

**Cognitive Bias in Patients with Anger Control Problems  
and the Effect of Treatment on Cognitive Appraisals.**

**& Research Portfolio**

**Part One**

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Submitted in partial fulfilment towards the degree of Doctorate in Clinical Psychology, Department of Psychological Medicine, Faculty of Medicine, University of Glasgow.

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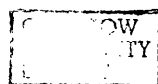
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## **Chapter 1:**

Small Scale Service Related Project:

### **An Evaluation of the Perceived Implementation of an Outpatient Charter.**

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Prepared in accordance with guidelines for submission to

*Health Bulletin* (Appendix 1A).



## **An evaluation of the perceived implementation of an outpatient charter.**

### **Abstract:**

**Objective:** The principal objective of the study was an assessment of the extent to which standards laid down in an outpatient charter were being implemented.

**Design:** A random sample of new patients was approached and asked to complete a brief questionnaire that focused on issues relevant to a recently devised outpatient charter. A second section to the questionnaire asked patients to rate the importance of options for future improvements to the service. Staff at the clinic completed a related questionnaire to assess their knowledge of the standards in the charter.

**Setting:** A forensic outpatient clinic in Glasgow, Scotland was the setting for this study. The clinic houses departments of psychology, psychiatry and social work, all of which were assessed.

**Participants:** Forty-eight patients attending a forensic outpatient clinic completed a brief questionnaire. Fourteen staff completed a related questionnaire.

**Results:** The general results were that in the vast majority of cases the standards laid down in the charter were being successfully adhered to within the clinic. Few variations were found between departments, and in the main all staff were aware of the standards in the charter. Improvements to the service considered important by patients included having an hour to discuss their problems and being seen by a senior member of staff for their first appointment. The option of an evening appointment was of considerably less importance.

**Conclusion:** The standards laid down in the outpatient charter were in general being fulfilled. Several improvements to the service were identified.

### **Introduction:**

Consumer opinion has become an increasingly important facet of today's health service. The publication of the Griffiths Report in 1983 was one of the first clear directives highlighting the need for the NHS to solicit patients' views and utilise them in the formation of subsequent policy (DHSS, 1983). The importance placed on this policy was further emphasised in a White Paper titled "*Working for Patients*" published in 1989 (DoH, 1989). However it is perhaps the publication of the "*Patient's Charter*" in 1991, which brought the notion of accountability of health service staff fully into the public consciousness (NHSS, 1991). The Patient's Charter was widely publicised and had at its core the notion of placing patients first, through the identification of key targets and standards. As a result, health services have acknowledged they are now more accountable to patients who expect a certain quality of care. To this end, the Greater Glasgow Community and Mental Health Services NHS Trust, within which the current study was conducted, is currently developing a "clinical effectiveness" strategy, demonstrating the importance placed on evaluating the service provided to patients.

The main focus of consumer evaluation research to date has been the issue of patient satisfaction. While an area of merit, it has become clear that the issue of satisfaction is a rather diffuse one in need of clarification. Stallard & Chadwick (1991), for example, have highlighted the importance of being precise regarding the definition of satisfaction, as a general rating of "satisfied" reveals little of substance.

Alongside the issue of what is meant by satisfaction, comes the question regarding the high rates of satisfaction found in most studies of this nature. Lebow (1983), for example cites a satisfaction mean of 78.3% in a review of outpatient surveys. If taken at face value this provides the response health care workers would desire; however that might be to ignore likely acquiescence. Clearly if a patient is asked by his therapist about the quality of treatment he is receiving, he is perhaps unlikely to provide a negative evaluation. Williams (1994) goes further by describing the concept of "medical paternalism," whereby

the patient believes those in authority know best, and therefore when asked their opinion on the service do not fully accept the legitimacy of their own view. In other words the patient does not feel either justified or qualified in commenting on the service they have received and so responds only in a positive tone.

In order to counter some of this positive bias a key requirement in any patient evaluation study is the use of an independent data gatherer (Polowczyk et al., 1993). Bond et al. (1992) highlighted the importance of an independent interviewer unconnected with treatment to encourage patients to respond more honestly. A further related issue worthy of consideration is the argument that as surveys are not constructed by patients themselves, they reflect only those aspects of the service which the supplier construes as important (Canter, 1989). It is therefore also valuable to give patients the opportunity to identify other relevant points (Perreault & Leichner, 1993).

Williams (1994) highlights another important consideration, namely the notion of comparative experience, whereby a client's evaluation is likely to be affected by his knowledge of the service and experience of other services. Basically if the patient has no other service with which to make a comparison he is unable to give an informed rating of the current service. This difficulty may be overcome by informing patients of minimum standards and suggesting possible improvements to the service.

The current study attempted to evaluate patient opinion regarding a forensic outpatient clinic. Due to the aforementioned difficulties with a basic satisfaction assessment and the resultant high positive ratings, the current study chose to select a more specific aim rather than general satisfaction. Specific standards for the service under investigation had recently been specified in an "Outpatient Charter" (Appendix 1B), thus the main focus of the current study was an evaluation of the successful implementation of these standards. Possible future alterations to the service were included in the questionnaire to provide patients with suggested areas of improvement to the service. Patients were also offered the opportunity to highlight other relevant issues. In addition to the patient

questionnaire, clinical staff opinions were sought to assess whether all staff were aware of the standards laid down in the charter.

In conclusion, the present study was an attempt to evaluate the implementation of a forensic outpatient charter by asking both patients and staff to give their perception of the service. In addition, options for improving the service were rated by patients to facilitate long-term planning.

### **Method:**

In designing the assessment tool several limiting criteria needed to be taken into account. Firstly, time constraints of both the patients and staff excluded the option of an interview-based component to the study as has been used in some previous studies (Jones & Lodge, 1991; Bond et al., 1992). A second limitation was the potentially significant literacy problems which may be encountered in a forensic setting. McAuliffe & MacLachlan (1992), for example, utilised an unstructured format whereby patients were given general instructions with regard to describing incidents reflecting good and bad service and suggestions for improvements. It was considered that this design was likely to produce a poor response and poor quality data - McAuliffe & MacLachlan (1992) reported a poor response rate from inpatients, outpatients and GPs using this methodology. It was therefore decided to use a brief structured questionnaire incorporating principally categorical and linear classifications. An opportunity for additional comments was also provided (Appendix 1C).

A random sample of 48 new patients were asked to complete the brief questionnaire which covered the majority of standards laid down in the outpatient charter (Appendix 1B) and possible future service options. In order to distance the service evaluation from therapeutic contact, the administrator of the centre approached every third patient and asked him or her if they were willing to complete the questionnaire. To overcome possible literacy difficulties, all participants were offered assistance in completing the questionnaire. Upon

completion of the questionnaire case notes were consulted to provide information on the following patient variables:

- |                                      |                                  |
|--------------------------------------|----------------------------------|
| 1. gender                            | 5. referral agency               |
| 2. age range                         | 6. pre/post trial classification |
| 3. therapist consulted               | 7. nature of referral            |
| 4. victim/perpetrator classification | 8. geographic location           |

All participants who were approached consented to participate in the study. A 100% co-operation rate supports the conclusion that the views are representative, as a high refusal rate may be indicative of a more negative view of the service (Bond et al., 1992).

The majority of staff at the clinic also completed questionnaires designed to assess their knowledge and beliefs regarding the outpatient charter standards (Appendix 1D). Only a sub-sample of senior registrars were used as they outnumbered the other members of staff but did not see proportionally more patients.

### **Results:**

A total of 48 patients - 45 men and 3 women - completed the questionnaire, the sex ratio is considered to be an accurate reflection of the normal distribution for this forensic outpatient clinic. A quarter of patients came from outside Glasgow, with the majority of Glasgow patients resident in the East of the city. With regards to age, patients were evenly distributed between the three age groups - 24 and under, 25 to 39 and 40 and over. It was found that almost half of the patients were referred to the clinic for a court report at the request either of the patient's own solicitor, or more frequently, by the court authorities. Seventy-five per cent of patients could be classified as perpetrators of an offence with the remainder either victims, or, neither perpetrators nor victims.

### Questionnaire Results:

The first section of the patient questionnaire focused on questions related to the outpatient charter.

Question 1 asked whether the patient believed they could change the time or date of their appointment: 79% knew they could do this, 7% stated they could not and the remaining 14% did not know.

Question 2 asked whether they had received a map, directions and details for the clinic: 77% responded they had received the information, 10% stated they had not and 13% did not know. Of those who had received a map, 86.5% had found it useful.

Question 3 asked if the patient had been seen within 30 minutes of their appointment: 85% responded they had, 9% stated they didn't know, and 6% (or 3 participants) recorded that they had not. Two of the three participants who were not seen within 30 minutes reported they had been given an explanation for the delay.

Question 4 asked if the waiting area was clean and tidy: 100% of patients reported it was.

Question 5 concerned the member of staff their appointment was with. The vast majority, 85%, reported the member of staff had introduced themselves but 15% per cent (or 7 participants) of patients either did not know the profession of the person they had seen, or responded incorrectly.

Question 6 asked whether the patient had been treated at the clinic before: 54% had not while 46% had previously used the clinic. Of those who had used the clinic before 38% felt the service had improved, 37% did not know, and 25% felt the service had not improved.

Patients were offered the opportunity to add any further comments, an option which 10% took up. The comments were primarily suggestions for improvements to the waiting room, such as a coffee machine or more magazines. With regard to the section of the questionnaire examining suggested improvements to the service, Table 1 presents the means, standard deviations and range for these data. Median scores are also given, as the mean is often not a good indicator of the central tendency (Tabachnick & Fidell, 1989).

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*Table 1 about here*

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The results presented in Table 1 show that the vast majority of patients would value being seen soon after referral and have an hour to discuss their problems. Fewer patients, but still the majority wish to be seen by a senior member of staff for their first appointment. The final question concerning the opportunity for an evening appointment was not considered very important by many patients - a finding which may differ from a general adult mental health outpatient survey.

#### Departmental Differences:

The next phase of the analysis was an examination of differences between the three departments at the clinic with regard to participant responses. The five questions specifically examining the standards laid down in the charter (questions 1-5) were considered independently for the psychiatry, social work and psychology departments (Figure 1). An examination of the bar graph reveals the only main difference between departments concerns responses to question 2 - only 40% of social work patients reported they had received a map and directions compared to over 70% for the other departments. As the data was nonparametric, differences between the groups were examined using the Mann-Whitney test (Bryman & Cramer, 1994) (Table 2). The differences between departments were all non-significant except for question 2, which showed significantly fewer social work patients received a map and directions to the clinic than psychology patients ( $U = 24.5$ ;  $p < 0.02$ ).

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*Figure 1 about here*

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*Table 2 about here*

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Turning to the suggested improvements to the service, departmental differences were again examined using the Mann-Whitney test. No significant differences were found between the departments, with a similar pattern emerging for each (Figure 2). However, the graph demonstrates that while the option of an evening appointment is rated as the least important improvement by each group, those attending the psychology department rate it higher than those attending either psychiatry or social work departments. The psychology department should therefore consider the possibility of offering an evening appointment.

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*Figure 2 about here*

---

Reason for Referral:

The reason for referral was also examined in more detail through a comparison of those referred for a court report, versus those referred for treatment, to assess whether this affected patient perception of the clinic. No significant differences were found between the groups either for their responses to the questions on the standards in the charter, or their ratings for improvements to the service.

Staff Questionnaire:

Staff completed a related questionnaire that focused on the specific standards laid down in the outpatient charter. A total of 14 staff completed the questionnaire from the psychology, psychiatry and social work departments. Results were as follows, 93% of staff believed patients would be aware they could change the time or date of their appointment, while 64% believed all patients received a map, directions and brief details about the clinic - 29% did



not know and one member of staff said “no”. Eighty-six per cent of staff reported they always saw patients within 30 minutes of their appointment. The two members of staff who reported they did not always fulfil this standard, stated that between 90 and 95% of patients were seen within 30 minutes, and the remainder were always given an explanation for the delay. The most agreement was for the final question regarding whether the member of staff always introduced themselves to a new patient with all 14 responses stating they did.

### **Discussion:**

Analysis of the responses to the patient questionnaire, clearly demonstrates that on the whole the standards laid down in the outpatient charter have been successfully implemented. Responses to the first five questions, which ask about specific standards in the charter, were responded to positively by over 75% of patients. When the departments were considered individually - with the exception of the response to one question by social work patients - the departments showed a homogeneous pattern of positive responses. Similarly when the nature of the referral was taken into consideration no significant differences in response were found.

With regard to the improvements to the service, the vast majority of patients wished to be seen within two weeks of their referral, to be seen by a senior member of staff, with their first appointment lasting an hour. The option of an evening appointment was considered less important, producing a median score of 23, compared to 80 and over for the other options.

Turning to the staff questionnaires, it is clear that the vast majority of staff are fully aware of the contents of the outpatient charter and have fully implemented it. In comparison with the findings of the patient questionnaire one area of discrepancy surrounds the question of members of staff introducing themselves. While all staff reported they always introduced themselves, six per cent of patients stated the member of staff did not introduce themselves and a total of 14.5% either did not know or stated incorrectly the profession of the therapist

seen. This clearly has potentially far-reaching implications for treatment and is an area where improvements might be made.

Other improvements suggested by the findings of this study are that the clinic should consider introducing measures by which patients can be seen faster, by a senior member of staff with an hour appointment. Consideration could also be given to improving facilities on offer to patients in the reception area.

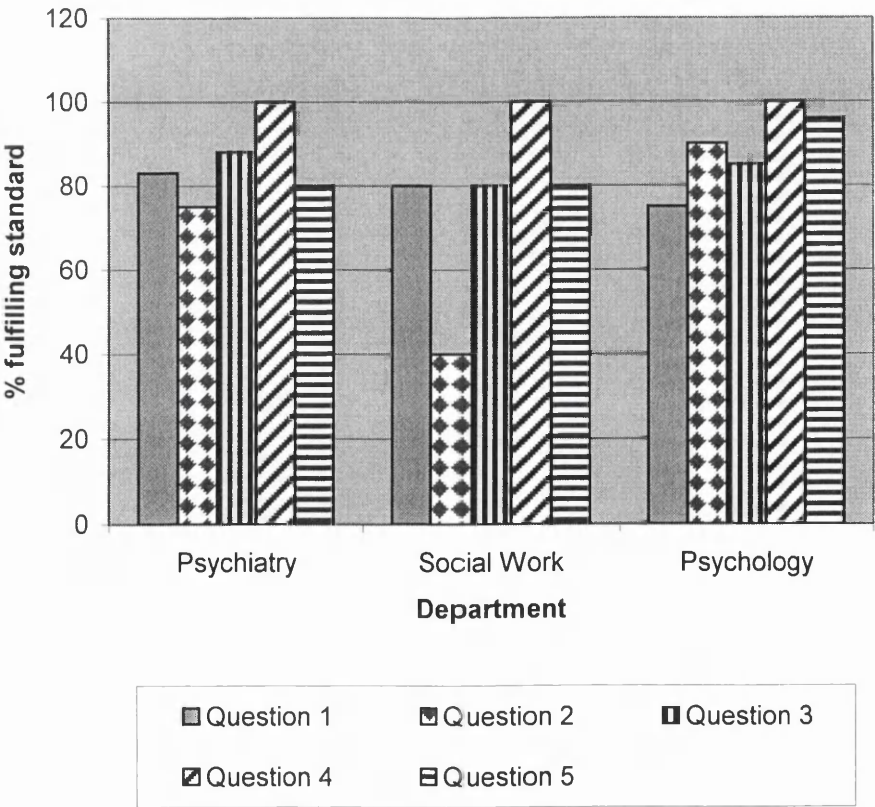
The above study provided a valuable indicator of the extent to which charter standards were being adhered to in the clinic and highlighted improvements patients would like to see. As a result of these findings, a further study is recommended to assess whether standards are being maintained and to provide a more detailed examination of patient satisfaction. Two design changes would be suggested as a result of this study. Firstly, with only 48 participants global conclusions cannot be drawn from this study, thus a larger sample size is recommended to confirm the above findings. Secondly, a semi-structured interview with each participant is suggested instead of a questionnaire. In the present study, while participants were given the opportunity to add further suggestions for improvements to the service, only ten per cent of the sample utilised this option. Although more time-consuming, a semi-structured interview may yield a more detailed picture of patient opinion.

In conclusion, the present study provided a useful first phase examination of the adherence to charter standards, and identified improvements patients would like to see at the clinic. There is now a need for further research to confirm the findings and expand the knowledge base on patient satisfaction with the service provided by the clinic.

**Table 1: Central tendency scores**

<u>Variable</u>	<u>Mean</u>	<u>Median</u>	<u>S.D.</u>	<u>Range</u>
Seen within 2 weeks of referral	83.65	90	16.55	41-100
One hour first appointment	81.83	91.5	22.45	0-100
Seen by senior member of staff	69.35	80	29.66	0-100
Option of evening appointment	36.96	23	36.38	0-100

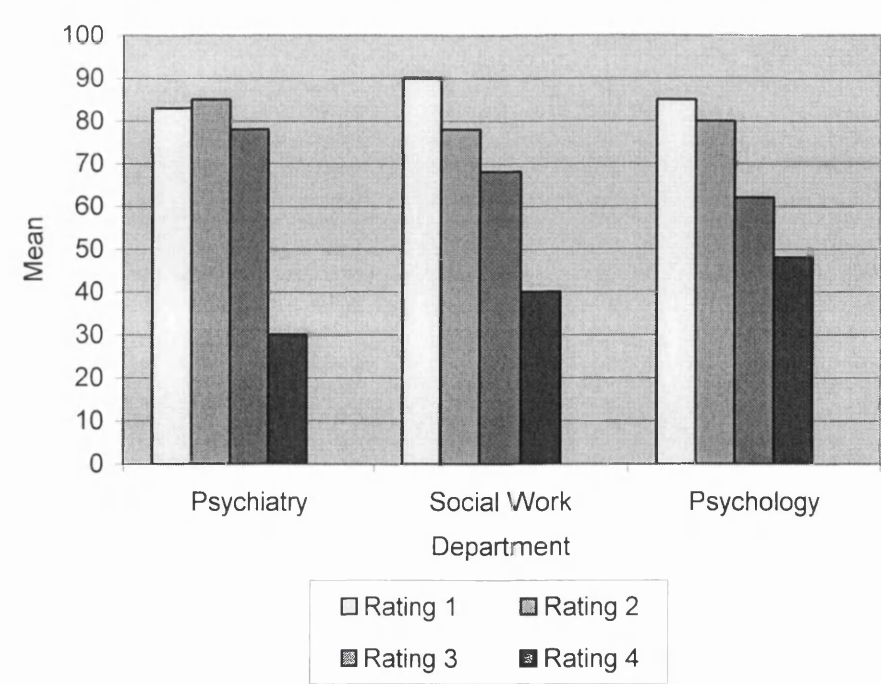
**Figure 1: Departmental differences on adherence to charter standards**



**Table 2: Mean rank and significance of comparisons between departments**

	Psychiatry	Social Work	Psychology	Mann Whitney U	Signif. p
Question 1	15.08	14.6		58	n.s.
	22.83		20.95	208	n.s.
		13	12.37	45	n.s.
Question 2	15.75	11.4		42	n.s.
	20.58		23.79	194	n.s.
		7.9	13.71	24.5	0.02
Question 3	15.15	14.3		56.5	n.s.
	22.31		21.61	220.5	n.s.
		12.3	12.55	46.5	n.s.
Question 4	15	15		60	n.s.
	22		22	228	n.s.
		12.5	12.5	46.5	n.s.
Question 5	14.92	15.4		58	n.s.
	20.56		23.82	193.5	n.s.
		11.2	12.84	41	n.s.

**Figure 2: Departmental differences on improvements to services**



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## **Chapter 2:**

Major Research Project Literature Review:

### **The Role of Cognitive Processes in Anger Control Problems.**

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Prepared in accordance with guidelines for submission to  
*Legal & Criminological Psychology* (Appendix 2).

## **The Role of Cognitive Processes in Anger Control Problems**

### **Abstract:**

The treatment of those with anger control problems has evolved from cognitive-behavioural interventions for other disorders of emotion. Thus, anger management treatment involves identifying the cognitive, behavioural and affective components of anger. Inherent within the cognitive component of anger management is the hypothesis that those with an anger control problem display a cognitive bias. Specifically, it is argued that those with anger control problems show a cognitive bias that manifests as a predisposition to interpret situations as hostile. It is suggested that this cognitive bias plays a central role in aggressive behaviour. As yet however, there is a marked lack of empirical evidence to support the hypothesis. The hypothesis is discussed and methodological issues related to testing it are highlighted, and a paradigm suggested.



### **Introduction:**

Anger management is a burgeoning area of both forensic and general adult clinical practice. In the last 20 years significant progress has been made in the development of treatment packages, with the work of Raymond Novaco particularly prominent (Novaco, 1994a; 1976a). The theoretical basis for the treatment of anger problems has been discussed at length in the literature but has received little empirical investigation. In particular, the notion of a cognitive bias existing in those with anger problems is reported, but there is a lack of empirical evidence to support the existence of this bias in an adult clinical population (Copello & Tata, 1990; Dodge, 1980; Novaco, 1994b).

### **Anger & Aggression**

Anger is a subjective state of emotional arousal which can be associated with aggression (Howells, 1989). However, the relationship is not causal, rather anger “*has a mutually influenced relationship with aggression, but it is neither necessary nor sufficient for aggression to occur*” (p. 33) (Novaco, 1994a). Anger is a powerful but normal human emotion, which has valid functions such as communication, or defending oneself against perceived threat (Novaco, 1976). Averill (1983) cited several studies that indicate most people report becoming mildly to moderately angry at least several times per week. Similarly, Oatley & Duncan (1994) on asking participants to record their emotions, found anger was the most frequently recorded emotion, but it had the lowest mean intensity and shortest duration in a diary-based study using the general population. Anger is therefore an emotion experienced on a regular basis by the majority of the population. However heightened anger alone is unlikely to prompt a referral for clinical intervention. Rather it is one of the behavioural expressions for this emotion, namely aggression, which usually precipitates the referral; thus the external behavioural expression of the emotion is most pertinent in a clinical setting.

It has been argued that whether aggression follows anger is due to a range of contributing stimuli such as environmental influences, cognitive perceptions, and

expected outcomes (Novaco, 1976). All cultures have rules for displaying anger, which are learnt through socialisation (Lemerise & Dodge, 1993). Individuals learn when, how and with whom they may show anger and failure to learn these rules leads to peer rejection. It has been suggested that those with anger control problems develop a cognitive bias through dysfunctional family relations, poor early socialisation and/or conditioning experiences, however as yet evidence in support of this is limited (Blackburn, 1988; Feindler, 1990; Lyons-Ruth, 1996).

There is some evidence that childhood levels of aggression may be correlated with adult levels of aggression. Huesmann & Eron (1984) in a longitudinal study of some 22 years duration demonstrated that aggressive behaviour is a stable trait. They suggest aggressive behaviour is derived from a “script” in childhood that determines how the individual will respond to particular environmental events. Loeber & Hay (1997) have taken this further with their notion of developmental pathways whereby they attempt to link childhood factors to adult outcomes. At present this is still a largely theoretical concept and is likely to result in a large number of false positives and false negatives, but nevertheless it supports the notion of aggression being a stable trait. Studies examining consistency across the life-span have found an average correlation between childhood aggression and adult aggression of .63 which is similar to that found for intelligence over time (Olweus, 1979). The longitudinal studies reviewed by Olweus (1979) utilised a range of methodologies including direct behavioural observation, peer and self-report. Participants were school children with follow-up periods ranging from 9 months to over 20 years. There were wide variations in the definition of aggression with some studies including both physical and verbal aggression but stability across time was consistently found. Thus, there is evidence to suggest that aggression is relatively constant across the life span.

### **Psychological Theories of Anger**

A number of psychological theories have attempted to provide an explanation for

the link between anger and aggression. In the 1950's and 60's aggression was considered to be caused by frustration with Berkowitz (1983) in particular developing the early theory of Dollard and associates (Dollard, Doob, Miller, Mowrer, & Sears, 1939). The frustration-aggression hypothesis suggested that frustration - the blocking of goal directed behaviours - produced arousal (anger) which in turn motivated, or drove, the aggressive behaviour. Whilst useful in shaping the notion of a link between arousal and aggression, the frustration-aggression theory is limited as it fails to explain the cause of all aggressive events. Social learning theory postulates that aggression is the result of the modelling, observation and reinforcement of aggressive behaviour (Bandura, 1983). According to this theory, one of the key ways a person learns to respond aggressively to a range of situations is by copying the actions of others. However, social learning theory does not explain why some individuals exposed to aggressive modelling do not utilise aggression themselves (Novaco, 1994b).

Cognitive therapy is undoubtedly the most dominant theory at present with regard to disorders of emotion, dominating both the theoretical and treatment fields. At the beginning of the 1980's a number of psychologists working independently produced remarkably similar theories of cognitive appraisal to explain emotional reactions (Frijda, 1993; Forgas, 1993; Weiner, 1990). Researchers have differed in the specifics of appraisal theory with some for example arguing for the need to differentiate primary and secondary appraisals, but the key components of the theory are basically the same. According to appraisal theory, appraisal "*serves the important mediational role of linking emotional responses to environmental circumstances on the one hand, and personal goals and beliefs on the other*" (p. 234) (Smith & Lazarus, 1993). In other words, according to this theory it is the meaning or interpretation of the event for the individual which is important in determining a person's emotional reaction (Frijda, 1993). This explains why the same event can produce different emotions in different people as it may have a different meaning for each individual. Lazarus attempted to test appraisal theory in the laboratory with student participants and found some evidence that cognitive processes influence an individual's emotional response to an event (Williams, Watts, MacLeod, &

Mathews, 1997). At present however, with regard to anger, much of the work is theoretical. Nevertheless, the limited empirical evidence has not stopped researchers utilising cognitive theory in treatment packages for anger problems, with researchers drawing on the extensive literature on other disorders of emotion namely anxiety and depression to provide the foundation. Given the emphasis placed on the cognitive component of most anger management treatments, the lack of research into cognitive processing with regard to anger is remarkable (Novaco, 1994a).

### **The Treatment of Anger Control Problems**

The treatment model devised by Raymond Novaco draws heavily on research into the emotional disorders of anxiety and depression. Novaco identified four components that combine to produce an anger reaction namely, an externalised triggering event, cognitive processing, anger arousal including physiological responses, and behavioural responses. These components are believed to interact within a bi-directional reciprocal relationship, with levels of anger influencing levels of aggression and vice versa (Novaco, 1994a). Novaco's treatment model has been tested using both group and single-case design with a range of participants (Black, Cullen, Dickens, & Turnbull, 1988; Stermac, 1986). There are three stages, namely an educational stage, a skill acquisition stage where cognitive, behavioural and affective skills are learnt, and finally a testing stage where the new skills are tested in a range of role play and in vivo situations (Novaco, 1994a). While generally considered to be the best treatment programme currently available, Novaco's package was developed primarily with a non-clinical population and as yet no large scale studies have been published to demonstrate its efficacy with clinical populations. Of particular relevance to the current study, the presence of a cognitive bias is central to the treatment package but its existence has yet to be demonstrated with a clinical population.

### **Cognitive Bias**

Developed from research into anxiety and depression, a cognitive bias in relation

to anger is suggested to comprise of a bias towards hostile interpretations of situations and in particular ambiguous situations, which then increases the risk of the individual displaying aggressive behaviour (Copello & Tata, 1990). The notion of a cognitive bias has been widely reported and seems a plausible interpretation of the thinking pattern in those with anger control difficulties. However the lack of empirical evidence to support this position severely hampers the utility of this hypothesis for treatment purposes (Copello & Tata, 1990; Novaco, 1994b). Clearly more research is required to confirm the presence of a cognitive bias, describe its nature and assess the extent to which it can be altered through anger management treatment.

Not surprisingly, studies that have attempted to assess cognitive bias in those with anger control difficulties have tended to draw on the paradigms used in studies of other disorders of emotion. Vignettes have been frequently used in studies of anxiety and depression but these are problematic (Parkinson & Manstead, 1993). How closely does reading a story for example, generate the same reaction that an *in vivo* experience would produce. As Parkinson & Manstead (1993) highlight how easy is it to accurately generate the emotional response required when asked to imagine someone close to you is dying. Other paradigms used in the study of depression and anxiety include dichotic listening tests; homophones and the Stroop test (McNally, unpub; Mogg, Bradley, Millar, & White, 1995). However these tests are somewhat abstract and results are rather inconclusive.

Ambiguous material paradigms have been used in several studies with anxious and depressed patients to investigate cognitive bias with consistent findings emerging. Eysenck, Mogg, May, Richards, & Mathews, (1991) for example, compared pre and post treatment anxiety patients with normal controls using ambiguous material. They found the pre-treatment group showed a greater tendency to interpret ambiguous sentences in a more threatening manner on a subsequent recognition task than either the post treatment or control groups. This suggests that anxiety patients have a cognitive bias and moreover that this bias can be reduced to normal levels by treatment. Similar results have been

found in a number of studies with a range of anxiety disorders (Harvey, Richards, Dziadosz, & Swindell, 1993; McNally, unpub; McNally & Foa, 1987; Mogg et al., 1995; Westling & Ost, 1995) and depression (Krantz & Hammen, 1979), with this bias appearing to be a genuine interpretative bias rather than a response bias. Ambiguous material paradigms have also been used in some of the few studies investigating cognitive bias in anger (Copello & Tata, 1990; Dodge, 1980).

### **Methodological Issues**

Researching the emotion of anger generates several methodological issues. Below some of these are examined beginning with the definition and assessment of anger and moving on to the issue of mood induction. Co-morbid and confounding issues will also be mentioned briefly. The discussion will conclude by examining the lack of a research basis of forensic material with regard to anger.

### **Definitions**

There are no objective criteria for defining an anger problem, neither anger nor aggression is included in any of the major diagnostic systems and no clinically validated rating scales are available. While one of the behavioural expressions of anger namely aggression is generally visible, anger per se is inherently a subjective emotion and thus self-report measures are widely used (Novaco, 1994; Tangney, Hill-Barlow, Wagner, Marschall, Borenstein, Sanftner, Mohr & Gramzow, 1996). While the subjective nature of emotion validates the use of self-report measures, they are problematic due to the possible scope for what is known as impression management, by the respondent. As anger is generally negatively perceived by society, this is likely to be particularly problematic for studies in this area. According to a recent paper, social desirability affects self-report ratings “*but the ratings do also demonstrate something of the internal state of the respondents*” (p. 47) (Feldman Barrett, 1996). Self-report ratings should therefore only be used with care. With regard to anger, self-report measures come in two main forms, namely the use of anger diaries to record

real-life situations and questionnaires such as the Novaco Anger Scale (Novaco, 1994b) and the Spielberger State-Trait Anger Scale (Spielberger, 1988).

### Mood Induction

A number of studies of emotional disorders have suggested the mood state should be induced to assess how the individual behaves in the emotion state. In studies of anger however, the induction of a strong anger emotion is likely to cause ethical and safety issues. Fortunately a meta-analysis of studies related to anger has shown that similar results can be found without mood induction “*the underlying processes by which (environmental) cues operate.....are independent of negative affect*” (p. 632) (Carlson, Marcus-Newhall & Miller, 1990). Carlson et al. conclude this implies that cognitive factors alone are sufficient to enhance cue-based aggressiveness (Carlson, Marcus-Newhall & Miller, 1990).

### Confounding & Co-morbid Variables

With regard to confounding and co-morbid issues, in addition to anger responses, any study in this area, which examines cognitive reactions to situations, must control for intelligence (Heilbrun, 1982; Loeber & Hay, 1997; Schonfeld, Shaffer, O'Connor & Portnoy, 1988) and socioeconomic status (Lochman & Dodge, 1994) as possible confounding variables. Intelligence should be controlled for to ensure the aggressive behaviour is not the result of general intellectual deficits (Loeber & Hay, 1997). Socioeconomic status may be a confounding variable as it could influence how an individual displays his anger or which specific situations are likely to antagonise him (Lochman & Dodge, 1994).

Other confounding variables include psychopathy, anxiety and self-esteem. Recent research suggests the emotional reactions of psychopaths may be different from nonpsychopaths, with psychopaths unable to understand or experience emotional events in the same way nonpsychopaths do (Cooke, Forth, & Hare, 1998). Psychopathy should therefore be assessed and controlled for (Hare, 1991). Anxiety is frequently co-morbid with anger, with Rothenberg (1971) suggesting “*both of these phenomena are aspects of a diffuse altered and*

*aroused state*” (p. 90). Rothenberg goes on to argue anxiety occurs when arousal is undirected or triggers a flight response, while anger occurs when arousal is directed at the source (imagined or real) of threat. Moreover, as was discussed above, a cognitive bias has been observed in those with anxiety difficulties. Thus, care must be taken to ensure that any bias found is anger related, rather than the result of co-morbid anxiety. A further confounding variable may be self-esteem, which some authors argue plays a role in the development of aggressive reactions. It is suggested those with low self-esteem have a heightened response to threats to their already fragile ego and hence respond more aggressively (Schoenfeld, 1988). However more recently it has been found that aggressive individuals can often have excessively high self-esteem (Baumeister, Smart & Boden, 1996). This contradiction, together with the lack of any valid measure of this vague concept makes controlling for self-esteem highly problematic (Loeber & Hay, 1997).

### **Anger & Cognitive Bias**

In contrast to studies of other emotions such as depression and anxiety, research and treatment studies of anger have until recently relied almost exclusively on the general population with few attempts to conduct investigations with those who have a clinically identified anger problem (Novaco, 1994a). Dodge and colleagues using school children with non-clinical anger problems have conducted the most extensive work on cognitive bias in relation to anger. Dodge and associates have demonstrated in a number of studies that those identified by peers or teachers as aggressive, consistently show a bias towards aggressive interpretations of ambiguous material (Dodge, 1980; Dodge & Frame, 1981). Specifically, the bias shown by the aggressive boys took the form of attributing hostile intentions to peers rather than neutral or accidental intentions, in ambiguous situations (Dodge & Frame, 1982). The attributional bias was found to mediate the aggressive reactions of the boys and thus it is argued this attributional bias predisposes them to retaliate aggressively in ambiguous situations. Dodge (1980) suggested that as many real life situations are ambiguous, those boys who show this bias attribute hostile intentions to many



more situations and thus are more aggressive. Furthermore, once the child is perceived to be aggressive, his peers will expect him to behave in this way and thus a self-fulfilling prophecy can occur. While the work of Dodge and colleagues has provided a useful foundation for examining cognitive bias, their use of participants without a clinically recognised anger problem makes generalisation to clinical populations problematic.

Turning to clinical studies, Blackburn & Lee-Evans (1985) utilised the Situations-Reactions Inventory of Hostility with a psychopathic population and concluded psychopaths demonstrate a cognitive bias in the form of selectively monitoring for aversive events. The inventory used in this study is however rather transparent and thus may be subject to reporting biases. Moreover the study did not look specifically at those with an identified anger problem. Munro (1995) also used a forensic population and specifically examined aggression - classified on the basis of prison records. She found aggressive young offenders differed from nonaggressive young offenders in their responses to novel, unfamiliar ambiguous social situations. The situations were however contrived and occurred within a prison setting and thus may not accurately generate the participants' normal responses.

Sterling & Edelmenn found both anxiety and anger scenarios induced more anger in a violent psychopathic population compared to a non-violent group indicating a cognitive bias (Sterling & Edelmenn, 1988). Similarly, Copello & Tata (1990) examined violent offenders using ambiguous sentence presentation and found evidence for a cognitive bias in the offender population. However both studies had a relatively small number of participants and did not specifically examine anger. Instead they focused on violence and psychopathy with their means of assessing these criteria somewhat flawed. In assessing psychopathy, Sterling & Edelmenn (1988) used the Socialization scale from the California Psychological Inventory, a measure that is not specifically designed to assess psychopathy and thus fails to examine all the facets of the disorder. Copello & Tata (1990) did not attempt to assess psychopathy formally, instead they relied on the diagnosis appearing in the clinical notes. With regard to the violence

classification, both Sterling & Edelman (1988) and Copello & Tata (1990) classified participants as violent solely by the presence or absence of convictions for aggressive behaviour. Clearly it is possible the control group also behaved aggressively but as yet had not received a criminal conviction for their actions. This hypothesis is supported by the lack of significant differences found in both studies between violent and non-violent offender groups.

In summarising the outcome of a single case study, Howells (1989) concluded those with anger problems perceive “*other people as malevolent and intent on doing him deliberate harm*” (p. 167). This is a similar conclusion to that drawn by Dodge and associates in their research with young boys. However at present there is insufficient empirical evidence of a cognitive bias existing in those with identified anger control problems to draw this conclusion. Moreover, it is unlikely that a distinct bias is present, instead it is more likely those with anger control problems show a significantly stronger bias than the general population - a difference in degree rather than kind.

### **Conclusion**

The treatment of those with anger control difficulties typically utilises a cognitive-behavioural intervention by identifying the cognitive, behavioural and affective components of anger. Developed predominantly from the work of Novaco and colleagues, anger management derives from research into other disorders of emotion in particular anxiety and depression. The cognitive component of anger management implies the presence of a cognitive bias in those with anger control problems. Empirical support for this hypothesis is negligible as anger management treatment was developed primarily with non-clinical populations. The need for empirical testing of the notion of anger control patients having a cognitive bias is clear. A bias has been demonstrated with non-clinical populations of children but as yet no adult clinical sample has been assessed. The central role which cognitive processes are believed to play in anger therefore needs validation.

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## **Chapter 3:**

Major Research Project Proposal:

### **Cognitive Bias in Patients with Anger Control Problems and the Effect of Treatment on Cognitive Appraisals.**

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Prepared in accordance with guidelines in the *D.Clin.Psy.  
Handbook*, based on the application for a mini-project grant in  
Health Service Research (Appendix 3)

### **1.3 Summary**

The current study aims to investigate whether those with anger control problems demonstrate a cognitive bias in their interpretation of ambiguous material. The impact of anger management treatment on cognitive appraisals will also be examined. The study will take place primarily at the Douglas Inch Centre which is a forensic outpatient service, with participants being patients referred for anger management treatment who volunteer to participate in the study. A control group will comprise of members of the general population without an anger problem, who volunteer to participate. Groups will be matched on age, sex and intelligence.

Three separate groups will be sought: a pre-treatment, post-treatment, and control group each with approximately 25 participants. They will be assessed using a range of standard clinical measures. Degree of anger will be assessed using the Novaco Anger Scale (NAS) which assesses the cognitive, behavioural, affective and situational components of anger (Novaco, 1994). The more traditional Spielberger State-Trait Anger Expression Inventory will also be used to corroborate the NAS. Assessment of cognitive bias will be undertaken using ambiguous sentences based on those used by Copello & Tata (1990) with violent offenders. A memory recognition paradigm will be used with the hypothesis that those with anger control problems will show a bias towards violent interpretations of ambiguous material. To ensure cognitive variations between the groups are not due to intelligence, the National Adult Reading Test will also be administered. There is an expectation that degree of anger may co-vary with either psychopathy or anxiety. Psychopaths are believed to have different emotional reactions from others and show a high level of aggression (Hare, 1991), thus a short version of the Psychopathy Checklist Revised (Hart, Cox & Hare, 1995) will be used to assess psychopathy. Anxiety and anger have been found to co-vary in particular with regard to interpretation of threat (Copello & Tata, 1990), thus anxiety will be assessed using the Spielberger Anxiety Inventory.

The findings of this study will aid the development of anger management treatment by assessing the extent of any cognitive bias and the impact of treatment on it, in those with anger problems.

#### **1.4 Introduction**

Anger management treatment programmes are increasing in demand in both forensic and general adult clinical practice. There has been very little empirical research conducted in this field with treatment protocols devised either from a theoretical viewpoint or by drawing on the literature on other emotional states such as anxiety and depression (Novaco, 1994). Anger management treatment by definition involves teaching individuals to control their anger, but a key outcome measure is one of the behavioural expressions of anger, namely aggression. This anger-aggression dichotomy is clearly demonstrated in the literature with social psychology concerned primarily with aggression and cognitive psychology focusing on anger, with little overlap between the areas.

Looking at each of the main research areas in turn, social psychologists are primarily concerned with the antecedents and consequences of aggression and utilise empirical laboratory based studies to assess 'normal' reactions to situations (Forgas, 1993). This research has tended to consider aggression as a behaviour, with the focus mainly on environmental factors, with individual differences being largely ignored. Cognitive psychologists in contrast primarily focus on causal factors of anger and tend to rely on self-report measures from 'normals' (Forgas, 1993). Unlike studies examining the emotions of fear and sadness, which utilise anxious and depressed participants respectively to confirm their hypotheses, studies researching the emotion of anger have relied almost exclusively on 'normals'. There is now a clear need for features from both the social and cognitive fields to be utilised to examine those referred with specific anger-aggression difficulties.

The current study aims at focusing on differences between those referred for difficulties in controlling their anger and those without anger control problems.

The differences between these groups are, it is suggested, due to the appraisals the individual makes of the situations he encounters (Lazarus, 1991). It is argued two appraisals occur, a primary appraisal whereby the relevance of the situation to the individual is determined, and a secondary appraisal where the individual assesses his coping potential or coping resources. Those with anger control difficulties are believed to have a cognitive bias whereby the primary appraisals they make are heavily primed to interpret a wide variety of situations as threatening (Berkowitz, 1983). This interpretation encourages the individual to protect himself through aggressive actions. This theoretical argument has however not been empirically tested with a population with anger control difficulties. The current study is required to confirm empirically that anger management patients demonstrate some form of cognitive bias. In addition, the study will examine whether those who have undergone anger management treatment differ from untreated anger patients in their cognitive interpretations of ambiguous material.

Drawing on the findings of experimental studies into cognitive biases in patients with anxiety or depression, a range of paradigms were considered for the current study. Features of the population in question - a forensic outpatient group - and the design of the study excluded several of the paradigms available, for example educational limitations and possible priming effects for anger situations during treatment. A task that fulfils the above requirements, and has found a cognitive bias for other emotional disorders is a test using ambiguous material (McNally & Foa, 1987). In the few studies to consider forensic populations, ambiguous material was used (Blackburn & Lee-Evans 1985; Copello & Tata 1990; Sterling & Edelman 1988), and consistently found a cognitive bias in offender populations. None of these studies however specifically examined those with an identified anger problem. The current study aims to rectify this by utilising ambiguous sentences in a memory recognition paradigm to determine whether those with identified anger management difficulties demonstrate some form of cognitive bias.

## **1.5 Aims & Hypotheses**

### **Aims**

1. To test for cognitive bias in those referred for anger management treatment compared to a control group.
2. To examine whether treated anger patients show a different level of cognitive bias in their interpretation of ambiguous material compared to untreated patients.

### **Hypotheses**

1. Those referred for anger management treatment will display cognitive bias when compared to a control group.
2. Compared to non-treated anger management patients, treated patients will show a difference in measure of cognitive bias with regard to ambiguous material.

## **1.6 Plan of Investigation**

### **1.6.1 Participants**

Participants will be adult males who volunteer for the study. The number of participants required for the study was determined through power analysis which indicated at least 21 participants per group (Cohen, 1992). Three separate groups, each with approximately 25 participants will be used namely a pre-treatment, post-treatment and control group. The pre- and post- groups will be anger management referrals to a forensic outpatient service with the post-treatment group having completed approximately 5 treatment sessions. The control group will be members of the general population without a recognised anger problem who volunteer to participate in the study. The control group will be recruited from a range of sources such as youth groups in deprived areas. Groups will be matched on age, sex and intelligence. All participants will be ensured confidentiality and be asked to sign a consent form.

### 1.6.2 Measures

Measures used are all standard clinical measures comprising of interviews, questionnaires and ambiguous material to be interpreted. None of the measures should cause participants any distress, but if this occurs they may withdraw from the study at any time and with his permission, the researcher will contact the participant's clinician to seek further help.

### Experimental Measures

Degree of anger will be measured with a self-report questionnaire, the Novaco Anger Scale (NAS), which measures the cognitive, behavioural and affective components of anger together with a situational section. The NAS is a relatively new measure but is the most promising measure of anger currently available showing good reliability and validity and correlating well with the more traditional Buss-Durkee (Novaco, 1994). As the NAS is a relatively new measure, the Spielberger State-Trait Anger Expression Inventory will be used to corroborate NAS scores. The Spielberger is a more established anger measure but it is limited by its focus primarily on the behavioural components of anger.

Cognitive bias will be assessed using ambiguous sentences based on those used by Copello & Tata (1990) with violent offenders. Participants will be presented with ambiguous sentences, which can be interpreted in either a violent and threatening manner, or, in a non-threatening manner. Additional unambiguous neutral and ambiguous social anxiety sentences will also be presented - social anxiety sentences are incorporated in the study to ensure any threat bias interpretation is not due to anxiety. After completion of a distraction task, participants will be given a memory recognition task where the ambiguous violent sentences will be presented in either a disambiguous violent manner or disambiguous neutral manner. Participants will be asked if the sentence presented has the same meaning as one of the earlier sentences. It is hypothesised that those with anger control problems will show higher recognition rates than the control group, for the violent interpretations.

### Co-variate Measures

Psychopaths are believed to show different emotional responses compared to 'normals,' and there is a greater incidence of psychopathy in forensic populations than in the general population (Hare, 1991). Psychopathy will therefore be assessed using a short version of the Psychopathy Checklist which is specifically designed for use with non-incarcerated individuals (Hart et al., 1995). Anxiety may co-vary with anger if a situation is perceived as threatening (Copello & Tata, 1990), and thus anxiety will be assessed using the Spielberger Anxiety Inventory. The National Adult Reading Test (NART) will be used to facilitate the matching of participant groups on the basis of intelligence. The predictive qualities of the NART were examined by Crawford et al. who concluded the NART "*provides a valid estimate of IQ*" (p. 271) (Crawford et al., 1989a). However, as literacy problems may be an issue with this population, education and occupation details for the participants and his siblings and parents, will be recorded as these also provide a reasonable estimate of IQ (Crawford et al., 1989b). The aforementioned tests are all standard assessment tools with good reliability and validity data available.

#### 1.6.3 Design and Procedure

A quasi-experimental cross-sectional design will be adopted to compare the cognitive appraisals of angry and non angry participants. The study will initially be piloted with a few participants. All participants will volunteer for the study and sign a consent form. Clinical staff at the Douglas Inch Centre will carry out the anger management treatment.

The procedure will be that for every participant the cognitive bias, intelligence, anxiety, psychopathy and anger measure will be administered. All measures apart from the intelligence test will either be played on a tape recorder or read by the experimenter. The study is expected to take one hour per participant. Where possible the pre-treatment group will be followed up after approximately five treatment sessions and reassessed on the anger measures and ambiguous material to facilitate comparisons with the post-treatment group.

#### **1.6.4 Settings and Equipment**

The main setting will be the Douglas Inch Centre, which is a forensic outpatient centre in Glasgow. Participants who will act as controls, will be members of the general population without a recognised anger problem who volunteer to participate. Equipment will consist of the anger, cognitive, intelligence, anxiety and psychopathy measures for each participant and a tape recorder.

#### **1.6.5 Data analysis**

Each participant will be allocated a number, which will be used in all sections of the study to maintain anonymity. Sub-scale scores and total scores for all the measures will be recorded on a spreadsheet and differences between the three groups under investigation examined using the SPSS statistical package. Analyses of variance and covariance will be conducted to compare between group differences with regard to cognitive bias.

### **1.7 Practical applications**

Confirmation of a cognitive bias in those with anger control problems would assist in the development of treatment interventions with this group and provide an objective pre-treatment assessment measure. Confirmation of a reduction in cognitive bias after treatment would provide a valuable objective measure of change after treatment.

### **1.8 Timescales**

January - May 1998	Ethical clearance obtained. Pilot testing completed.
June - December 1998	Testing completed. Literature review.
January - March 1999	Data analysis
April - August 1999	Study prepared for publication



## **1.9 Ethical Approval**

Ethical approval is required from the Greater Glasgow Community and Mental Health Services NHS Trust and will be requested at the beginning of 1998.

## **2.0 Amendments**

As a consequence of a very high through treatment attrition rate, the number of participants recruited for the post-treatment group was curtailed at 12. The pre-treatment and control groups were increased in size - from 25 to 40 participants in each group - to strengthen the study.

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## **Chapter 4:**

Major Research Project:

**Cognitive Bias in Patients with Anger Control  
Problems and the Effect of Treatment on Cognitive  
Appraisals.**

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Prepared in accordance with guidelines for submission to  
*Legal & Criminological Psychology* (Appendix 4).

## **Cognitive Bias in Patients with Anger Control Problems and the Effect of Treatment on Cognitive Appraisals.**

### **Abstract:**

**Purpose:** It has long been thought that those with anger control problems have a cognitive bias, in that they tend to interpret ambiguous situations in a hostile manner. This paper attempts to test this hypothesis using a sample with clinically identified anger control problems.

**Method:** A cross-sectional design was used to compare a group of participants with an identified anger control problem with a control group and a post-treatment group, using an ambiguous material paradigm.

**Results:** The pre-treatment group differed from the control group by displaying a significant cognitive bias for violent material. Findings for the post-treatment group were less conclusive.

**Conclusions:** The study provides empirical evidence for the presence of a cognitive bias in those with a clinically relevant anger control problem. Further research is now required to confirm these findings, and clarify the impact of treatment on cognitive bias.

### **Introduction:**

Anger is a normal human emotion that is experienced on a regular basis by the majority of the population (Oatley & Duncan, 1994). Inability to control this emotion, and in particular the external exhibition of it in the form of aggressive behaviour, can prompt a referral for clinical intervention.

Anger management as a treatment for those with anger control problems, evolved from cognitive-behavioural interventions for other disorders of emotion. Intervention presupposes there are cognitive, behavioural and affective components to the anger control problem, which need addressing (Novaco, 1994b). Intrinsic to the intervention is the notion that those with anger control difficulties have a cognitive bias in relation to anger. It is hypothesised that this can be illustrated by a tendency towards hostile interpretations of situations in general, and ambiguous situations in particular (Copello & Tata, 1990). However although widely used, anger management and in particular its cognitive component, has minimal empirical validation (Novaco, 1994b).

A range of paradigms have been utilised to investigate cognitive bias in relation to disorders of emotion, including vignettes and the Stroop test (Mogg, Bradley, Millar, & White, 1995; Parkinson & Manstead, 1993). With regard to a possible cognitive bias in relation to anger, ambiguous material paradigms have been favoured. This research has however been limited by its failure to test for a cognitive bias in those with an identified anger control problem. While forensic patients have been utilised in two key studies, neither specifically assessed anger or aggression (Copello & Tata, 1990; Sterling & Edelmann, 1988).

The absence of research into the possibility of a cognitive bias, with a clinical population with an identified anger control problem, was clearly demonstrated by a review of the literature (Marshall, 1999).

### **Hypotheses:**

1. Those referred for anger management treatment will display cognitive bias when compared to a control group.
2. Compared to non-treated anger management patients, treated patients will show a difference in measure of cognitive bias with regard to ambiguous material.

### **Method**

#### **Participants**

Forty participants were voluntarily recruited to both the pre-treatment and control groups. For the pre-treatment group, suitable individuals were asked at the end of a general pre-treatment screening interview, if they would be willing to participate in some research. For the control group, potential participants were approached individually and asked whether they would participate. For both groups, all those approached and invited to participate agreed to take part in the study. Only males were assessed in both groups, as anger control problems are seen more frequently in males than females – this is reflected in the referrals for anger management at the forensic outpatient clinic where males exceed females by ten to one. The control group was drawn from a local college where a range of practical vocational courses was available.

Due to a high drop-out rate through treatment, only 12 participants were recruited for the post-treatment group. None of the post-treatment participants had been assessed for a cognitive bias prior to treatment. All members of this group were males who had completed at least six sessions of individual treatment for anger control problems, at the clinic. Patients being treated at the clinic for an anger problem, were approached while attending an outpatient appointment, and asked if they would be willing to participate. All patients who were approached agreed to take part.

## Materials

### Experimental Measures:

Anger was assessed using a variety of methods. Firstly through the clinical interview, examples of incidents of aggression were gathered along with their severity, to assess whether anger was a significant problem. Two self-report measures were then used to provide a numerical rating of anger:

*Novaco Anger Scale (NAS)*: The NAS is a self-report questionnaire, which measures the cognitive, behavioural and affective components of anger. The NAS was used in conjunction with the Novaco Provocation Scale, which identifies situations that provoke an anger response (Novaco, 1999) (Appendix 4C).

*Spielberger Anger Expression Inventory (STAXI)* (Spielberger, 1988): To corroborate scores on the NAS, the more traditional STAXI was used. The STAXI was developed from the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) and provides a useful measure of the frequency of participants' behavioural expression of anger.

*Ambiguous Sentence Paradigm*: Cognitive bias was assessed using a modified version of the ambiguous sentences used by Copello & Tata (1990) (Appendix 4B). Modifications consisted of minor changes to some of the words to make them applicable to a Scottish population. The paradigm uses ambiguous material to assess whether participants show a cognitive bias for aggressive and anxious material, and is comprised of two phases:

- 1) A sentence completion task is used to present the material and ensure participants have read each of the sentences. The task involves presenting participants with fifty incomplete sentences and asking them to select the appropriate word to complete each sentence (e.g. The housewife bought the vegetables at the new....market/tyre). The sentences presented fall into three categories. Firstly, ambiguous sentences that can be interpreted either in a neutral or an aggressive manner (e.g. "The painter drew the knife").

Secondly, ambiguous social anxiety sentences (e.g. “Mark’s speech made everyone giggle”) which were used to ensure any cognitive bias was not due to anxiety; and thirdly, unambiguous sentences which were used to mask the ambiguous sentences.

- 2) A sentence recognition test is then undertaken to assess whether participants demonstrate a bias in their interpretation of the ambiguous sentences, by selecting more hostile than neutral interpretations. This is assessed by removing the ambiguity from the sentences, and asking participants if the sentence presented has a similar meaning to one of the sentences in the sentence completion task. One of two alternative sentence recognition forms (Recognition A and Recognition B in Appendix 4B) are presented to participants. Participants are requested to state positively or negatively whether the sentence has a similar meaning to one of the earlier sentences. The number of positive responses to the hostile and neutral interpretations is recorded.

*National Adult Reading Test (NART)* (Nelson, 1991): The NART was designed to measure pre-morbid intelligence, but it has been shown that it “*provides a valid estimate of IQ*” (p. 271) (Crawford et al., 1989a). The NART was utilised to ensure participants did not differ significantly on the basis of intelligence.

#### Co-morbid Psychopathology

*Spielberger Trait Anxiety Inventory (STAI)* (Spielberger, 1977): Anxiety and anger are thought to co-vary. The STAI, which is a widely known and reliable self-report measure (Oei, Evans & Crook, 1990), was administered to enable anxiety to be controlled for.

*Psychopathy Checklist Short Version (PCL-SV)* (Hart, Cox & Hare, 1995): Psychopaths are believed to show different emotional responses compared to ‘normals,’ and there is a greater incidence of psychopathy in forensic populations than in the general population (Hare, 1991). The PCL-SV was utilised to control for levels of psychopathy, assist in gathering background information, and establish rapport.



### Design and Procedure

A cross-sectional design was used because a high drop-out during treatment did not facilitate follow-up assessments to be completed on the pre-treatment group. A separate post-treatment group was therefore recruited. All participants who were approached agreed to participate in the study.

All participants were assessed individually using similar procedural conditions. To establish rapport and gather relevant background, a tailored interview was conducted with all participants. Patients referred to the clinic with an anger control problem were assessed using a standard clinical screening interview to confirm that their main presenting problem was anger. For the post-treatment group the interview included gathering details of anger control problems prior to treatment, together with details of post-treatment change. The control group interview was similar to the pre-treatment group interview and focussed on ensuring no significant anger control problems were present.

After the tailored initial interviews all participants then completed the experimental measures in the same order, namely: PCL-SV; ambiguous material sentence completion task; NART; ambiguous material recognition task; STAI; STAXI and NAS. All measures apart from the NART were either played on a tape-recorder or read aloud by the interviewer to overcome any literacy difficulties.

### Results:

#### Comprehension of ambiguous sentences

The first phase of the preliminary analysis involved assessing whether participants differed in their understanding of the ambiguous material in the sentence completion task. No group differences were found suggesting participants did not differ in their understanding of the ambiguous sentences [ $F(2,89) = 2.48$ ; n.s.]. In other words for the initial presentation of the ambiguous material, no group differences were found regarding participants' ability to select the correct word to complete the sentence.

Demographics and psychopathology

The second phase of the preliminary analysis involved confirming that no significant group differences were present which may affect the main analyses. Although the number of participants per group were not equal - the post-treatment group having only 12 participants and the control and pre-treatment groups each having 40 participants - an examination of the homogeneity of variance and distribution of scores indicated that Analysis of Variance (ANOVA) calculations could be utilised (Tabachnick & Fidell, 1989). No significant differences in either age or intelligence were found between any of the groups (Table 1). On the measure of psychopathy, all participants were classified in the “low” category and thus no participants had a significant level of psychopathy. The PCL-SV was therefore excluded from subsequent analyses. Significant group differences were found on the measure of anxiety (STAI), with post-hoc Scheffe analyses revealing that the pre-treatment group reported significantly higher ratings of anxiety, than either the control or post-treatment groups. This provides support for the hypothesis that anger and anxiety co-vary, and indicated that anxiety should be controlled for in the main analyses.

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Table 1 about here

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Assessment of Level of Anger Control

Two self-report measures were used to assess anger. In comparing the pre-treatment, post-treatment and control groups, significant group differences were found for the STAXI and for all sections of the NAS – arousal, cognitive, behavioural, and provocation. Post-hoc analyses confirm that the pre-treatment group differed from both the control group and post-treatment group on their level of reported anger (Table 2). In the latest revision of the NAS, measures of anger regulation are included which assess the use of positive anger control measures in the cognitive, behavioural and arousal domain. Significant group differences were again found, suggesting that those with an anger control

problem do not utilise anger reduction techniques. On all the anger measures the post-treatment group differed significantly from the pre-treatment group but was broadly similar to the control group. Post-hoc analyses confirmed that the post-treatment and control group did not differ significantly on self-reported levels of anger. This suggests that the post-treatment group do not have a clinically relevant anger control problem.

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Table 2 about here

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#### Group differences in cognitive bias assessed using ambiguous material

The main phase of the analysis involved testing the hypotheses that had been generated prior to conducting the study. The hypotheses were concerned with investigating cognitive bias by using a sentence recognition memory test to assess how participants interpret ambiguity. The first hypothesis was that the pre-treatment group would display a cognitive bias compared to the control group. The second hypothesis stated that there would be a difference in cognitive bias between the post-treatment and pre-treatment groups. A graphical representation of the data suggested that the violent threat component of the ambiguous material might produce the most significant findings (Figures 1 & 2).

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Figures 1 & 2 about here

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Both of the hypotheses under investigation could be examined using one statistical procedure namely a three-group ANOVA with post-hoc Scheffe calculations (Table 3). As indicated by the graphical presentations of the data, only responses to the violent threat sentences produced significantly different responses between the groups. Post-hoc Scheffe analysis revealed the pre-

treatment group differed significantly from both the post-treatment and control groups, suggesting that prior to treatment a cognitive bias towards violent interpretations of ambiguous material can be found. The post-treatment group was found to be very similar to the control group, indicating an absence of cognitive bias. This could be interpreted as support for the hypothesis that anger management treatment reduces cognitive bias to within normal limits.

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Table 3 about here

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High versus low cognitive anger scores and cognitive bias

Further analyses were conducted to examine the relationship between the cognitive component of reported anger (NAS cognitive) and cognitive bias (Table 4). A median split was made across the sample to categorise all participants as either high or low on level of reported cognitive anger. As the table demonstrates, those scoring highly on the cognitive component of the anger scale, identified violent interpretations to the ambiguous material significantly more frequently than low scorers on this measure. This adds support to the hypothesis that there is a link between reported levels of anger in the cognitive domain and cognitive bias.

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Table 4 about here

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The role of anxiety in anger

During the preliminary analyses significant differences were found between the groups on the anxiety measure. The correlations between the anger measures and anxiety were examined to assess the strength of the relationship between the variables (Table 5).

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Table 5 about here

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As anxiety correlated with the anger measures, a further analysis of variance was conducted where anxiety was co-varied to ascertain its role in the findings reported above assessing cognitive bias. Anxiety was controlled for in further analyses of both the group differences (pre-treatment, post-treatment and control groups), and the high versus low cognitive anger analyses. In the analysis of group differences, a significant main effect for group was found [ $F(2,88) = 13.89$ ;  $p < 0.00$ ], indicated that the variations in responses to the violent threat sentences were still present when anxiety was controlled for. In other words, the pre-treatment group still differed significantly from both the post-treatment and control groups on cognitive bias when anxiety was controlled for. Similarly when anxiety was controlled for in the assessment of high versus low cognitive anger scores, the significant main effect found for high scorers on this measure was still observed [ $F(2,88) = 14.89$ ;  $p < 0.00$ ]. This suggests that while anxiety may play a role in the cognitive bias found for the violent interpretations of ambiguous material, the anger component is still crucial.

**Discussion:**

In the present study, an ambiguous material paradigm was utilised to test the hypothesis that those with anger control problems would show a cognitive bias. In addition, a second hypothesis was tested, albeit with a smaller group of participants, to test for a cognitive bias after treatment. Regarding the first hypothesis, the present study found significant differences in responses to anger interpretations of ambiguous material between the pre-treatment and control groups, suggesting that those with an anger control problem are more likely to interpret ambiguous sentences in a hostile manner. This finding is consistent with the work of Dodge and colleagues (Dodge & Frame, 1982). Dodge and

colleagues consistently found that boys identified by peers and teachers as the most aggressive, showed an attributional bias in their interpretations of ambiguous situations (Dodge & Newman, 1981). Specifically, they showed a tendency to interpret ambiguous situations as hostile and responded aggressively to them. The findings of the present study provide support for the notion that there is a need to examine cognitions in treatment.

The second hypothesis considered was an examination of the impact treatment has on cognitive bias. The present study found significant differences in comparisons of the pre-treatment and post-treatment scores on both the reported anger and anxiety measures, suggesting anger management reduces reported levels of anger and anxiety. With regard to the ambiguous material paradigm used to examine cognitive bias, the pre-treatment and post-treatment groups differed significantly on the measure of violent threat. The post-treatment group resembled the control group suggesting an absence of cognitive bias after treatment. Treatment may therefore have had some effect on reducing cognitive bias and bringing it nearer to normal limits. However it must be emphasised that for the post-treatment group, no measure of cognitive bias had been taken prior to treatment. Thus an alternative explanation could be that an absence of cognitive bias predicts completion of anger management treatment, with those with a cognitive bias dropping out of treatment. Clearly further research is required to examine the impact of treatment on cognitive bias.

The present study controlled for age, intelligence, psychopathy and anxiety. No significant differences were found between the groups on age, psychopathy or intelligence. The absence of significant differences in intelligence between the groups suggests that the differences found for the ambiguous material appear to be the result of a cognitive bias with regard to anger, rather than variations in intelligence. Regarding group differences on self-reported anxiety, two findings were of interest. Firstly, the pre-treatment group reported significantly higher anxiety scores than either the control or post-treatment groups. This suggests anxiety may co-vary with anger and thus may play a role in aggressive actions. However, when anxiety was controlled for, group differences remained

indicating that anxiety alone does not explain aggressive outcomes. The second finding of note regarding anxiety was that the post-treatment group reported anxiety scores within normal limits. Due to the cross-sectional design of this study there are two possible explanations for this. Firstly, anxiety may have been reduced by treatment, as anxiety management is part of the treatment for anger control problems. Secondly, as rates of anxiety prior to treatment are unknown for the post-treatment group, it is possible that they may never have displayed an anxiety problem. This second explanation could also be the reason for the high through treatment drop-out found in anger control treatment - perhaps those with co-morbid anger and anxiety problems abandon treatment more readily than those with anger control problems alone. Clearly further research is required to test these hypotheses.

While the current study provides the first empirical data to support the hypothesis of a cognitive bias in those with a clinically relevant anger control problem, it is but the first phase of research in this area. The study is in need of replication to confirm the findings, perhaps utilising a different paradigm such as the Stroop test. Moreover as the post-treatment group was relatively small, there is a need for a more extensive investigation into the impact of treatment on anger control problems. In addition, a longitudinal rather than a cross-sectional design should be used to assess evidence of change over time in the nature and extent of the bias. The results of the present study may for example, be due to fundamental differences between the pre-treatment and post-treatment groups, as there is no means of confirming that the post-treatment group displayed a cognitive bias prior to treatment. More research is also required to identify the stage at which the cognitive bias occurs. The bias could occur at the encoding stage or during retrieval of the information or somewhere in between. This may have implications for treatment, but as yet no paradigm is available which is sensitive enough to specify the exact stage.

The current study provides valuable support for the notion of a cognitive component to anger control problems. However, hostile cognitive bias alone is clearly insufficient to cause an aggressive reaction. While the individual may

interpret a situation as hostile, he still has a number of options for dealing with it not least walking away - cognitive bias is but one factor contributing to an aggressive outcome. Thus it must be emphasised that treatment should include behavioural and arousal retraining, as well as addressing any cognitive bias, if the likelihood of an aggressive outcome is to be reduced.

In conclusion, the current findings suggest that those with anger control problems are more likely to interpret ambiguous situations – which frequently arise in every day life – as hostile, and hence ascribe aggressive interpretations to them. Blackburn & Lee-Evans suggest those who show a cognitive bias appear to “*selectively monitor aversive events*” (p. 99), especially when the event has a measure of ambiguity (Blackburn & Lee-Evans, 1985) with this tendency to see the world as a hostile, threatening place increasing the likelihood of aggressive behaviour. For those with a clinically identified anger control problem, the findings of the present study also indicate that the cognitive bias may be reduced by treatment, but the evidence is not conclusive and thus requires further examination.



**Table 1: Demographic and psychopathology group differences**

	Pre-treatment (n=40) Mean (S.D.)	Control (n=40) Mean (S.D.)	Post-treatment (n=12) Mean (S.D.)	Significance ANOVA
Age	34.10 (9.10)	32.93 (6.78)	35.5 (7.59)	F(2,91)=0.54,n.s.
NART	101.58 (9.11)	104.90 (7.94)	98.42 (8.74)	F(2,91)= 3.10; n.s.
Anxiety	53.18 (10.32)	35.63 (7.13)	39.42 (5.58)	F(2,91)=44.12; p<0.001
* Post-hoc Scheffe analyses showed the pre-treatment group anxiety scores were significantly different than both the control group and the post-treatment group anxiety scores.				

**Table 2: Group differences on anger measures:**

	Pre-treatment (n=40) Mean (S.D.)	Control (n=40) Mean (S.D.)	Post-treatment (n=12) Mean (S.D.)	Significance ANOVA
STAXI	50.58 (7.8)	19.20 (4.9)	23.17 (5.7)	F(2,89) = 201.3**
NAS (cognitive)	36.70 (4.5)	26.83 (3.8)	27.25 (4.2)	F(2,89) = 66.72**
NAS (behaviour)	41.38 (5.3)	22.38 (4.9)	21.33 (4.5)	F(2,89) = 165.77**
NAS (arousal)	39.38 (3.7)	24.03 (4.0)	25.08 (4.9)	F(2,89) = 160.95**
NAS (provocation)	69.28 (10.7)	56.30 (11.74)	59.58 (8.0)	F(2,89) = 15.47**
NAS (positive)	19.02 (3.1)	26.23 (3.2)	27.50 (2.5)	F(2,89) = 96.10**
				**p<0.001
* Post-hoc Scheffe analyses showed that all pre-treatment group anger scores were significantly different than both the control group and the post-treatment group anger scores.				

**Table 3: Differences between treatment groups and control group on responses to ambiguous sentences**

	Pre-treatment (n=40) Mean (S.D.)	Control (n=40) Mean (S.D.)	Post-treatment (n=12) Mean (S.D.)	Significance ANOVA
Violent threat	2.63 (1.2)	1.28 (0.9)	1.58 (0.9)	F(2,89)=19.53; p<0.001
Violent no threat	2.73 (1.2)	2.70 (1.24)	3.17 (1.4)	F(2,89)= 0.78, n.s.
Anxiety Threat	2.38 (1.3)	1.88 (1.2)	2.42 (0.9)	F(2,89)= 2.14, n.s.
Anxiety no threat	2.60 (1.2)	2.70 (1.3)	3.00 (1.3)	F(2,89)= 1.37, n.s.

\* Post-hoc Scheffe analyses showed the pre-treatment group scores on the violent threat component were significantly different than both the control group and the post-treatment group scores on violent threat.

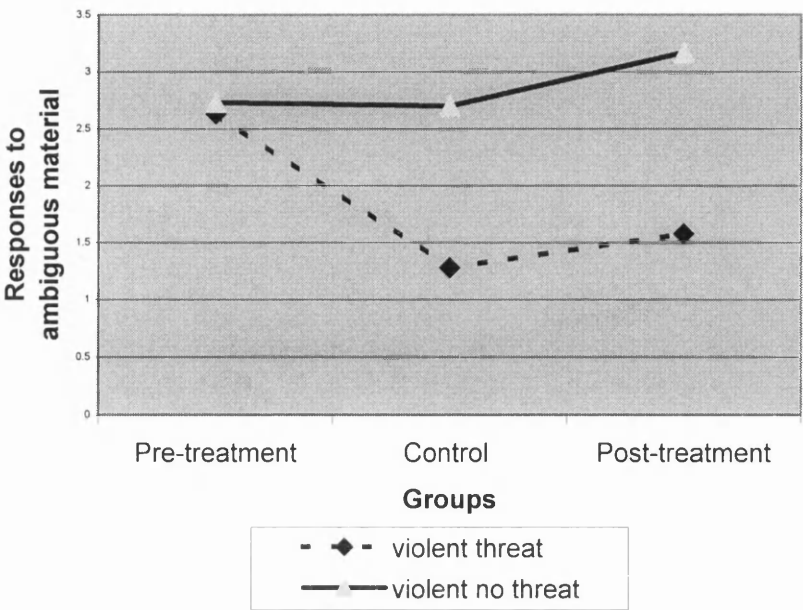
**Table 4: Differences between high and low cognitive anger scorers on responses to ambiguous sentences**

	High NAS cognitive (n = 46) Mean (S.D.)	Low NAS cognitive (n = 46) Mean (S.D.)	Significance t
Violent threat	2.59 (1.1)	1.21 (0.9)	t(90) = 6.92; p<0.001
Violent no threat	2.89 (1.1)	2.65 (1.3)	t(90) = 0.97; n.s.
Anxiety threat	2.46 (1.3)	1.87 (1.2)	t(90) = 2.43; n.s.
Anxiety no threat	2.80 (1.1)	2.85 (1.2)	t(90) = 0.18; n.s.

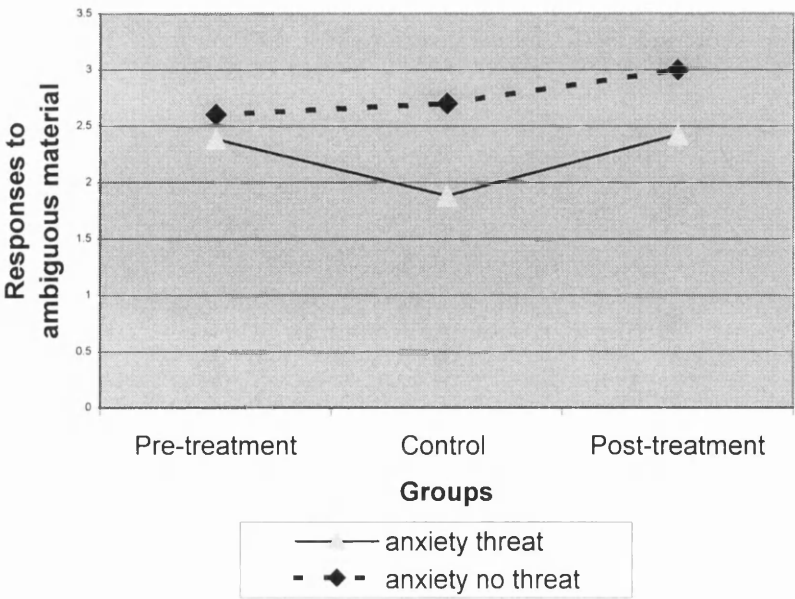
**Table 5: Correlations between anger and anxiety measures**

	STAXI	NAS (arousal)	NAS (behaviour)	NAS (cognitive)	NAS (provocation)
STAI (Anxiety)	0.70*	0.70*	0.64*	0.70*	0.70*
STAXI	*	0.93*	0.92*	0.81*	0.65*
NAS (arousal)	*	*	0.92*	0.88*	0.67*
NAS (behaviour)	*	*	*	0.86*	0.59*
NAS (cognitive)	*	*	*	*	0.64*
					*p<0.01

**Figure 1: Group differences on responses to ambiguous material (violent threat & violent no threat interpretations)**



**Figure 2: Group differences on responses to ambiguous material (anxiety threat & anxiety no threat interpretations)**



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## **Chapter 5:**

Clinical Case Research Study Abstract (I):

### **Differential Diagnosis: Asperger's Disorder** **Masquerading as Obsessive Compulsive Disorder**

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Prepared in accordance with guidelines for submission  
to *Disability and Society* (Appendix 5).

## **Differential Diagnosis: Asperger's Disorder masquerading as Obsessive-Compulsive Disorder.**

### **Abstract**

The criteria for diagnosing Asperger's Disorder have been subject to debate for over 50 years, with as yet, no agreed diagnostic criterion identified. The differential diagnosis of Asperger's Disorder involves disorders of anxiety and other pervasive developmental disorders. With regard to disorders of anxiety, salient symptoms such as the use of rituals, can mask some of the subtler deficits of Asperger's Disorder such as speech and language abnormalities. The case presented demonstrates that the compulsive features frequently observed in those with Asperger's Disorder can be confused with Obsessive-Compulsive Disorder unless a comprehensive clinical assessment and full differential diagnosis is undertaken.



## **Chapter 6:**

Clinical Case Research Study Abstract (II):

### **Co-morbid Overanxious Disorder of Childhood and Sleep Disorder – A Single Case Study.**

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Prepared in accordance with guidelines for submission to  
*Clinical Child Psychology and Psychiatry* (Appendix 6).

**Co-morbid Overanxious Disorder of Childhood and Sleep  
Disorder– A Single Case Study.**

**Abstract:**

A single case study is presented to demonstrate the need to accurately differentiate symptoms and recognise co-morbid diagnoses that require different clinical interventions. Co-morbid diagnoses of sleep disorder and Overanxious Disorder of Childhood were found which although both anxiety related, manifested differing onset and maintaining factors. Standard anxiety management treatment incorporating challenges to cognitive thinking errors, decreased the overall level of anxiety being experienced, but had little impact on the sleep disorder. A specific stimulus control intervention along with sleep hygiene techniques decreased the time taken for the child to fall asleep. At three-month follow up treatment gains had been maintained.

## **Chapter 7:**

Clinical Case Research Study Abstract (III):

### **The Impact on Lifestyle and the Importance of Rewards in Establishing Controlled Drinking.**

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Prepared in accordance with guidelines for submission to  
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## **The Impact on Lifestyle and the Importance of Rewards in Establishing Controlled Drinking.**

### **Abstract:**

The last thirty years has seen an expansion in the treatments available for those with alcohol problems. The single case study presented addresses a neglected area of treatment, namely the effect reducing alcohol consumption has on the individual's lifestyle. The establishment of a controlled drinking pattern necessitates major changes in lifestyle as the time filled each day by drinking is greatly reduced. The need to address these changes during treatment is highlighted, together with the importance of identifying positive alternative activities to reinforce and maintain change. A standard cognitive-behavioural approach was adopted incorporating elements of relapse prevention. In addition, treatment focused on identifying both alternative activities to drinking alcohol and rewards for complying with treatment goals. This broad approach to treatment resulted in an outcome of drinking within recommended limits.