their regular partner. However, the results show that condom use and risk behaviour is not correlated with partner's serostatus. Intuitively, I would expect an HIV negative person to practice safer sex if they have a partner who is HIV positive. The small per cent of men with HIV positive partners may account for this non significant finding.

Clearly, despite prevention efforts, these results suggest that gay men continue to practice unsafe sex. Also, they are more likely to be unsafe with regular partners even if they do not know the partner's HIV serostatus.

Confidence in maintaining safer sex was significantly related to actual risk behaviour ($r=.35$; $p<.001$). Therefore, the less confident the individual feels about maintaining safer sex, the less he is able to do so. This result is not surprising since confidence is an estimate of self-efficacy (Bandura, 1977). Studies have shown that self-efficacy is a predictor of safer sex behaviour (Aspinwall, 1991; Marlatt and Gordan, 1985). These results imply that intervention strategies must consider self-efficacy as an important factor. This study demonstrates that the Sexual Risk Cognitions Questionnaire has high reliability (Cronbach Alpha $=.91$). Although the reliability was high for the subsections of the questionnaire particularly for heterosexuals and HIV positive individuals, further studies are required using larger sample sizes.

A principal component analysis of the Sexual Risk Cognitions reveals that the first factor accounted for 31.4% of the variance. Although the components were not readily interpretable, Tallis, (1995) and Gold and Skinner, (1992) have suggested that automatic thoughts increase the probability of an unsafe encounter can be grouped into seven categories:-1. Costs

associated with condom use, e.g. I will lose my erection if I use a condom; 2. Inferences based on appearance/character of the partner, e.g. He looks too healthy to be infected; 3. Fatalism, e.g. Just one of life's many risks; 4. Emotional expression, e.g. I want to show him he is somebody special; 5. Compromised self-control and 6. Social inhibition; 7. bargaining thoughts, e.g. just this once will be o.k or I'll withdraw before I ejaculate. When administering the current questionnaire, it is suggested that all the items be included.

As predicted, there is a highly significant correlation between the SRCQ and risk behaviour ($r=.33$; $p<.001$). This confirms my hypothesis that people practising unsafe sexual behaviour have a greater frequency of automatic thoughts related to not using a condom. It also confirms that the SRCQ is a valid measure of unsafe sexual behaviour. The fact that the prediction of unsafe sex correlates highly with the occurrence of cognitions strongly suggest that particular beliefs or thought patterns play a crucial role in unsafe sexual behaviour. For example, core beliefs such as "I'm above the rules" or "I'm entitled to break rules" (Beck et al. 1990) are associated with both Antisocial Personality Disorder and Narcissistic Personality Disorder (Costa and McCrae, 1992), and these disorders in turn have been associated with low agreeableness and unsafe sex (Scragg, 1995). The present findings therefore support Beck's notion that cognitions pertaining to the situation have an effect on behaviour (e.g Beck 1976) and suggest that people with certain personality traits may score higher on the SRCQ. This could be examined in a further study where both the SRCQ and a personality measure are administered.

The SRCQ also significantly correlated with confidence in maintaining safer sex ($r=.26$; $p<.000$) and number of sexual partners ($r=.19$; $p<.001$). High number of sexual partners is generally equated with greater risk of HIV transmission (Holland et al., 1991; Kelly et al., 1995). Interestingly only frequency of risk behaviour as oppose to frequency of sexual intercourse correlated with the SRCQ. This further confirms that the SRCQ has high validity and is a

measure of risk of HIV infection.

There was no relationship between age and the score on the SRCQ, this is similar to the finds by Gold et al., (1994, 1992) who found no significant overall relationship between age and self justifications. Although Gold did find that certain self-justifications are more likely to occur demanding on age.

With regular partners, the SRCQ significantly discriminates between individuals who always used a condom and those who sometimes used a condom. This further validates the SRCQ. The SRCQ score was, also, significantly different for those who had a regular partner and those who did not ($z=.2.11$; $p<.05$). This suggests that automatic cognitions are different for those who are in a stable, longer term relation. Also, as already discussed an individual is more likely to practice unsafe sex within a regular relationship. Unfortunately, in the present study I failed to ask about frequency of unsafe sex with casual partner only. Any further study must discriminate between unsafe sex with casual partners only and unsafe sex with regular partners only. This will allow a within group comparison of the SRCQ.

As predicted from previous research (Evans et al., 1993), there was a significant relationship between age and risk behaviour. The younger the individual the greater the risk behaviour. A possible explanation for this age effect may be that more optimistic bias are likely in younger people who may perceive themselves as invulnerable. They underestimate the probability of dangers posed by personal behaviours (Aggleton et al., 1994; Becker and Maiman, 1975). These optimistic biases may make people less likely to take protective action or engage in high risk behaviour (Lek and Bishop, 1995). For example, a recent study of gay men found that, although 42% engaged in high risk behaviour, 75% of the sample rated the riskiness of their practices as low (Bauman and Siegel, 1987). Two cognitive heuristics influence perceptions of vulnerability,

the "representativeness" and the "availability" heuristic (Weinstein, 1984). For example, for HIV/AIDS, people hold stereotyped conceptions of whom the disease affects. The representative heuristic suggests that if people view themselves as deviating from that stereotype, they discount their own risk. The cognitive heuristic is used when one estimates the probability of events based on their experience of those events. This suggests unrealistic optimism is greater when a person has had no experience of HIV, either personal or indirect. Inferences may reflect automatic information processing heuristics (Nisbett and Ross, 1980). Therefore an automatic thought such as 'this guy looks so healthy, he can't be infected' arise from improper generalization about frequently encountered diseases.. Most common diseases have relatively short incubation periods, so that it is true most people who look healthy are generally not infected; however this rule cannot be generalised to people who are HIV positive.

Clearly, this is less relevant to gay men in London, the majority of whom have a greater awareness of the virus . There is, also, evidence that people tend to recall risk-reducing actions and behaviours more readily than risk increasing behaviours (e.g Gerrard et al, 1991). This may occur because risk decreasing actions are often conducted intentionally, with the explicit purpose of reducing risk, and thus tend to be salient whereas risk-increasing behaviours are seldom engaged in intentionally and tend to be less salient.

A limitation of the SRCQ suggested by Gold (personal communication, 1995) is that mental states and processes need to be investigated during sexual arousal, because these automatic thoughts may not be available for recall when the individual is not sexually aroused. However there is significant differences between recognition as oppose to recall of automatic thoughts. The SRCQ is a recognition, rather than a recall task. Several researchers have found that memory of events is significantly greater with a recognition as oppose to a recall task. Recognition tasks are also less effected by state dependent affects (in this case sexual arousal)

than recall tasks. Furthermore, state dependent affects on memory generally have been only observed in experimental conditions (Blaney, 1986) and have often been difficult to replicate.

In conclusion, the results of the present study demonstrate that the SRCQ is a sound measure for assessing cognitive thoughts associated with unsafe sexual behaviour, it demonstrates both high reliability and validity. Previous researchers have asserted the importance of such cognitive measures , for both assessment and evaluating treatment interventions. In future studies the SRCQ may be useful as a measure to facilitate further investigation of cognitions that are involved in the maintenance of unsafe sexual behaviour. The present version of the SRCQ appears to be a useful instrument for the measure of risk cognitions for gay men. If intervention is to be effective, it seems important to deal effectively with patients' central beliefs and habitual self-statements. The utility of the SRCQ as an instrument sensitive to change following psychological intervention, remains to be demonstrated, current intervention research suggests the results are promising. Overall, the current findings strengthen the view that cognitions are important determinants of unsafe sexual behaviour.

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APPENDIX CONTENTS

Appendix 1: Demographic details

Appendix 2: Sexual Risk Cognitions Questionnaire

Appendix 3: Rotated factor matrix

APPENDIX 1

1. Are you? ☐ Male
☐ Female
2. What is your age? _____ years
3. Would you describe yourself as:
☐ White UK
☐ White Irish
☐ White Other
☐ Black African
☐ Black Caribbean
☐ Black Other
☐ Indian
☐ Pakistani
☐ Bangladeshi
☐ Chinese
☐ Other
4. What is the highest level of Education you have achieved so far?
☐ Secondary School - no qualifications
☐ Secondary School - CSE/GCE/GCSC
☐ 'A' Level
☐ HNC/HND or Vocational qualification
☐ University or Polytechnic Degree
☐ Post-Graduate qualification
5. Do you have sex with:
☐ Men
☐ Women
☐ Both
6. How would you describe your HIV serostatus:
☐ Unknown
☐ Positive
☐ Negative
☐ Do not wish to say

7. Do you have a regular sexual partner? (A regular partner is one with whom sex has taken place on more than one occasion and is characterised by some degree of sexual commitment).

☐ Yes

☐ No

8. What is your regular partner's HIV serostatus?

[] Don't know

☐ Positive

☐ Negative

[] Don't wish to say

9. Do you have penetrative sexual intercourse (vaginal or anal) with your regular partner?

☐ Yes

☐ No

If yes, how often do you use a condom?

☐ Never

[[Sometimes

☐ Always

10. Approximately, how many times have you had penetrative sex over the **last month**? (Both with regular and casual partners)

11. Approximately, how many times have you had penetrative sex **WITHOUT** a condom over the **last month**? (Both with regular & casual partners)

.....

12. Approximately, how many **people** have you had penetrative sex with over the **last month**? (Include both regular & casual partners)

13. Approximately, how many times have you had penetrative intercourse **WITHOUT** a condom over the past six months?

14. How confident do you feel, at present, about maintaining safer sex? (Please circle a number)

Not at all 0 1 2 3 4 5 6 7 Totally
confident Confident

APPENDIX 2

ed below are a variety of thoughts that pop into people's heads when they are having unsafe penetrative sex (sexual intercourse out a condom) whether with a casual or regular partner. Please read each item and indicate how frequently, if at all, the thought occurred ou in the last month by circling the appropriate number in the following fashion:

CTION A

1=never had thought 2=very occasionally had thought 3=occasionally had thought 4=frequently had thought 5=very frequently had thought

I DO NOT USE A CONDOM BECAUSE:	
) I want to show him that he's somebody special.	12345
) He will respect me more if we don't use a condom.	12345
) I feel pressurised by him not to use a condom.	12345
) If I suggest using a condom he will suspect that I have been unsafe.	12345
) I've had unsafe sex so many times so why bother being safe now.	12345
) He is the same HIV status as me so it doesn't matter.	12345
) I enjoy sex more without a condom.	12345
) He may reject me if I suggest using a condom.	12345
) He will withdraw before ejaculation and this will be safe.	12345
) My wishing to use a condom would suggest to him that I think <i>he</i> may have been promiscuous.	12345
) I have very little to look forward to in life, so there is no point in practising safer sex.	12345
) We get so far sometimes that it's not worth using a condom.	12345
) He may get angry/upset if I suggest using a condom.	12345
) He may lose his erection if a condom is used.	12345
) Unsafe sex is just one of life's many risks.	12345
) He will like me more if we don't use a condom.	12345
) Most of the time I'm careful, it won't matter just this once.	12345

I DO NOT USE A CONDOM BECAUSE:						
8)	If I say I want to use a condom he may think I have doubts about how safe he has been in the past.	1	2	3	4	5
9)	I think he doesn't want to use a condom so we don't.	1	2	3	4	5
0)	If I suggest using a condom he may think that I have been promiscuous.	1	2	3	4	5
1)	Sex is more exciting without a condom.	1	2	3	4	5
2)	I've already had unsafe sex with him, what's the point of using a condom this time.	1	2	3	4	5
)	He looks so healthy he can't possibly be HIV positive.	1	2	3	4	5
)	He can't be HIV positive because he is willing to have sex without a condom.	1	2	3	4	5
)	He seems intelligent/well educated, so I'm sure he has been careful.	1	2	3	4	5
)	I'm sure he isn't infected.	1	2	3	4	5
)	My positive state of mind can prevent me from being infected.	1	2	3	4	5
)	I'm too healthy to become infected.	1	2	3	4	5
)	I've been lucky so far, I'm sure I'll continue to be lucky.	1	2	3	4	5
)	I don't care if I become HIV positive.	1	2	3	4	5
)	People who are HIV positive would insist on using a condom.	1	2	3	4	5
0)	My regular partner only has unsafe sex with me so I'm safe.	1	2	3	4	5
1)	I believe him when he says he is negative.	1	2	3	4	5
2)	I'm always the active/penetrative partner therefore I'm safe.	1	2	3	4	5
3)	Any other thoughts?	1	2	3	4	5

ROTATED FACTOR MATRIX

	factor 1	factor 2	factor 3	factor4	factor5	factor 6	factor 7
cog13	.677	.442					
cog16	.593	.238	.477				
cog11	.592						
cog17	.537		.236	0.499		0.28	
cog4		.807	.202				
cog20		.721		.350		.259	
cog18	0.239	.629				.500	
cog1		.467	.459	.279		.214	
cog3			.801				.214
cog2	.251		.771				
cog8	.477	0.36	.482				.211
cog22		.270		.729			
cog5			.517	.637			
cog15	.454		.406	.552			
cog12	.490			.499			.369
cog19	.298	0.256		.421		0.411	.208
cog6					.987		
cog7					.980		
cog9						.827	
cog10	0.398	0.353				.671	
cog14							.868
cog21		0.219		0.548			.574

Implicit and Explicit memory bias in chronic pain patients

Clinical Psychology Msc

1992

University of London

**IMPLICIT AND EXPLICIT
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DEEPTI SHAH

1992

**MSc CLINICAL PSYCHOLOGY
UNIVERSITY COLLEGE LONDON
NORTH WEST THAMES**

CONTENTS

	page
ACKNOWLEDGEMENTS	2
ABSTRACT	3
INTRODUCTION	4
Theories of pain perception	5
Information processing frameworks	13
Information processing in emotional disorders	18
Information processing in pain perception	23
Implicit and explicit memory	26
METHOD	32
RESULTS	37
DISCUSSION	43
REFERENCES	53
APPENDIX	
Balanced order design table	62
Word Set	63
Response Sheets	64
HAD Scale	65
Consent Form	66

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ABSTRACT

The present study investigated explicit (cued recall) and implicit (word completion) memory in chronic pain patients (N=14) and a control group (N=14). Anxiety and depression scores were obtained for all subjects and used as covariates in the analysis. All the subjects elaboratively encoded pain related words (sensory and affective) and non-pain related words (neutral and positive). On the cued recall test, there was no significant difference between the two groups in the type of word recalled. Therefore, chronic pain patients did not exhibit an explicit bias for pain related information. On the implicit memory measure, all subjects produced more completions for the words they had recently been exposed to. However, there was no significant difference between the groups in type of word completion. Thus chronic pain patients did not exhibit an implicit memory bias for mood-congruent information. The results are discussed in terms of information processing theory for pain perception and methodological issues.

INTRODUCTION

There is extensive clinical evidence to show that the relationship between injury and pain is not simple. Both psychological and physiological factors make a contribution to the experience of pain. Psychological factors can influence pain and pain behaviour even when the mechanism is primarily of an organic origin. Factors such as personality, learning processes, cognition and attribution have been shown to affect pain perception. For example, pain is a common complaint in patients with generalised anxiety (Large 1980) and patients who are depressed (von Knorring et al 1983). Also, stress, and insomnia (Moldofsky 1976) and the presence of secondary gains (Fordyce 1978) can increase pain behaviours. While, reassurance (Kendall and Watson 1981), suggestion (Wolff et al 1979) and cognitive strategies (Turk 1978) may decrease pain perception. The theories of pain perception in relation to the clinical observations are described here, with the focus on the role of information processing in pain perception. This is followed by theoretical and clinical evidence for the relationship between affect and cognition within an information processing framework. Finally memory processes are discussed, with particular emphasis on explicit and implicit memory processes which is the basis of the present research. Memory of pain could influence the psychological component of a subsequent pain experience and thus have implications for the psychological management of chronic pain. Memory of pain plays an important role in the diagnosis and treatment of pain since clinicians rely on retrospective reports of pain to evaluate the effects of therapy.

THEORIES OF PAIN PERCEPTION

SPECIFICITY AND INTENSITY THEORIES

The traditional theory of pain is known as specificity theory. Specificity theory proposes that pain is a sensation with a specific receptor in the periphery and that a pain signal is transmitted by specific nerve pathways to the brain, where the message is interpreted (von Frey 1890). It is essentially similar to Descartes concept of pain proposed in 1664. This theory has an implicit conceptual nervous system and the model proposes a fixed direct line of communication system from the periphery to the brain.

This theory was challenged by Goldscheider and others in the late 19th century, they hypothesised that there were no specific receptors for pain and that any stimulus which reached a certain threshold could produce the sensation of pain. However, the clinical evidence, such as phantom limb pain and neuralgias failed to support the assumption of a one to one relationship between pain perception and intensity of stimulus.

Both the specificity and intensity theories fail to explain several clinical features observed in pain patients for example, why the relationship between injury and pain is so variable; why seemingly innocuous stimuli may produce pain; why the location of pain may be different from the location of injury; why persists in the absence of injury and after healing; why the nature and location of pain changes with time; why pain is not a single sensation but has many dimensions.

GATE THEORY

Melzack and Wall proposed their influential Gate Theory in 1965 to account for some of the above phenomena. The gate theory acknowledged the role of physiological and psychological factors in pain perception. Melzack and Wall suggested that the Gating mechanism can increase or decrease the flow of nerve impulses from the peripheral nociceptors to the central cortical areas via the T-cell system found in the spinal cord. The modulation by the gate occurs both before the afferent neural activity from peripheral nociceptors evokes pain perception and by descending influences from the central cortical areas.

The pain experience depends on the transmission of signals from the T-cell system. Three factors influence the degree to which the T-cell system will send signals to the central cortical areas for pain distress processing. Firstly, the T-cell system is stimulated by small 'pain fibres' (Casey 1973) called the A-delta and C fibres which run from the periphery to the dorsal horn of the spinal cord. As the stimulus becomes stronger, it acts on these small fibres. Secondly, larger fibres called A-alpha, can inhibit T-cell activity.

Finally, Melzack and Wall suggested a mechanism called the Central Control Trigger. This is a system of large fibres that activate cognitive processes which influence the spinal Gating mechanism via the descending fibres. The action system is activated when the output from the T-cells reaches a certain threshold.

MULTIDIMENSIONAL MODELS OF PAIN

The Gate theory of pain perception was expanded by Fordyce 1978, who proposed a three system model incorporating physiological, behavioral and subjective factors. He suggested that stimulation of the physiological system is perceived at the subjective level as both, a sensation and unpleasant affect. The negative affect motivates pain behaviours such as communicating the pain experience to others. Thus, psychological factors modulate the physiological input, which play a primary role.

This model was elaborated on by Karoly 1985 to include the influence of life style and information processing, for example health beliefs and coping strategies. Karoly suggested that all five factors play a primary role and a feedback loop exists between the factors. According to the model, pain can be experienced even in the absence of physiological stimulation. Unfortunately Karoly's model was limited since it was a descriptive model, rather than a predictive model (Pearce et al 1989).

PARALLEL PROCESSING MODEL OF PAIN

The parallel processing model of pain was similar to Karoly's in that it did not give a primary role to physical stimulation. This model, however, had a greater predictive value than Karoly's (Pearce et al 1989). The model is based on the information processing theory of emotion first proposed by Leventhal and Everhart in 1979.

Five years later, Leventhal 1984 used the information processing theory to develop a model of pain perception.

Leventhal proposed the existence of two separate and parallel pathways for the development of pain. One is a sensory perceptual pathway dealing with physical attributes of the stimulus and the other is the emotional pathway involved in the perceptual experience of distress. Thus, information about the stimulus, its sensory properties and location are processed simultaneously with the feelings of emotional distress. The emotional distress response is independent of the conscious experience of pain. Importantly the theory states that the processing of pain and distress occurs preconsciously.

There are three central features involved in this mechanism. Firstly, Leventhal suggests that parallel processing begins with the encoding of the noxious stimulus via receptor specialization. Different receptors are reactive to different properties of the stimulus, for example, for cold, touch, pressure etc. The two major paths interact with each other very early in the signal conduction sequence. This interaction can be explained by Melzack and Wall's Gate Theory. Secondly, the model suggests specific interactions occur between the parallel systems.

Finally the model suggests that elaboration of the perceptual experience is generated by a set of processing mechanisms arranged hierarchically. The theory states that from the gate upwards, the informational and emotional systems take different, though interacting paths. Three hierarchical mechanisms are involved in the further processing of the pain signals after they leave the gate. These three levels are:-

a.) *Perceptual-motor processing level* :This is an innate,

automatic level of processing. It is the initial level of processing in the elaboration of emotion and gives rise to a perceptual signal that is recognizable as an emotional response.

b.) *Schematic level*: Schemata represent informational representations of past emotional activity. The schema include representations of the visual, auditory and somatic events associated with the stimulus. Schemata are critical for the integration of primary perceptual motor emotional reactions and for the formation of new emotional experiences. They play a role in both memory and attention factors in pain distress processing. Leventhal suggested that the notion of schemata can be expanded in order to incorporate the temporal and social extensions that occur in real life pain experiences, for example in pain the schema will have a representation of bright, pricking pain and a representation of the various emotional reactions associated with the painful episode. The individual's schematic representation for pain is likely to be complex and have many unique features.

There are several studies providing evidence for the schematic integration hypothesis. Hilgard et al (Hilgard and Hilgard 1975) postulated that a dissociation occurs between the informational and emotional components of pain. They conducted a number of studies for reducing pain distress using hypnosis. The studies demonstrated that subjects reported lower levels of pain distress when given anaesthesia instructions under hypnosis.

Another series of studies by Johnson 1973 provide evidence for schematic integration. The studies demonstrated the effects of sensation information and attention on pain distress. She

proposed that an individual who has accurate expectations about the sensory features will process them as information. If the individual, however, is unprepared for the sensory cues, they will arouse surprise and be processed as emotional reactions. This formulation is consistent with Leventhal's theory that noxious stimuli can be processed as either objective information or as affective reactions. Johnson 1973 exposed subjects to ischemic pain by having them squeeze a hand dynamometer while their circulation was cut off by an inflated blood pressure cuff. One group was given information about the sensations they would experience, for example, aching, numbness. The other group was only informed about the procedures to be used in the study. The results showed that subjects who were prepared with sensation information reported significantly less distress than the subjects told only of the procedure. Thus, accurate sensation information reduced distress.

The schematic hypothesis, however, is contradictory to Johnson's formulation. The schematic integrative model suggests that the word 'pain' will strengthen pain-distress schemata. Thereby, lead to their integration with the stimulus input and block distress reduction by sensation information. With sensation information alone, the inputs will be coded in informational terms as a set of features and not in a pain-distress schema.

To test this hypothesis, Brown et al 1978 measured subjects reported strength of sensations and distress while their hand was immersed in ice water. There were four groups:- group 1 was given pain warning and sensation information; group 2 was given only sensation information; group 3 was given procedural information

and pain warning; and group 4 was given only procedural information. The results showed that subjects given sensation information with no pain warning were the least distressed, followed by sensation informed and pain warning. The most distressed group were the procedural informed group. The results are in accordance with the processing theory which would predict that the sensation information would reduce distress by integrating noxious input with schemata of the stimulus features, but the pain warning will strengthen emotionally relevant pain-distress schemata for the integration of noxious information. Thus pain warning would not reduce distress. The results are contradictory to Johnson's hypothesis which predicts that the most accurately informed, that is, sensation informed and pain warning would be the least distressed. Thus, distress reduction depends on the way the input is processed and not just on the accuracy of expectations.

Further studies by Leventhal et al 1977 have shown that sensation information and monitoring can reduce distortions. Positive thinking and expressive sounds (for example, groaning moaning) also reduce distress. By following instructions, subjects decrease or increase availability of pain-distress schemata and strengthen or weaken perceptual-motor processes.

c.) *Conceptual level*: This is the final level of processing. The conceptual level involves activation of beliefs about pain distress. The beliefs affect the individual's social behaviour and reactions to the pain distress experience. The conceptual beliefs may alter perceptual-motor or schematic processing.

In summary, Leventhal 1984 has proposed a model emphasising

the central role of information processing in the experience of chronic pain. Recent research into various emotional disorders suggests that bias occur at different stages of information processing and that there is not a global information processing bias. This model intrinsically implies that there are distinct stages of information processing, such as attention, integration into the schema, elaborative encoding and retrieval. The following information processing theories address these issues.

INFORMATION PROCESSING FRAMEWORKS

ASSOCIATIVE NETWORK THEORY

The network model, described briefly here, has been used as a frame work for mood effects on memory. There are two types of effects of mood on memory, state dependency, information learnt in one state is better remembered when the person is in a similar state and mood congruity, material which is congruent with the individual's prevailing mood is recalled better than incongruent mood. The focus of the present research is on mood-congruent effects.

Anderson and Bower 1974 proposed the Human Associative Memory Network model to explain mood effects on memory. Like emotional schemata (described below) which are thought to shape our experience without awareness of their activity, associations between different nodes in a network have been used to describe emotional memory. Bower et al 1981 stated that concepts are represented by individual 'nodes' that have associative connections of different strengths depending on individual experiences. Accordingly, distinct emotions such as fear and depression have their own nodes or unit in memory. Linked associatively to each of these nodes will be information about autonomic reactions, verbal labels, situations likely to elicit the emotion, etc. Emotion nodes can be activated by any of these stimuli, both physiological and verbal. If activation is strong enough they transmit excitation to units that produce corresponding patterns of automatic arousal etc. Also, activation of the emotion node makes thoughts, beliefs and situational memories that are associated with it more accessible to

consciousness. In addition, emotions of opposing quality and the concepts and propositions with which they are associated may be inhibited. Material is thought to become associated with an emotional node during the acquisition phase of state-dependent learning. At recall the reactivation of this node will activate associated material and thereby make it more accessible. The associative links between the material and mood during activation are weak. This means that state-dependent effects are more common in free recall, where minimal cues are given for retrieval compared to recognition tasks, where, existing cues are stronger. The explanation for mood congruity effects at recall is that being in a certain emotional state activates semantically-related concepts and autobiographical events in the emotion that was experienced, thereby increasing the likelihood of competing concepts entering consciousness. The experimental evidence indicates that mood-congruent encoding and retrieval are demonstrated for autobiographical memory and for word lists with mixed affective content. Difficulties in demonstrating mood-congruent effects can be explained by the extent to which a subject may encode the material self-referentially. Unfortunately, there have been few studies demonstrating state-dependent learning. Additionally, associative theory would not predict the distinction in the effects of anxiety and depression on information processing (described later). Thus, the associative network theory fails to explain why attention biases are demonstrated in anxiety state, but not in depression; and why memory bias are more readily found in depression, but not in anxiety. Williams et al 1988 suggest that network theory is a

general framework for mood-congruent phenomena, rather than a model whose specific predications can be confirmed or refuted.

SCHEMATA

In contrast to the associative network model in which activation spreads passively between different nodes, schema are mental representations of all the information relevant to a particular stimulus, and schemas are activated when one of their constituent parts is encountered.. According to Beck and Emery 1985, schema are not just representations of different types of information, but they play an active role in organizing the constant flow of new information. When a schema is activated it influences the subsequent selection of stimuli to be attended to, and facilitates recall of relevant material from memory. Schema are further organised into subsystems called modes that relate to broad motivational concerns. There are different types of modes such as a danger mode, depressive mode, anxiety mode etc. Beck and Emery state that the schema that is activated depends not only on the objective features of the person's current mode, but also of which mode is currently dominant.

Beck 1976 suggested that individuals who develop a specific emotional disorder are characterised by schemata concerned with interpreting emotional information. So, depression is associated with propositional information concerned with loss, negative aspects of self, the world and further. Furthermore, knowledge about the self is thought to exist in a self-schema (Kuiper et al 1983). Activation of these schemas has two effects. First, some of the information enters consciousness involuntarily and

secondly, logical errors are made by the depressed patients, such as arbitrary inferences, selectively abstracting details, overgeneralising, magnifying or minimizing the significance of events.

Although both associative networks and schemas have been useful in stimulating research, these models have been criticised by Power and Champion 1986 on empirical grounds and for being inadequate in explaining the complexities of emotional experiences. Theories concerning the structure of schemas and how they are organised are vague. A more sophisticated account of information processing is provided by the 'integrated model' suggested by Williams et al 1988.

THE INTEGRATED MODEL

This model is based on the concepts of integration and elaboration (Graf and Mandler 1984). Graf and Mandler 1984 suggested that there are two processes which operate on the mental representations, elaboration and integration. Integrative processing activates and strengthens the internal representation and thereby increases its accessibility. This raises the probability that the word will be produced when only some of its components are presented. Whereas, elaborative processing, a more strategic process, involves the generation of links, at encoding, between the activated representation with other representations. This increases both accessibility and retrievability (Graf and Mandler 1984).

Williams et al 1988 suggest that automatic processes operate without awareness, are rapid, unconstrained by capacity and occur in parallel. Whereas, strategic processes are capacity limited,

relatively slow and serial in nature. This is compatible with Leventhal's (1984) automatic sensorimotor level, schematic level and conceptual level. Williams et al argue that both encoding and retrieval involve a passive, automatic aspect and an active, strategic aspect, and a bias in one aspect does not imply a similar bias in another aspect.

Williams et al assume that decision mechanisms which judge the affective valiance of an item exist both at the pre-attentive and elaboration phases. On the basis of the decisions, priorities for subsequent processing are determined. For example, non-disturbed subjects orient processing resources away from the threatening stimulus, while anxious patients shift processing resources towards the threatening stimulus. Also, increased allocation of pre-attentive resources towards an item may be functionally equivalent to multiple exposure of the item. Therefore, irrespective of the degree of elaboration, that item is more likely to be produced when only some of its components are presented. The stimulus becomes more elaboratively encoded when additionally resources are allocated, and they act as mnemonic cues to aid later recognition and recall. Therefore, different mood states may affect the degree to which mood-congruent mnemonic cues are encoded. Furthermore, retrieval also has both, a passive automatic aspect (for example memories that are retrieved without consciousness effort) and a strategic aspect, when an active search is initiated.

Elaboration and integration processes are discussed within the context of memory processes, in particular implicit and explicit memory which are the focus of this research.

INFORMATION PROCESSING IN EMOTIONAL DISORDERS

ANXIETY

A considerable number of studies have found attention bias in highly anxious subjects. Studies by Mathews and Macleod 1985 have shown that generalised anxiety is associated with a bias in processing information that is related to personal threat. Clinically anxious patients are presumed to have a 'danger schemata' in memory. They have a bias to attend to negative information, which is preferentially processed, and encoded in memory. This may result in a highly elaborated schemata in memory that is readily accessed. Mathews and MacLeod 1985 tested attention bias using the Stroop test. Subjects were presented with words written in different coloured inks, the subjects are required to name the colour of the ink as quickly as possible. Mathews and Macleod found that response rates in naming colours of the threat words was significantly slower in anxious patients compared to controls.

However, the stroop task is unable to distinguish between a bias in attention processes and response bias. Macleod, Mathews and Tata 1986 addressed this problem. They investigated the distribution of visual attention by presenting subjects with two words on a VDU screen. Immediately after presentation a small dot sometimes appeared in place of one of the words and subjects were required to respond to the dot by pressing a response button as fast as possible. Occasionally one of the words was a threatening word. Distribution of attention was inferred from response time to the dot when it appeared instead of the threat word compared to response time to dot in place of non-threatening word. The

results showed that anxious patients, not controls responded faster when the dot appeared instead of a threatening word. Thus, threatening words had received more attention, according to the integrative frame work, anxious patients shifted processing resources towards the location of the threatening stimulus. Depressed subjects also performed this test, the results found no evidence for attention bias in depressed subjects.

Mathews and Macleod 1986 hypothesised that selective processing of threat cues could occur outside conscious awareness. Anxious patients and controls performed a dichotic listening task, they wore headphones and were exposed to subliminal threat and non-threat words on one channel while shadowing neutral stories on the attended channel. The results showed that 'anxious patients' reaction times were significantly slower when they were exposed to threat words compared to non-threat words. There was no significant differences in reaction times for controls. These studies provide evidence for attention bias in anxious patients, however the extent to which these biases are specific to threat or emotional words in general can be questioned.

The studies on memory bias are less conclusive than the attention biases in anxious subjects. Nunn, Stevenson and Whalan 1984 found that agrophobic patients, compared to controls were more likely to remember prose relating to the phobia, for example, 'going shopping', travelling'. Other studies, for example, Mathews and Macleod 1985; Mogg, Mathews and Weinman 1987) have found no recall or recognition biases. In their study, Mogg et al 1987 presented anxious patients and controls with

positive, threat related and negative words. Results failed to find evidence that anxious subjects preferentially recalled (or recognised) mood congruent information. Unexpectedly, there was a trend in the reverse direction. Unfortunately, in this study the anxious patients were also significantly more depressed than controls. A possible explanation for the contradictory findings in the studies is that Nunn et al used very specific stimuli related to agrophobia, therefore allowing for personal elaboration and interpretation. Whereas Mathews et al used more general threat related stimuli. Also, the sample size in Nunn et al studies was very small.

Furthermore, Mogg et al 1987 have suggested that mood-congruent biases might be obscured by cognitive avoidance strategies. Thus anxious subjects will tend to avoid elaborating on threatening words and therefore show poorer than expected recall bias for threat related information. It is clear that recall and recognition memory tasks are vulnerable to strategic influences.

DEPRESSION

Information processing studies have also been conducted with depression. Unlike attention bias in anxiety, attentional biases appear to be less associated with depressed mood (for example, Gerrig and Bower 1982). However, a study by Gotlib and McCann 1984 found attention bias in a stroop test using depressive words. The results showed that mildly depressive subjects were significantly slower to name colours of negative words compared to positive or neutral words. Unfortunately, they failed to assess anxiety levels, so could not conclusively state that a

depressed mood, rather than anxiety was responsible for the bias. Similar results were found in a controlled trial by Williams and Broadbent 1986 on patients who had recently taken an overdose. They found greater disruption in words related to the psychopathology e.g drug , overdose than in more general emotion words e.g helpless. Evidence for recall biases in depressed patients is considerable. Bias occur whether mood is induced or it is naturally occurring. Bower et al 1978 showed that words learnt in a depressed mood are better recalled when a depressed mood is induced. Teasdale and Forgarty used neutral words and told subjects either to retrieve a pleasant or unpleasant memory to each cue. They were able to demonstrate mood-congruent recall on normal subjects using mood induction. Zuroff et al 1984 used low and high scores on the Beck Depression Inventory. The researchers presented them with 40 words, equal number of likeable and dislikeable words. The subjects were asked to make judgements of how much the words described themselves. Subjects were given recall tests after one hour, 2 days and one week. Results showed the more depressed group correctly recalled more negative items, but also showed more negative intrusions. Zuroff also did a recognition test. This showed that depressed subjects, although recognizing correctly more negative items, also gave more false positive responses.

In another study, Bower, Gilligan and Monterio 1981 examined the effect of mood congruent encoding by having subjects read a story about two characters playing tennis (one sad, one happy). The story contained an equal number of sad and happy statements. Subjects read the stories after they had been

hypnotised and a happy or sad mood suggested. The following day in neutral mood, subjects attempted to recall the story. Results showed a clear interaction between mood at encoding and type of fact recalled, thus more sad facts if learned in a sad mood. However, mood at recall did not affect retrieval. These results are contradictory to studies by Teasdale and Russell 1983 who found mood-congruent retrieval effects. There are two explanations for these findings. Firstly, Bower's use of story material means that the individual items are associated with each other. If one image is recalled it is likely to cue another item even if it is opposite in emotional terms. Mood at retrieval may not be sufficient to override intermittent associations. Another explanation is that Teasdale and Russell used personality trait adjectives. It is possible that these items tend to be encoded with the reference to self, unlike the Bower stories which are explicitly about other people. Depth of processing studies (for example, Hasher et al 1985) of the self schema have found that material encoded with reference to the self often show mood or personality congruent bias in recall, whereas the same item encoded in reference to another person do not.

A study by Derry and Kuiper 1981 demonstrated the self reference recall advantage in depressive subjects depends on the use of negative mood-congruent words. Comparisons of positive and negative words showed that clinical depressed patients have a self-reference advantage for negative, but not positive words. Also, Bradley and Mathews 1983 found that clinically depressed patients recalled more negative words in relation to them selves, but more positive words encoded in relation to unfamiliar others.

According to the integrative framework, the enhanced incidental recall following self-referent encoding of negative material in depressed subjects occurs because of the resources allocated to mnemonic encoding cues.

INFORMATION PROCESSING IN PAIN PERCEPTION

The few findings, so far, in information processing of pain experience appear to be less conclusive compared to other emotional disorders. However, recent research in information processing bias in chronic pain patients indicates that attention bias are not occurring for mood congruent information. Three separate studies using the dot-probe paradigm (Pincus 1989; Moses 1989; Hobert 1992) have failed to find attention biases towards pain stimuli in pain patients. This indicates that any biases that are occurring towards pain related information must be occurring at a latter stage of information processing. The tendency for pain patients not to selectively attend to pain words does not imply there are no corresponding differences in the way that pain related information is presented in memory.

Previous studies have traditionally relied on tests focusing on the accuracy of memory for pain intensity (see review by Erskine et al 1990), rather than memory biases for mood congruent information. However, recent studies (Edwards et al 1992, Pearce et al 1990) have found that chronic pain patients recall significantly more pain related information, this suggests that pain patients have developed an elaborate pain schema. Pearce et al 1990 devised two experiments to investigate mood congruity and state dependent learning in the experience of pain. In the first

experiment, chronic pain patients and controls were presented with pain-related, negative and neutral stimulus words. They were then asked to perform a delayed and immediate recall task. The results showed that pain patients selectively recall pain-related words (i.e mood congruent). The second experiment investigated state dependent and mood congruity effects in experimentally induced pain. Volunteer subjects were either given a painful stimulus (cold presser test) or a non-painful test (warm water), this was followed by the presentation of a stimulus word list for encoding. The subjects were then asked to perform a recall task immediately following further exposure to stimulus conditions which were congruent with the original stimulus or non-congruent. Overall, all subjects recalled more words when the state at encoding was the same as the state at recall, thus, a state dependency effect was found. However no mood congruity effects were found in the experimentally induced pain subjects, the results showed no significant difference in type of word recalled between the groups. The researchers postulate that chronic pain patients may selectively process pain-related material and possess a pain node in accordance with the Associative network theory and that mood congruity effects in pain are related to the status of being a pain patient rather than to the state of being in pain. In a recent study, Edwards et al 1992 investigated memory biases in depressed and non-depressed chronic pain patients and depressed psychiatric patients. The results showed that recall biases were specific to pain and depression in both the chronic pain groups. Thus, chronic pain patients who were not depressed showed a pattern of selective recall directly related

to pain and depression status.

A central feature of these tests is that they make explicit reference to, and require subjects to consciously retrieve items that were studied in a specific learning episode. The integrated network theory and the concepts of integration and elaboration are compatible with the theories of implicit and explicit memory, which is the focus of the present research.

IMPLICIT AND EXPLICIT MEMORY

Over the last decade, cognitive research in the field of memory has increasingly focused on experimental situations in which information that was encoded during a specific learning episode is subsequently expressed without deliberate or conscious recollection. Therefore, instead of being asked to try to remember recently presented information, subjects are asked simply to perform a task (without reference to the encoding task) such as word stem completion. Memory bias is revealed by a change in task performance that is attributable to information acquired during a previous learning episode, although the previous information is not necessarily available for recall. This memory does not make explicit or conscious reference to the previous episode and occurs without deliberate intent to recollect the past episode. Graf and Schacter 1985 suggest that this difference reflects distinct forms of memory called explicit and implicit memory respectively. In summary, explicit memory is conscious recollection of the past, whereas implicit memory is demonstrated when performance on a task is facilitated without deliberate recollection from a specific learning episode.

The concepts of explicit and implicit memory neither refer to, or imply the existence of two independent or separate memory systems. The question of whether implicit and explicit memory depend on a single system or a multiple system is not resolved. Two general theoretical approaches have been used to explain the above findings. One approach postulates distinct memory systems in the brain (the reader is referred to Tulving 1985 for a full discussion). The alternative approach proposes various

processing approaches to explain these dissociations (e.g Graf and Mandler 1984), in particular the elaboration and integration processes described above in the integrative framework.

EXPERIMENTAL EVIDENCE FOR IMPLICIT AND EXPLICIT MEMORY

In the information processing approach, it is assumed that memory tests are composed of various component processes, and the dissociations between these tests reflect the operation of different processes (Roediger 1990). Experimental variables such as level of processing, retention interval, and modality of study-list presentation affect explicit memory differently (e.g Graf and Mandler 1984; Kirsner and Dunn 1985; Tulving et al 1982). Furthermore, an independent variable may exert opposite effects on the two types of tests, rather than affecting performance on one test and having no impact on the other. For example, the finding that generated words are remembered better than read words in explicit tests is not demonstrated in implicit tests.

Most explicit tests draw on the encoded meaning of concepts, semantic processing or elaborate encoded. These tests are sensitive to conceptual elaboration and are insensitive to surface features of information. For example requiring subjects to rate a word on a pleasantness scale (semantic processing) produced no evidence of implicit memory for new associations (Schacter and Graf 1986). Most implicit tests seem to represent a perceptual form of memory. They are quite sensitive to manipulations that change the surface form of information (e.g auditory vs. visual presentation), but relatively insensitive to

manipulations that vary the elaboration of processing on a contact surface form.

Graf and Mandler 1984 showed that subjects who demonstrated low recall because of inadequate (perceptual) encoding at time of study performed as well on the word completion test as another group who had normal recall following semantic encoding. Graf, Squire and Mandler 1984 have shown that this pattern of word completion performance depends critically on test instruction, and is not simply a consequence of cued recall testing.

The importance of test instruction was further emphasised in a review by Shimamura 1986. It is essential that subjects are not told that the test is measuring memory for recent experiences, but they are told just to perform the given task (such as guessing the fragmented word) as well as possible. Therefore, implicit measures of retention reflect unconscious learning because subjects are often unaware that they know the material when tested directly or explicitly, but perform at normal levels on the implicit or indirect tests. Furthermore, the evidence to date, that subjects may realise that the implicit test can be solved by explicitly retrieving prior experiences from an earlier phase of the experiment, indicates that this is extremely rare, and procedures have been suggested for assessing the extent of contamination of implicit tests by explicit retrieval strategies (Schacter, Bowers and Booker 1989). In the present study test instruction was considered to be a critical feature of the methodology.

Therefore, the difference in performance between word completion (implicit task) and cued recall (explicit task) is due

to the different requirements of the tasks. The word completion test requires the subject to write the first word that comes to mind which completes the stem. The stem activates schema components of all relevant words. Existing relations among the activated components bring about their mutual activation. Also, since the schema of the target word was previously activated during the presentation phase, this activation spreads more rapidly to the missing components of the word. Activation and integration are relatively automatic processes that function independently of the degree of elaboration (Graf and Schacter 1985). However a cued recall task requires retrieval of recently presented words. Recall is determined by the success of the search process which depends on the available paths to the target subject. Performance on word completion and cued recall occurs because the different requirements of the tasks make it possible for a word to be accessible for word completion without being retrievable.

IMPLICIT AND EXPLICIT MEMORY IN EMOTIONAL DISORDERS

Two studies have recently examined implicit and explicit memory in emotional disorders, using cued recall and word completion tasks. Mathews et al 1989 compared three groups of subjects: currently anxious, recovered from anxiety state and normal control subjects. All subjects were presented with a list of neutral, positive and threatening words and were required to perform a self reference encoding task. They then completed cued recall and word completion tasks given in balanced order. The results showed that indices of bias for emotional material for the two types of memory are independent of each other. They found

a low correlation between selective recall of threatening words and trait anxiety scores, but clinically anxious subjects, in comparison to control subjects did not recall significantly more threatening words than neutral words. However, on the implicit memory tasks, clinically anxious subjects produced more threat word completions, but only from a set they had recently been exposed to. The results are taken as evidence that internal representations of threat words are more readily activated in anxiety states, although not necessarily better elaborated.

Furthermore, the degree of priming of representations is assessed by tasks such as perceptual threshold. This suggests that biases shown by anxious patients on the visual dot-probe study may reflect processes similar to those which underlie automatic priming. Additionally, the biases shown on recall, in neutral mood, of negative information encoded in depressed mood may reflect the extent to which the material has been elaborated at encoding.

Another study, investigated implicit and explicit memory biases in combat veterans with and without post traumatic stress disorder (PTSD). Zeitlin and McNally 1991 found both groups recalled more combat words than other words. However the PTSD group tended to exhibit poorer explicit memory for everything except the combat words. Only the PTSD patients exhibited an implicit memory bias for combat words. The researchers conclude that information about trauma is represented in memory differently in combat veterans with PTSD in comparison to those without PTSD. They state that chronically activated and readily accessible cognitive representations of trauma may underlie

reexperiencing symptoms such as flashbacks and intrusive thoughts in PTSD.

The present study is based on the paradigm developed by Mathews et al 1989. The aim of this research is to investigate the information processing of pain further, in particular to examine the question of whether memory bias exist in pain patients using tests of both implicit and explicit memory. This study would throw further light on where the biases are occurring in the information processing of pain stimuli. Previous research, although not conclusive, has indicated that explicit memory biases towards mood congruent information does exist, it is predicted the present study will further verify these findings and show an explicit memory bias for pain related words in pain patients. Thus, chronic pain patients would show a recall bias for mood congruent stimuli. Theoretically, this would imply the according to Leventhal's model of pain perception, bias are occurring in the information processing stage and that elaboration of the schema is occurring.

Additionally, since implicit memory is closely associated with attention biases in information processing, and recent research has found no attention biases for mood congruent information in pain patients, it is predicted that there will be no implicit memory biases for pain related information. The implication of the results will be discussed in relation to information processing theories of pain.

METHOD

DESIGN

A chronic pain patient group and a normal control group , 14 patients in each group, were required to perform a memory encoding task on a list of neutral and pain related words. This was followed by a cued recall and a word completion test given in balanced order. Finally, the Hospital Anxiety and Depression Scale and the Pain Intensity Scale was administered.

SUBJECTS

Chronic pain patient group: This group consisted of 14 volunteers from a consecutive series of patients attending an out-patient pain clinic at St. Charles Hospital. The criteria for inclusion in the study was subjects had to be aged between 18 to 65 years, they had a history of at least 6 months pain and were in pain at time of testing. Patients were not included if they had an organic problem or memory deficits. All patients had a full physical examination. Characteristics of the subjects are reported in the results section. Subjects who could not read or write English to an appropriate level were also excluded.

Control group: These were 14 volunteers mostly from an adult education college with no previous history of chronic pain. They were matched with the other group for age and sex.

MATERIALS

Stimulus words: There were a total of 60 words, 15 from each of the following categories; pain affective words, pain sensation

words, positive words and neutral words.

The pain words were drawn from the pool of items used in the McGill Pain Questionnaire, these were matched for frequency and number of syllables with neutral and positive adjectives (Carroll, Davies and Richman 1971). All the words had a unique three letter stem. Additionally, using Carroll et al's 1971 'word frequency norms', for each word, there were at least 3 other words (not presented to the subjects) with the same letter stem and a higher word frequency score.

Three word sets (A, B, and C) were compiled, each comprising of 8 words from each of the four word categories. The sets were matched for word length and frequency.

The three sets of stimulus words, divided according to there category 'are shown in Appendix 1.

The stimulus words were presented on a visual display unit on a portable computer for the encoding task.

Response sheets for memory test: The word stems corresponding to each of the words in the sets were typed on white A4 paper. The stems were printed in a fixed, pseudorandom order, with the constraint that there should be no more than 2 stems from any word category condition occurring in sequence. Response sheets were prepared according to a balanced design (see Appendix 1)

MEASUREMENTS

Subjective pain intensity was measured using the 101-point Numerical Rating Scale ((NRS-101). 'This is a numerical scale from 0 to 100, with 0 representing 'no pain' and 100 representing 'pain as bad as it could be') For adults, aged between 18-65

years, the NRS-101 appears to be a reliable instrument. It is simple to administer and score, and can be administered either in written or verbal form. It also has 101 response categories, and therefore it is not limited by response options found in other scales. Jensen et 1986 found that the NRS-101 is a valid instrument for the measure of subjective pain intensity.

The Hospital Anxiety and Depression scale was chosen because it was originally designed by Zigmond and Snaith (1982) for use on patients with physical problems attending a general hospital setting. It consists of two sets of seven questions , one representing an anxiety subscale, the other representing a depression subscale. The depression items on the scale make no reference to physical functions. Therefore these items almost exclusively refer to the anhedonic state, which is said to be a central feature of a depressive illness.

PROCEDURE

For the encoding task, each subject was presented 2 of the three word sets (either AB, AC or BC). The sets were counterbalanced across subjects in each group. The presentation order of the words was fixed, but the starting point in the sequence was randomly determined for each subject. This was done to counteract any primacy or recency effects. No more than two consecutive items were of the same word type.

Subjects were informed that the task concerned their imagination. A list of 46 words, 6 example and 40 stimulus words were presented individually at a rate of 10 seconds per item. The subject had to imagine any scene involving the word and

themselves. For example, if the word 'delicious' was presented, one could imagine eating a chocolate sundae on a hot sunny day. The S was instructed to press a response button once they had an image. The word was then replaced by a horizontal rating scale, with anchors of 'very pleasant' and 'very unpleasant'. The subject was asked to rate the image using the arrow keys. Subjects were encouraged to persist with the task through out the 40 words, since it was acknowledged by the researcher, that the task could become tedious.

After the encoding session, an unrelated filler task was administered to occupy them for 2 minutes. This involved measuring their reaction time to detect single letters among numbers.

Subjects then carried out the cued recall and the word completion memory tasks, with a filler task in between the two memory tasks. The order in which the memory tests were administered varied according to the balanced design (Mathews et al 1989, see Appendix 2 for exact order of presentation).

For the cued recall test for explicit memory, subjects were informed that the three letter stems referred to words that had been presented in the imagination task. They were explicitly told to complete the stems by remembering the previously presented words. If they were uncertain, they were told to guess. Subjects were given 5 minutes to complete the test in any order.

For the word completion task, subjects were told to complete the stems with the first word that come to their mind, as quickly as possible, in consecutive order. For both tasks subjects were told not to use nouns.

Finally, Hospital Anxiety and Depression Questionnaire was administered. All subjects were debriefed at the end of the procedure.

RESULTS

The raw data was analyzed using BMDP. A square root transformation was conducted on the raw data to decrease the skewness and stabilise the variances (Hail 1987).

SUBJECT CHARACTERISTICS

There was a slight difference in mean age between the two groups. Generally, the control group was 11 years younger than the chronic pain group.

		CONTROL GROUP (N=14)	CHRONIC PAIN GROUP (N=14)
AGE	mean SD RANGE	32.7 13.53 24.00-64.00	43.23 10.10 24.00-59.00
ANXIETY (HAD)	mean SD RANGE	7.64 3.45 2.00-15.00	8.38 3.45 1.00-14.00
DEPRESSION (HAD)	mean SD RANGE	3.14 2.10 0.00-8.00	5.23 2.97 1.00-11.00
PAIN	mean SD RANGE	2.85 6.11 0.00-20.00	71.77 19.40 40.00-100.00

A t-test of the anxiety and depression scores showed that there was no significant difference between the two groups. As expected the pain scores were significantly higher in the experimental group.

SCORING OF MEMORY TESTS

The memory test results showed that subjects sometimes changed the meaning of the word by changing the suffix of the originally word (e.g exhausting became exhaust); and subjects also changed the word by changing its suffix without changing its meaning, (for example, hurting became hurt). Any changes were counted as errors and not scored. All the results are based on strict scoring criteria.

ORDER OF PRESENTATION

Analysis of variance between the groups on order of test presentation, that is, whether cued recall (or word completion) was given first or second, was not significant, either as a main effect or as an interaction ($F(1,25) = 0.6, ns$) for both recall and word completion tasks. So this variable was not considered any further.

EXPLICIT MEMORY TEST (CUED RECALL)

An analysis of variance was carried out with type of word recalled (affective pain, sensory pain, neutral, positive) as a within subject variable and group (pain vs control) as between subject variable. Although there were no significant differences in anxiety and depression scores between groups, it can be seen

from the range and standard deviation scores that there was considerable variance within the groups on the anxiety and depression scores. Since, previous research has demonstrated that anxiety and depression have a mood congruent effect on memory tasks (e.g Mathews et al 1989; Edwards et al 1992), the anxiety and depression scores were entered in the analysis as covariates. The results showed no significant main effects between groups $F(1,24)=1.60, p>0.20$, ns. But there was a significant main effect for type of word recalled $F(3,74)=10.57, p<0.001$. All subjects recalled neutral words less, as seen from the means. The interaction between the two was nonsignificant.

Further analysis was carried out to assess whether recall of pain words correlated with anxiety, depression, age, group and pain score. Regression analysis were carried out with recall of affective word as the dependent variable and anxiety, depression, age and pain score in control groups and pain group. This was repeated with sensory word as the dependent variable in both groups. The results showed that there was a significant correlation between depression and recall of affective words, but only for the control group ($r=0.47, p < .05$). Recall of sensory words was not significant in either group.

WORD COMPLETION

In the word completion condition, the response list consisted of previously presented word set (primed) and a word set that had not previously been presented (unprimed). In the primed condition words were scored correctly if they corresponded

to the word set presented in the encoding task. In the unprimed condition, an item was scored correctly if it corresponded to the unprimed word set. Therefore, the unprimed scores represent a baseline of completion rate found in the absence of any recent exposure.

An analysis of variance was carried out with group as the between variable; the within subject variables were primed/unprimed and word type. Anxiety and depression were used as covariates. The main effect of priming was significant, $F(1,24)=13.69$, $p<.001$. Therefore all the subjects produced more completions for the words they had recently been exposed. Also, significant main effect were found for word type using the Greenhouse-Geisser probability adjustment for multiple levels of the repeated measure, $F(3,75)=14.51$, $p<.001$. There no significant effect of group, $F(1,24)=0.22$, ns, also the interactions between the variables were nonsignificant.

To clarify the effect of word type for each group in the word completion tasks, two further analysis of variance were carried out. In the primed word completion task, the analysis of variance showed there was no significant effect for group and the interaction between group and type of word. However, there was a significant effect of type of primed word, $F(3,74)=5.92$, $P<0.001$. Thus, overall all subjects (both control and chronic pain group) completed more affective pain word stems, relative to the other word types. In the unprimed word completion, the

analysis of variance again showed no significant effect for group or interaction between group and type of word. However, there was a significant effect of type of unprimed word, $F(3,74)=6.37, p<0.02$, all subjects completed more stems for affective pain words, compared to the other types of words.

COMPARISON OF IMPLICIT AND EXPLICIT MEMORY TESTS

The baseline score (unprimed) for the 4 categories of word type (neutral, positive, affective pain, sensory pain) was subtracted from the 4 categories of primed words to obtain the scores for the effect of priming, i.e. implicit memory.

An analysis of variance was carried out using group as the between subject variable, and recall/implicit and type of word as the within group variables. There was no significant main group effect, $F(1,24)=2.26, ns$. However, there was a significant effect of recall vs implicit, $F(1,24)=22.29, p<0.001$. Thus all subjects show a difference in explicit and implicit memory tasks. There was a significant effect of type of word, $F(3,75)=9.94, p=0.000$; however there was no interaction effect $F(3,75)=1.04$. A simple analysis on group as the between variable and implicit word type as the within subject variable showed no main effects for group or implicit word type or for the interaction.

MEANS AND STANDARD DEVIATIONS FOR MEMORY TESTS

scores for subject group and word type

	PAIN		CONTROLS	
	MEAN	SD	MEAN	SD
CUED RECALL				
sensory	1.54	1.26	2.59	1.45
affective	2.85	1.57	3.02	1.20
positive	2.01	1.41	2.73	1.25
neutral	1.47	1.39	1.30	1.01
WORD COMPLETION (UNPRIMED)				
sensory	0.12	0.48	0.41	0.51
affective	0.85	0.76	0.82	0.69
positive	0.13	0.37	0.19	0.42
neutral	0.16	0.46	0.19	0.42
WORD COMPLETION (PRIMED)				
sensory	0.71	0.61	0.68	0.73
affective	1.27	0.65	1.24	0.57
positive	0.82	0.59	0.71	0.75
neutral	0.55	0.72	0.52	0.59
IMPLICIT (DIFFERENCE IN PRIMED-UNPRIMED)				
sensory	0.59		0.27	
affective	0.42		0.42	
positive	0.79		0.52	
neutral	0.29		0.33	

DISCUSSION

The results failed to confirm the first hypothesis, this study provided no evidence for an explicit memory bias in pain patients towards pain related information (mood congruent). Surprisingly, chronic pain patients did not recall significantly more pain words than non-pain words. This implies that significant elaboration of the pain schema has not occurred in pain patients. Thus, the generation of links, at encoding, between the activated representation with other pain-related representations does not occur in pain perception and accessibility and retrievability are not increased. The explanation for mood congruity effects at recall is that being in a certain emotional state activates semantically-related concepts and autobiographical events in the emotion that was experienced, thereby increasing the likelihood of competing concepts entering consciousness. According to Integrative theory, a decision mechanism exists at the elaboration stage, if additional resources are allocated, the stimulus will be more elaboratively encoded, the results suggest this is not the case for pain experience. Additionally, the present results are contradictory to Leventhal's model of pain processing, which predicts that attention and memory bias serve to reinforce and strengthen pain schema, this results in selective processing of mood-congruent information.

Important questions can be raised by the findings in this study. Firstly, do the present results differ from previous

studies of information processing in pain perception. Secondly, are the results reliable. Thirdly, what do they imply. Fourthly, does the integrative theory provide an adequate account of the data.

The contradictory findings in explicit memory between the present study and previous studies may be due to different methodology. There are many differences between studies in terms of paradigms, materials, task demands, diagnosis, severity of mood disturbance. Two previous studies have demonstrated recall biases in pain patients (Pearce et al 1990 and Edwards et al 1992), implying that selective processing is taking place. In both studies, stimulus words were presented in the auditory modality and during the encoding phase of the experiment, subjects were instructed to "listen carefully and try to remember as many words as possible". However in the present study, stimuli were given in the visual modality and more significantly, subjects were not requested to remember the words, but just to perform the task. The integrative model is largely based on studies with word stimuli, therefore it is difficult to generalize. It is speculative to suggest that concepts such as activation and elaboration exist outside the context of individual words. Also, schemata include representations of the visual, auditory and somatic events associated with the stimulus. Most explicit tests draw on the encoded meaning of concepts, semantic processing or elaborate encoded. These tests are sensitive to conceptual elaboration and are insensitive to surface features of information. Therefore, requiring subjects to rate a word on a pleasantness scale (semantic processing)

should have significant effects on explicit memory. It can be speculated that the low recall bias may be due to inadequate conceptual encoding at the time of study.

Furthermore, depth of processing studies (for example, Hasher et al 1985) of the self schema have found that material encoded with reference to the self often show mood or personality congruent bias in recall, whereas the same item encoded in reference to another person do not. Another recent study by Pincus 1992 showed that pain patients recalled more sensory words encoded in reference to themselves compared to sensory words encoded in reference to others, while control subjects showed no difference in recall of pain words. These results suggest that elaboration of a self-schema related to the knowledge of self as an individual are likely to influence bias rather than an a pain associated schema. However in the present study, although subjects were asked to rate words in relation to themselves, the results of Pincus's study were not confirmed.

Another reason why the encoding task may not have been preformed is that the majority of pain patients in the present study had back problems, and reported being uncomfortable during the encoding procedure. They also, on reflection, appeared to find the encoding task tedious and reported lapses in concentration. This rises two possibilities for explaining no recall bias in mood congruent information. Firstly, that due to the distress caused by the back pain, the pain patients were unable to sit comfortably and thereby unable to preform the encoding task sufficiently, and this resulted in low recall. However there was no significant overall difference in recall of

words between the control and the pain group ($F(1,24)=.60$, $p>.20$), therefore the performance of pain patients and control subjects on the encoding task was similar. A possible way of ensuring that the encoding task is preformed is to ask subjects to report their images to the experimenter and to examine the unpleasantness and pleasantness ratings in order to monitor if pain related words were interpreted as unpleasant by pain patients.

Secondly, it can not be assumed that chronic pain patients are a homogenous group. There is a distinction between pain patients whose pain may occur at unpredictable times and those pain patients who are more aware of when and in which situations the pain is more likely to occur. Thus, there may be important differences in information processing between pain patients who can provide themselves with adequate safety signals and those who can not, this issue requires further investigation.

Also, same chronic pain patients are much more disabled by their condition, thereby having an affect their general quality of life and limit their activity levels. Whereas other chronic pain patients, although experiencing pain, the effect on their quality of life may be minimal. It is possible to speculate that only those individuals who have a poorer quality of life, as a result of being a pain patient will show recall bias. This notion of the influence of quality of life is compatible with Leventhal's theory. Leventhal (1984) suggested that schemata can be expanded in order to incorporate the temporal and social extensions that occur in real life pain experiences. Thus the individual's schematic representation for pain is likely to be

complex and have many unique features. In further studies it would be useful to measure the quality of life and assess if this plays a role in memory bias.

Transient mood shifts may affect information processing by modifying the outcome of the decision on the affective salience of an item at both the pre-attentive and elaboration stages. Williams et al suggest that transient mood may adjust the decision mechanism in a certain direction. In chronic pain patients it is possible that the salient congruity is not between the descriptors and the sensations themselves, but rather the emotional state associated with being a pain patient. Therefore, any recall bias are towards negative information rather than pain information per se.

The present results showed that there were no significant difference between the groups in anxiety and depression. The pain patients in this group had relatively low anxiety and depression scores, compared to previous studies. Unfortunately, the previous studies have failed to control for anxiety and/or depression in pain patients. It may be that patients who are emotionally distressed as a consequence of having chronic pain will show recall biases. The recent study by Edwards et al 1992 addressed this issue and controlled for depression. Their study demonstrated that pain patients who were not depressed showed a recall bias for sensory adjectives. However, the study did not measure anxiety scores and although the findings to date about the influence of anxiety on mood-congruity information is inconclusive (Mathews et al 1987), anxiety in pain patients may account for recall bias towards negative information.

Furthermore in the present study, depression scores correlated with recall of affective words in the control group, but not in the pain group. Since there were no significant difference between the control and chronic pain group, this raises the possibility that depression in pain patients is specific to being a pain patient.

In the present study, there are a number of methodological issues that need to be addressed to assess the reliability of the results in the present study. A possible explanation for the nonsignificant findings in recall biases are due to small sample size, poor encoding, different test instruction at time of encoding and possibly the strict scoring criteria. Unfortunately due to difficulty in recruiting subjects and the time constraints of the study, the sample size was reduced. This increases the possibility of reducing the statistical power of the test and increases the probability of making a type II error, that is, not finding a difference that exists (Howell 1987). Further research is required using the present paradigm, but having at least two subjects in each cell of the balanced design. Also, it may have been useful to rate the word type categories for the response words by objective observers. In the baseline condition, it could be argued that too much reliance was placed on the unprimed word set, and too little focus on generated words - pain patients responses showed many words that did not belong to any word set, but could have been classified as either sensory, affective or illness related (for example words such as scalpel were generated by pain patients, but not scored). Another methodological problem was that individual items were associated

with each other by subjects during the encoding task. Thus, if one image is recalled it is likely to cue another item even if it is opposite in emotional terms. Mood at retrieval may not be sufficient to override intermittent associations. So some subjects reported using the same image for many of the words. Another difficulty was that some subjects did not understand the meaning of words, for example, a number of subjects asked the researcher the meaning of 'searing'. One cannot assume that all subjects understood the meaning of every word presented, and also one cannot assume that all subjects would admit to not understanding words. Also, the pain words used here are from the McGill Pain Questionnaire, which refer to pain in general. It may be useful to devise a list of pain words which are specific to the type of chronic pain group. Further research is required on the type of pain words used, controlling for usage in the general population and ensuring that the pain words used have a relatively high frequency. It is not enough to just to ensure that there are three words of greater frequency than the items in the word set.

Another explanation for the poor explicit memory, although debatable, is that pain patients may have avoided elaborating on pain related words, and therefore show poorer than expected recall for these items. This use of cognitive avoidance strategies has been demonstrated in anxiety patients (Mathews et al 1989). Again, this explanation is questionable since previous research has shown recall biases in pain patients.

The results showed that there were no group differences in type of word or number of words recalled. However all subjects

recalled significantly fewer neutral words. This can be explained by the fact that neutral words are less emotive and therefore the imagery task may be more difficult compared to the other word types. According to Williams et al Integrative theory, performance on memory of neutral stimuli can be understood in terms of the switching of resources towards mood-congruent items and away from mood-neutral or incongruent material. Thus, neutral material will not receive priority in the allocation of resources.

Consistent with my hypothesis, chronic pain patients did not exhibit an implicit memory for pain. According to the integrative theory, once a mood congruent item has received priority in the allocation of resources, it will increase the extent to which the item is primed. The present results suggest that integrative processing, which activates and strengthens the internal representation and increases accessibility, does not account for any pain related memory biases demonstrated in previous studies. In accordance with previous studies, all subjects produced more completions for the words they had recently been exposed to. There are no biases in the ease with which a pain representation can be accessed once it has been primed.

The results suggest that type of word completions were significant for both primed and unprimed conditions, although there was no difference between groups. Word completion for affective words were produced significantly more. Overall all subjects showed a significant difference in explicit and implicit memory. Information processing bias could result in increased distress and pain behaviours in the experience of pain. It has

clinical implications for therapy and assessment. If assessments are based on the underlying processes related to the pain experience, the possibility of generating specific pain management strategies is enhanced. Although, the present study suggests bias in information processing is not occurring, the findings are not conclusive. Thus, it may be important to assess to what extent pain experience is maintained by enhanced elaboration of pain related items when encoding, or the biased selection of cues to recall events from the past at retrieval. Further research is required to assess the usefulness of cognitive behaviour therapy (Hawton et al 1989) for pain management.

The experimental evidence reviewed in the introduction has shown that mood-congruent bias are not shown by all individuals with mood disorders on every paradigm. The network theory and schema theory suggest that attention and memory bias occur in all emotional disorders, both in pre-attentive and consciousness mechanisms. Clearly this is not the case, different emotions appear to be specific in their effects on cognitive processing. In pain perception previous research suggests that there is no attention bias, but there is an explicit memory bias. However, the present study suggests that there are no explicit memory bias for mood-congruent word stimuli in chronic pain patients. The contradictory findings have been discussed above within the context of methodological issues. However in accordance with my hypothesis no implicit memory biases for mood congruent information were found in pain patients. Taking account of previous research conducted in this area it seems highly probably

that elaborative processing rather than integrative processing of pain is taken place in pain patients. The Integrative theory for information processing appears to be useful in understanding different stages in information processing and the model is compatible with Leventhal's (1984) model of pain perception, which emphasised the central role of information processing in the experience of chronic pain. Both these models are useful in understanding pain perception, however a study is required to look at tasks which assess different aspects of pain processing, for example, visual dot-probe and incidental recall of self-referent adjectives using the same stimulus material. Further research is required to understand the extent to which failure to find biases is due to differences in tasks and materials and until further research is conducted on a larger sample of pain patients differences between aspects of processing must remain speculative.

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TABLE 1**BALANCED ORDER ACROSS WORD LISTS AND GROUPS**

SUBJECT	WORD LIST PRESENTED AT ENCODING TASK	MEMORY TASKS ORDER	
		TRIAL1	TRIAL2
1	AB	A*	BC
2	AB	B*	AC
3	AB	BC#	A*
4	AB	AC#	B*
5	AC	A*	CB
6	AC	C*	AB
7	AC	AB#	C*
8	AC	CB#	A*
9	BC	B#	CA
10	BC	C*	BA
11	BC	BA#	C*
12	BC	CA#	B*

* = CUED

= IMPLICIT

TABLE 2

MATCHED WORD SETS DIVIDED ACCORDING
TO PAIN AND NON-PAIN WORDS

PAIN WORD		NON-PAIN WORD	
SENSORY	AFFECT	NEUTRAL	POSITIVE
scalding stabbing pressing pounding tingling	unbearable torturing fearful dreadful punishing	SET A windswept imprecise spending traditional selective	cherish enchanted devoted generous confident
throbbing crushing hurting beating shooting	annoying troublesome vicious suffered miserable	SET B chanting promising angular polished spreading	superb beloved truthful merry clever
pricking drilling searing splitting stinging	exhausting terrifying horrible wretched frightful	SET C reputable regarding informal scientific participate	serene triumphant applause gracefully comforting

RESPONSE SHEETS

con.....
sca.....
tra.....
sta.....
unb.....
gen.....
sel.....
tin.....
pun.....
pou.....
dre.....
dev.....
pre.....
spe.....
fea.....
tor.....
win.....
che.....
imp.....
enc.....

com.....

pri.....

par.....

exh.....

gra.....

dri.....

sci.....

ter.....

app.....

sea.....

inf.....

hor.....

tri.....

spl.....

reg.....

wre.....

ser.....

sti.....

rep.....

fri.....

tru.....

cle.....

ann.....

spr.....

cru.....

mer.....

tro.....

pol.....

hur.....

thr.....

vic.....

ang.....

bea.....

bel.....

suf.....

pro.....

sho.....

sup.....

mis.....

cha.....

sca.....
sho.....
con.....
mis.....
unb.....
spr.....
sel.....
cle.....
sta.....
mer.....
gen.....
pol.....
tor.....
suf.....
pre.....
bea.....
dev.....
hur.....
fea.....
vic.....
spe.....
ang.....
pou.....
tru.....
enc.....
bel.....
dre.....
sup.....
pro.....
imp.....
tro.....
tin.....
cha.....
cru.....
che.....
thr.....
pun.....
ann.....
win.....
tra.....

com.....
sca.....
pri.....
unb.....
par.....
win.....
exh.....
che.....
gra.....
enc.....
dri.....
imp.....
sci.....
tor.....
ter.....
sta.....
app.....
pre.....
seá.....
fea.....
inf.....
spe.....
hor.....
dev.....
tri.....
pou.....
spl.....
dre.....
reg.....
gen.....
wre.....
con.....
ser.....
sel.....
sti.....
pun.....
rep.....
tin.....
fri.....
tra.....

thr.....
com.....
cle.....
par.....
ann.....
fri.....
spr.....
sti.....
cru.....
spl.....
mer.....
wre.....
tro.....
sci.....
pol.....
gra.....
hur.....
app.....
inf.....
tru.....
hor.....
vic.....
sea.....
ang.....
dri.....
bea.....
ter.....
bel.....
reg.....
suf.....
tri.....
pro.....
ser.....
sho.....
rep.....
sup.....
exh.....
mis.....
pri.....
cha.....

HAD Scale

Date: _____

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 response.

Tick only one box in each section

I feel tense or 'wound up':

- Most of the time
- A lot of the time
- Time to time, Occasionally
- Not at all

I feel as if I am slowed down:

- Nearly all the time
- Very often
- Sometimes
- Not at all

I still enjoy the things I used to enjoy:

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

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

- Not at all
- Occasionally
- Quite often
- Very often

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 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 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

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

- Very much indeed
- Quite a lot
- Not very much
- 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 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 feel cheerful:

- Not at all
- Not often
- Sometimes
- Most of the time

I get sudden feelings of panic:

- Very often indeed
- Quite often
- Not very often
- Not at all

I can sit at ease and feel relaxed:

- Definitely
- Usually
- Not often
- Not at all

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

- Often
- Sometimes
- Not often
- Very seldom

Do not write below this line

CONSENT FORM

This study is being conducted by the Clinical Psychology Department at University College London. We are investigating the relationship between reading, writing and general health.

PROCEDURE

This study will take approximately 40 minutes. You will be presented with a list of words to read, and then you will be asked to complete same word stems. You will then be asked to complete same questionnaires about your general health.

CONFIDENTIALITY

All the material will be held in confidence and used only for research purposes. No individual's identity will be revealed.

INFORMED CONSENT

If anything is unclear about the informed consent form or any aspect of the study, now or in the near future, please do not hesitate to ask one of the researchers.

I have read the above description of the study and agree to take part. I understand that I may refuse to answer any questions and also stop being in the study, at any time, without prejudice to my present or future treatment.

Signature.....

Please print your name.....

Date.....