INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

**Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600**

UMI[®]

NOTE TO USERS

Page(s) not included in the original manuscript are unavailable from the author or university. The manuscript was microfilmed as received.

96

This reproduction is the best copy available.

UMI

Socially Desirable Responding in the Context of
Self-Report Anger Measures in a Forensic Setting

Lynda A. Robertson

A thesis submitted to the
Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy

Department of Psychology

Carleton University

Ottawa, Canada

November, 1998

© Lynda A. Robertson, 1998

**National Library
of Canada**

**Acquisitions and
Bibliographic Services**

**395 Wellington Street
Ottawa ON K1A 0N4
Canada**

**Bibliothèque nationale
du Canada**

**Acquisitions et
services bibliographiques**

**395, rue Wellington
Ottawa ON K1A 0N4
Canada**

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-42805-2

Canada

The undersigned recommend to the
Faculty of Graduate Studies and Research
Acceptance of the thesis:

**“Socially Desirable Responding in the Context of Self-Report Anger Measures in a
Forensic Setting”**

submitted by

Lynda Robertson

in Partial fulfillment of the requirements for
the degree of Doctor of Philosophy

A handwritten signature in black ink, appearing to be 'L. Robertson', written over a horizontal line.

Chair

A handwritten signature in black ink, appearing to be 'D. Smith', written over a horizontal line.

External Examiner

A handwritten signature in black ink, appearing to be 'A. P. ...', written over a horizontal line.

Thesis Supervisor

Carleton University
December, 1998

Abstract

This research project explored the relationship between socially desirable responding and responses to self-report measures of anger. The major purpose was to determine the extent to which responses to these commonly used anger measures can be distorted by the socially desirable response bias. The latter was measured with the Balanced Inventory of Desirable Responding, while a variety of established self-report measures of anger were included. Two groups of offenders incarcerated in a provincial correctional facility participated in the study. The first was composed of 62 inmates participating in an anger management treatment program. They completed a battery of psychological measures that included the Balanced Inventory of Desirable Responding and the self-report anger measures before and after treatment. For purposes of comparison, 31 inmates from the correctional facility who did not participate in the treatment program completed the same battery on two occasions separated by a five week interval corresponding to the duration of the treatment program.

In accordance with predictions, significant negative correlations between Balanced Inventory of Desirable Responding scores and the self-report anger measures were obtained for both groups at pretest and posttest. However, the significant treatment gains in self-report anger scores observed for the Treatment group relative to the Comparison group were maintained even with controls for socially desirable responding. Additional analyses indicated that the predictive validity of the self-report anger measures where assessed against external measures was reduced rather than enhanced with controls for

socially desirable responding. These findings underscore the importance of establishing on a case-by-case basis whether socially desirable responding contributes to contamination of self-report measures or reflects character information relevant to the construct under study. The thesis concludes with a discussion of the practical and research implications of these and other results, particularly with reference to offender populations.

Acknowledgments

This thesis would not have been possible without the thoughtful and caring actions of others. Special thanks are due to my academic advisors, David Robinson and Don Andrews, for their expert help. I also thank the dissertation committee which included Drs. Firestone, Fried, Saunders, and Simourd. I would also like to express my gratitude to the treatment staff at Rideau Correctional and Treatment Centre for their assistance with the study, namely Dr. Barb Armstrong, Dr. Hugh Marquis, Bernie Goguen, Dr. Guy Bourgon, Dr. Chris Holmes, and Liz Rivera.

I have been blessed with wonderfully supportive family and friends who have provided me with inspiration, guidance, and encouragement throughout this entire project. Thanks to my parents, Marjorie and Heber, and my sister Joyce for their endless support. Thanks to my best-friend and companion, Robert Hoge, for all his kindness, good humour, and love. Alas, together we can finally move on to new challenges. Thanks also to Tom and Charlie.

This dissertation is dedicated to four very special women in my life. First and foremost, this work is dedicated to my mother and close friend, Marjorie, who by example taught each of her children to pursue their dreams and to stay the course in the face of adversity. This project is also dedicated to my sister, Joyce, for whom I have great love and respect, and to my younger sister Natalie, who has brought much energy, joy, and inspiration into our family. Finally, this project is dedicated to my grandmother, Susan Garrett, who in her 94th year continues to live independently in the farm house

where she was born in rural Prince Edward Island. Gram, you continue to inspire all who know you with your grace and dignity.

Table of Contents

Introduction	1
Literature Review	2
Historical Background on Socially Desirable Responding Measures	3
Assessment of Self-Deceptive Enhancement and Impression Management	5
Early Measures of Impression Management	8
Early Measures of Self-Deceptive Enhancement	8
Recent Developments in the Measurement of Self-Deceptive Enhancement	9
The Empirical Relationship of Self-Deceptive Enhancement and Impression Management	11
Recommendations for the Measurement of Socially Desirable Responding	14
SDR and Measures of Anger and Aggression	17
Cognitive-Behavioural Approaches to the Treatment of Anger in Offender Populations	34
Purpose of the Present Study	47

Method	53
Participants	53
Procedure	54
Treatment	54
Measures	55
Results	63
Subject Attrition	63
Equivalence of Groups	64
Descriptive Statistics and Psychometric Analyses	70
Analyses of the Relationship Between SDR and Self-Report	84
Anger and Criminal Sentiments Measures	
Analyses of the Effects of the Treatment Interventions	107
Discussion	140
Conclusions	159
Limitations and Directions for Future Research	160
References	163
Appendices	183

List of Appendices

- Appendix A Recruitment Notice Form**
- Appendix A-1 Informed Consent Form: Treatment Group**
- Appendix A-2 Informed Consent Form: Comparison Group**
- Appendix B Balanced Inventory of Desirable Responding**
- Appendix C Reactions to Provocation Scale**
- Appendix D Multidimensional Anger Inventory**
- Appendix E Anger and Emotions Questionnaire**
- Appendix F Rideau Anger Inventory**
- Appendix G Criminal Sentiments Scale**
- Appendix H Instructor Post-Program Evaluation Form**
- Appendix I Participant Treatment Evaluation Questionnaire**
- Appendix J Univariate F-Tests of Significant Differences Between The Nine Anger Management Groups on Change Scores for All Variables**
- Appendix K Inter-Correlations of Anger Measures on Posttest for Treatment and Comparison Groups**
- Appendix L Balanced Inventory of Desirable Responding: Significance Tests for Simple Main Effects**
- Appendix M Novaco Reactions to Provocation Scale Part A Domain Subscales: Significance Tests for Simple Main Effects**
- Appendix N Multivariate and Univariate F Values for Novaco Reactions to Provocation Subscale Scores: Group, Trials, and Group X Trials Interactions**
- Appendix O Novacao Reactions to Provocation Subscale Scores: Significance Tests for Simple Main Effects**
- Appendix P Novaco Reactions to Provocation Sale Part B and Rideau Anger Inventory: Significance Tests for Simple Main Effects**

Appendix Q	Multidimensional Anger Inventory - Siegel: Significance Tests for Simple Main Effects
Appendix R	Multivariate and Univariate F Values for the Multidimensional Anger Inventory - Revised: Groups, Trials, and Group X Trials Interactions
Appendix S	Multidimensional Anger Inventory - Revised: Means and Standard Deviations by Groups and Trials
Appendix T	Multidimensional Anger Inventory - Revised: Significance Tests for Simple Main Effects
Appendix U	Anger and Emotions Questionnaire: Significance Tests for Simple Main Effects
Appendix V	Criminal Sentiments Scale: Significance Tests for Simple Main Effects
Appendix W	Rideau Anger Inventory Scores by Group and Risk Level
Appendix X	A Comparison of the F Statistic on all Change Scores Before (ANOVA) and After (ANCOVA) Controls for Group Difference Variables
Appendix Y	ANCOVAS of Change Scores with Pretest and Posttest Self-Deceptive Enhancement Scores as Covariates: All Measures

Socially Desirable Responding in the Context of Self-Report Anger Measures in a Forensic Setting

A goal in psychological assessment is to achieve the most accurate measurement of personal attributes. However, because all self-report instruments are open to a range of response biases (Wrightsman, 1977), assessments involving self-reports are invariably haunted by the possibility of misrepresentation. For example, the inherent "desirability" of some personal qualities (eg., intelligence, honesty) raises skepticism regarding the validity and reliability of self-reports. Thus, it seems imprudent to disregard the possibility that some respondents systematically distort their self-reports.

Response bias is a generic term for a whole range of responses to interviews, surveys or questionnaires where respondents systematically respond to a range of questions on some basis other than what the questions were designed to measure. Some examples of response biases include socially desirable responding or faking good, malingering or faking bad (or mad); and acquiescence (Anastasi, 1988).

The terms faking, lying, and dissimulation are synonymous; each of these terms refers to the case where the respondent is concealing the truth by willfully providing an ingenious response. Faking, lying, and dissimulating refer specifically to those occasions when a respondent is deliberately giving a false response in order to create a specific impression (e.g., that he or she is ill or merits

a job). In contrast, socially desirable responding refers specifically to one sort of faking: the presentation of oneself in a positive light.

To the extent that an individual displays a particular response strategy, such as socially desirable responding, consistently across time, situations, and instruments, the bias is said to be a response style (Jackson & Messick, 1958; Wiggins, 1973).

The focus of this research project was restricted to one of the most prominently studied response biases: socially desirable responding (SDR). Specifically, the study examined the pattern of relationships between socially desirable responding and measures of self-report anger and antisocial attitudes in an inmate population. This relationship was examined before and after inmates had been exposed to an anger management intervention. For purposes of comparison, a second group of inmates not participating in any correctional program were included to explore the relationship between self-report anger and attitude measures and socially desirable responding within a no treatment context.

Literature Review

A review of the literature on the development of measures of socially desirable responding highlights the different forms of this bias and the different instruments that have been developed to measure each. A second body of literature examines the relationships between self-report and nonself-report measures of anger and aggression and socially desirable responding in the general

population, as well as in forensic populations. Third, a review of the literature on the evaluation of cognitive-behavioural anger management programs is presented.

Historical Background on Socially Desirable Response Measures

The potential for socially desirable responding to contaminate self-report personality questionnaires continues to spark controversy and debate among scholars (e.g., Cohen & Lefkowitz, 1974; Dicken, 1963; Gough, 1947; Paulhus, 1984; Sackeim & Gur, 1978). The empirical literature supports the contention that people's reports of their own traits, attitudes, emotions, and behaviour may involve systematic biases that are consistent with SDR (e.g., Clark & Tiff, 1966; Knudson, Pope, & Irish, 1967; Phillips & Clancy, 1972; Sigall & Page, 1971). Despite the evidence that SDR bias can make interpretation of self-report instruments difficult, controversy prevails as researchers in the field continue to disagree on the pervasiveness and seriousness of the contamination caused by this type of response bias, as well as about when and how to correct or control for the problem.

SDR has been defined as the tendency of individuals to present themselves favourably with respect to social norms. The issue of the effects of SDR on the validity of questionnaires was first addressed over 60 years ago by, among others, Bernreuter (1933), Hartshorne and May (1928) and Veron (1934). Later, Meehl and Hathway (1946) were able to cite eight measures specifically developed to index SDR in self-reports.

The wealth of literature on SDR attests to the concern held by many psychologists that SDR is a major threat to accurate assessment and should be controlled (e.g., Bernreuter, 1933; Edwards, 1957; Ellis, 1946; Jackson & Messick, 1962; Meehl & Hathaway, 1946). These concerns continue to remain salient (Flett, Blankstein, Pliner & Bator, 1988; Kroner & Reddon, 1994; Paulhus & Levitt, 1987; Sackeim & Gur, 1979; Taylor & Brown, 1988). An equally vocal group of psychologists argues that the correlation between SDR and content scales does not indicate a need for control. Instead, these psychologists propose that such dimensions are more substance than style (Block, 1965; Heilbrun, 1964; McCrae & Costa, 1983). That is, SDR should be considered a reflection of a personality trait in its own right, not merely a response bias that confounds the measurement of other traits. From this perspective, scales that measure SDR are better interpreted as measures of substantive traits and as such, they are of little use in correcting scores from other scales. In fact, there is some evidence to suggest that controlling for SDR in the measurement of some personal attributes can actually decrease predictive validity (Hogan, 1996; Kriedt & Dawson, 1961). Nonetheless, the issue remains unresolved in the personality assessment literature with regard to the debate over conceptualizing SDR as either "style" or "substantive trait": whether SDR should be routinely controlled during the development and administration of self-report instruments.

To a large extent, this controversy has been resolved by reformulating the definition of SDR to include two components rather than a single construct (Paulhus, 1984). The term impression management represents a motivated presentation of a false front, such as deliberately falsifying test responses to create a favourable impression on some audience. In contrast, the term self-deceptive enhancement refers to the unconscious tendency to see oneself in a favourable light, which yields socially desirable, positively biased self-descriptions that the respondent actually believes to be true. Although researchers have made vague references to this distinction over the years, until recently its conceptual potential has been underestimated (Paulhus 1984, 1986; Sackeim & Gur, 1978). This distinction yields surprisingly straight-forward solutions to the lingering questions regarding the issue of control.

Assessment of Self-Deception and Impression Management

A variety of methodologies have been employed to assess socially desirable responding. One approach involves selecting statements that have been rated by judges as having extremely high (or extremely low) desirability values (Edwards, 1957). Other instruments were developed on a rational basis: asking questions that biased respondents should answer in a predictable way. Some examples of these measures include the Marlowe-Crowne Social Desirability Scale (MCSD: Crowne & Marlowe, 1964), the Self- and Other-Deception Questionnaires (Sackeim & Gur, 1978), and the MMPI Lie Scale (Hathaway &

McKinley, 1943). Some instruments, such as the Wiggins SD Scale (Wiggins, 1959) and Ruch's Honesty Scale (Ruch, 1941), were developed by retaining from a pool of items only those items that could clearly differentiate between respondents who were giving a "look-good" response set and those who were not. The most recent method involves comparing scores on a social desirability inventory under normal conditions with scores under bogus pipeline conditions (i.e., where the respondent is hooked up to what he or she is told is a lie detector apparatus when in actuality the apparatus is bogus) (Millham & Kellogg, 1980).

Given the wide array of methodologies employed in the development of these scales, it seems reasonable to anticipate some systematic relation between method of scale development and the nature of the resulting measure of desirable responding. In fact, this variability in methods of scale development may help account for the frequently observed low correlations among SDR scales (Paulhus, 1986). In addition, the various SDR scales may be grouped according to their respective relatedness to either impression management (i.e., where the respondent consciously dissimulates) or to self-deception (i.e., where the respondent actually believes his or her overly positive self-reports) (Paulhus, 1984). However, for the most part, scale developers have not made a direct connection between the methods used to develop the scale and the nature of the SDR construct they were attempting to measure.

Early Measures of Impression Management.

Most of the instruments designed to assess individual differences in SDR seem to be directed at impression management. Notions of conscious, purposeful deception of others are what typically constitute the definition of impression management. In some cases, the tendencies to deceive others and to manage one's impression may be a situation-induced temporary state. On the other hand, certain individuals may habitually and purposely present themselves as good and desirable people. Examples of instruments designed to measure impression management include the Honesty Scale (Ruch, 1941), the MMPI Lie Scale (Hathaway & McKinley, 1943), the Eysenck Personality Inventory Lie Scale (Eysenck & Eysenck, 1964), the Faking Scale for 16PF (Winder, O'Dell & Karson, 1975), the Positive Malinger (Mp) Scale (Cofer, Chance & Judson, 1949), Catell's (1965) Unwillingness to Admit Frailties Scale, and Ling's Lie Scale (Kusyszyn & Jackson, 1968).

Discourse on these constructs tends to focus on the respondent's motivated and purposeful intent to fool the test administrator. The respondent's behaviour is assumed to be instrumental, aimed at winning a job, or impressing an evaluator whose favour is highly valued and sought.

Other measures have been developed to assess the degree to which the tendency to engage in impression management is an enduring characteristic of the

respondent. The high scorer's behaviour is not instrumental to some other purpose but is directed at getting the target to like them as a nice, upright, healthy person. These include the MCSD (Crowne & Marlowe, 1964), and Synder's Self-Monitoring Scale (Synder, 1974).

Early Measures of Self-Deception

High scorers on self-deception have a less conscious tendency to see themselves in a favourable light or attempt to look good to themselves. It is postulated that the positive bias is driven by the need of at least some individuals to protect their self-beliefs, as well as maintain their self-esteem.

In the early 1940's, the developers of the MMPI were designing validity scales to identify individuals with systematic tendencies to bias or distort responses. As noted under the Impression Management subsection, Hathaway and McKinley (1943) constructed the MMPI Lie Scale as an instrument to be effective at detecting extreme, consciously motivated tendencies to fake good. A counterpart to the Lie scale, the K scale, was subsequently developed. The K scale was designed to detect more common and often unconscious varieties of defensiveness (Meehl & Hathaway, 1946). Although the empirical literature confirms that the K scale is distinct from the Lie scale, the research to date has failed to clarify its conceptual meaning (e.g., Gynther & Brilliant, 1968; Heilbrun, 1964; Palmer, 1970). The K scale appears to be measuring self-deception, but this relationship has not been established empirically.

Later, a series of scales (Cattell, 1965; Cattell, Horn, Sweney & Radcliffe, 1964; Schanberger, 1967) was developed to assess the biasing effects of motivation on self-reports. One of these scales is believed to measure autism. Autism is defined by Cattell and associates as the tendency to perceive reality as one wishes and in a way that makes one comfortable. However, due to Cattell's (1965) comments that autism is a "mostly" conscious form of self-enhancement and that it is equivalent to an eccentric, impracticable style of thinking, the nature of the relationship between this construct and self-deception remains obscure.

At about the same time, Messick and Jackson (1968) designed the Desirability Scale to measure bias in self-regard (see also Kusyszyn & Jackson, 1968). Unfortunately, the authors do not report any psychometric or validity studies on this scale. Consequently, the relationship between this scale and self-deception has not been empirically established.

Recent Developments in the Measurement of Self-Deception and Impression Management.

The first self-report instruments designed specifically for measuring self-deception and impression management were developed by Sackeim and Gur (Gur & Sackeim, 1979; Sackeim, 1983). The Self-Deception Questionnaire (SDQ) contains 20 items, with content derived from the psychoanalytic tradition, that reflect threatening thoughts and feelings that everyone is assumed to have experienced at some point but that some people repudiate (e.g., "Have you ever

felt hatred towards your parents?"). A critical feature of these items is that no one but the respondent could possibly know the truth value of the responses; the events described in these items are entirely intrapsychic and unavailable to outside observers. Thus, the authors argue that any bias evident under fully anonymous conditions must reflect the respondent's honestly held beliefs because only the respondent can know the "truth" value of the statement.

In contrast, Sackeim and Gur's Other-Deception Questionnaire (ODQ) contains 20 items concerning overt behaviours that are socially desirable but statistically infrequent and for which the respondent would have an accurate memory (e.g., "Do you always tell the truth?"). Hence, it would be difficult for an individual to deny to him- or herself the undesirable behaviours described in these items. Thus, any exaggerated claims are likely to be directed at an audience. Other-deception and impression management are synonymous constructs in that they both involve respondents engaging in conscious and motivated attempts to present a favourable picture of themselves to others.

A distinguishing aspect of the SDQ and ODQ, as measures of SDR, is that respondents answer by marking a seven-point Likert scale anchored by "not at all" (1) to "very much so" (7), but scoring is dichotomous. A point is awarded for self-deception and impression management only for extreme denial of the threatening thought or undesirable behaviour (i.e., a response of "1" or "2"). Thus, scores on the SDQ and ODQ provide an index of systematic exaggeration in denying

threatening thoughts and feelings or undesirable behaviours. The convergent and divergent validities of these scales have been supported in a series of experimental and correlational studies (Gur & Sackeim, 1978, 1979; Paulhus, 1982).

The bulk of empirical studies utilizing either the SDQ or the ODQ have used the original 20 items of each scale. These items were rationally devised but not statistically refined. Moreover, the original keying was negative for all items, thus confusing both self-deception and impression management scores with acquiescence. The psychometric shortcomings associated with the SDQ and ODQ have been rectified in a more recent instrument called the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1984). Both scales now have balanced keys, and items with low part/whole correlations have been replaced. Hence, the BIDR, which is currently in its sixth edition (1989), is comprised of two scales, Self-Deceptive Enhancement and Impression Management.

The Empirical Relations of Self-Deception and Impression Management

The partitioning of social desirability scales into clusters around two distinct factors, termed self-deception and impression management, was based on the theoretical rationales provided by the various scale developers. That is, the scales discussed within the "impression management" domain were conceived to measure similar constructs and likewise for those discussed under "self-deception". Factor analytic studies have supported this partitioning with some notable exceptions.

A small number of early factor analytic studies explored the underlying structure of SDR measures (Edwards & Walsh, 1964; Jackson & Messick, 1962; Liberty, Lunneborg & Atkinson, 1964; Wiggins, 1964). Wiggins uncovered one SDR factor, later labeled “Alpha”, which included the MMPI Social Desirability scale (Edwards SD: Edwards, 1957) and the MMPI K scale. A second SDR factor, later labeled “Gamma”, included the MMPI Lie scale and the Positive Malinger Scale. The implications of this finding is that social desirability scales do not converge on one underlying construct but diverge into two factors that are consistent with the conceptual partitioning into self-deception and impression management outlined previously. This finding has been replicated (e.g. Edwards & Walsh, 1964; Jackson & Messick, 1962; Liberty et al. 1964; Paulhus, 1984).

In their review of this literature, Damarin and Messick (1965) put forth a forceful and empirically grounded argument for dichotomizing available measures of SDR on the basis of their respective relationships to conscious and unconscious positive self-regard. “Propagandistic bias” was the term coined by these authors to capture the tendency to employ a purposeful, systematic distortion aimed at a specific audience (earlier identified as Gamma). “Autistic bias” refers to the tendency to distort self-perception to be consistent with personal attitudes (earlier identified as Alpha). Damarin and Messick (1965) were the first to argue that Alpha factor represented an unconscious evaluative bias and agreed with others in

interpreting the Gamma factor as deliberate falsification (Edwards, Diers & Waller, 1962; Jackson & Messick, 1962).

Compelling evidence for the validity of the two-factor model comes from several studies reported by Paulhus (Paulhus, 1984). In one of the studies, an exploratory factor analysis was performed on a battery of social desirability scales that included both lie scales and self-deception measures. This study extended previous ones by including the two additional SDR scales developed by Sackeim & Gur: namely, the SDQ and the ODQ.

As in previous studies, the Edwards SD scale, Block's (1965) Ego-Resiliency Scale and Byrne's (1964) Repression Sensitization Scale loaded on the Alpha factor; the SDQ had the highest loading on this factor and therefore was labeled Self-deception. Likewise, the Wiggins SD Scale and the Eysenck Personality Inventory Lie Scale loaded with the Gamma factor. Moreover, the ODQ emerged with the highest loading on the Gamma factor and was subsequently labeled impression management. The MCSD loaded highly on both factors, indicating that its original designation as a lie scale was overly simplistic.

In another study (Paulhus, 1984) a confirmatory factor analysis demonstrated further evidence for the two-factor model of impression management and self-deception. Finally, a third study by Paulhus (1984) provided additional empirical support for the interpretation of Alpha and Gamma as self-deception and impression management respectively. In this study, respondents

completed the battery of SDR measures either under anonymous conditions (i.e., in a large group testing situation where no names were requested) or public conditions (i.e., in small groups where individuals were required to identify themselves by name, so that the experimenters could check the answers of each individual). In line with the investigator's predictions, scores on the ODQ were the most sensitive to the situational demand of public versus private disclosure. In contrast, responses to all measures related to self-deception were less sensitive to the change from private to public disclosure. In general, results indicated that responses to all measures loading high on the impression management factor were significantly more socially desirable in the public condition than in the anonymous condition. Thus, impression management as measured by the ODQ is very sensitive to situational changes in the demand for a positive self-presentation. Together these studies show that the widely used SDR scales reflect various combinations of self-deception and impression management processes.

Recommendations for the Measurement of Socially Desirable Responding

The most often used SDR measure, the MCSD, simultaneously measures self-deception and impression management (Paulhus, 1984). Unfortunately, the MCSD cannot be split easily into two subscales because many items load on both factors. Because the MCSD provides an imperfect measure of each component, it will underestimate relationships with either one. In its place, separate determination of impression management and self-deception, using the Balanced

Inventory of Desirable Responding (BIDR; a modified form of the Self-Deception Questionnaire, SDQ and Other-Deception Questionnaire, ODQ) is recommended.

As detailed earlier, Paulhus (1984) addressed a number of psychometric deficiencies in the SDQ and ODQ while developing the BIDR. The inventory is comprised of two rationally developed scales: Self-Deceptive Enhancement (SDE) and Impression Management (IM). In a factor analytic study, Paulhus and Reid (1991) found that denial items on the SDQ loaded more closely with the ODQ items or impression management than with the self-deceptive items. Thus, Paulhus' more recent version of the SDQ scale (1988) has an emphasis on exaggerated claims of positive, cognitive attributes (overconfidence in one's judgements, ego-enhancing) rather than denying psychologically threatening thoughts or feelings (ego-defensive) (e.g., I am a completely rational person). This scale is called the Self-Deceptive Enhancement (SDE) Scale. The Impression Management (IM) Scale was developed on the assumption that some respondents systematically over-report engaging in socially acceptable but infrequently occurring behaviours (e.g., I don't gossip about other people's business). Because the items on the impression management scale tap overt behaviours for which the respondent should have an accurate memory, any distortion is assumed to reflect a motivated falsehood.

Self-deceptive enhancement has been linked to a number adjustment measures. High scorers on self-deceptive enhancement tend to report high self-

esteem, social extroversion, achievement motivation, optimism, and illusion of control, as well as low neuroticism, depression, anxiety, and emotional distress (for review see Paulhus, 1986). Consequently, the control of self-deceptive enhancement in measuring any of these constructs will undermine predictive validity. That is, because it confounds with adjustment, self-deceptive enhancement should never be controlled in assessing adjustment-related constructs.

In contrast, impression management contaminates the interpretation of self-reports. However, the problem is not so great in anonymous assessment situations (e.g., laboratory studies with students), but in practical applications in clinical settings or personnel selection, where anonymity is impossible (Paulhus, 1986). That is, when self-report inventories are comprised of items that are undisguised with respect to "desirability", individuals who score high on these measures should also score high on impression management. In these cases, one can simply consider the protocols invalid or use sophisticated statistical techniques to partial out the variance/contamination due to impression management.

SDR and Measures of Anger and Aggression

As noted earlier, the detection and correction of SDR bias continues to be an issue of great concern to psychologists (Jackson & Messick, 1962; McCrae & Costa, 1983; Paulhus, 1984; Wiggins, 1973). Nonetheless, because of the high cost of behavioural observation and physiological measurement, there is a growing tendency to rely on self-report measures in all fields (e.g., Caldwell-Colbert & Robinson, 1984). The fact that the validity of self-report measures may be reduced by contamination with SDR (Fiske & Pearson, 1970) means that the increased reliance on self-report measures is done at an expense to validity. The magnitude of the threat to validity has been linked to a number of factors, including the nature of the construct being measured, the face validity of the items used to measure the construct, the population being sampled, and a variety of situational factors including degree of anonymity and purpose of the assessment.

The assessment of forensic clients is one example of a situation where reliance on self-report measures is likely to be fraught with factors that are known to enhance the risk of SDR. Specifically, the powerful situational "demand characteristics" (Orne, 1962) inherent in assessing forensic clients makes it an instance where the intention to enhance one's image could take precedence over honest responding and result in an overly positive profile. That is, the accuracy of offenders' self-reports in a forensic setting may be questionable due to use of self-deception and/or impression management strategies. Given that offenders in a

forensic setting may respond to inventories in an effort to create a favourable picture of themselves to avoid negative judgements (Gendreau, Irvine, & Knights, 1973). inventories that are comprised of items with obvious (i.e., high face validity) rather than subtle (low face validity) content are likely to be more open to this type of dissimulation or distortion, particularly when the construct being measured is considered to be negative.

Saunders (1991) points out that researchers and clinicians in the field of interpersonal violence and anger must also take care to evaluate the extent to which they can trust self-reports because the emotions and behaviours that concern them are heavily laden with an element of social disapproval. Compounding this problem is the fact that much of the assessment and research in the area of interpersonal violence and anger is done with forensic populations. Hence, it is here that the potential for SDR to contaminate self-reports of anger and interpersonal violence is likely to be particularly salient.

To recapitulate, SDR occurs when individuals provide responses that they hope will be socially approved. Respondents who score high on measures of SDR are trying to "look good" or to make a good impression. SDR may be intentional, as in the case of impression management, or unintentional, as in the case of self-deception. Furthermore, bias of this sort is more likely for behaviours and emotions that are considered to be socially unacceptable or high in social disapproval, such as anger and interpersonal violence. Other types of response

bias do occur, such as "faking bad" or random responding. However, "trying to look good", whether consciously or unconsciously, seems the most likely type of bias for socially disapproved-of emotions and behaviours like anger and interpersonal violence, particularly when studying forensic populations. Empirical literature has been accumulating in support of the need to take precautions in this regard.

Evidence to suggest a SDR style or self-presentational component in self-reports of emotional experience comes from two studies by Flett, Blackstein, Pliner, and Bator (1988). In the first, these investigators found that students' retrospective self-reports of frequency, intensity, and duration on a composite score of negative emotions correlated negatively with self-deception and impression management as measured by the SDQ and ODQ. The negative emotions that made up the composite included anger, boredom, contempt, embarrassment, frustration, grief, guilt, hopelessness, jealousy, panic, pity, remorse and shame. The results of this study indicated that as students' scores on self-deception and impression management increased, they became increasingly reluctant to report their experiences with negative emotions.

In an attempt to replicate and extend the results obtained in the first study, Flett and his associates conducted a second study to examine more closely the relationship between SDR and self-appraisal of negative emotions. To facilitate this, students were asked to complete the SDQ, the ODQ and a measure of

dispositional experiences of anger, the Multidimensional Anger Inventory (MAI: Siegel, 1986). The MAI is a 38-item scale that has five-point ratings designed to measure anger frequency (e.g. “I tend to get angry more frequently than most people”), anger intensity (e.g.. “I get so angry I feel I might lose control”), and anger duration (e.g., “When I get angry, I stay angry for hours”). It also includes measures of anger range (e.g., “I get angry when people are unfair”), anger hostility (e.g., “People can bother me by just being around”), anger-in (e.g., “Even when I have expressed my anger, I have trouble letting go of it”), and anger-out (e.g.. “When I am angry with someone, I let that person know”), as well as rendering a total anger score.

Consistent with the results of the first study, ODQ and SDQ were negatively correlated with all the MAI dimensions with the exception of ODQ and anger-out. The correlations between SDQ and the MAI and its subscales were anger frequency (-.43), anger intensity (-.46) anger duration (-.35), anger range (-.29), anger hostility (-.37), anger-in (-.46), anger-out (-.20) and anger total (-.52). The correlations between ODQ and the MAI and its subscales are anger frequency (-.32), intensity (-.27), duration (-.21), range (-.22), anger hostility (-.29) anger-in (-.20), anger-out (-.04), and anger total (-.35). Because the SDQ and ODQ were positively correlated, first-order partial correlations were computed by separately removing the variance due to each bias factor (i.e., SDQ and ODQ). Interestingly, the same overall pattern of correlations emerged between the anger ratings and

SDQ and ODQ respectively. However, the relationships between each of the anger ratings and SDQ was particularly salient after the variance due to ODQ (i.e., impression management) was partialled out; all but one of the anger ratings (i.e., anger-out) continued to be significantly correlated with SDQ. However, only four of the original correlations observed between the anger ratings and ODQ remained significant after statistically controlling for SDQ. These included anger frequency, anger intensity, anger hostility, and total anger. These results demonstrate that a self-report measure of anger, the MAI, is significantly correlated with self-deception and to a lesser extent impression management.

Together, the results of these two studies by Flett et al (1988) underscore the pervasiveness of SDR biases in self-appraisals of negative emotion and in particular anger. In studies measuring self-reports of anger, it would seem important to include, as part of the methodology, controls for response bias due to self-deception and impression management. The inclusion of measures for SDR bias when using self-report measures, would allow for the use of statistical techniques to remove variance stemming from these factors (e.g., Paulhus, 1985; Saunders, 1991).

It is important to note that Flett and his associates studied self-reports of students. Although the relationships between self-deception and impression management with anger measures appear to be robust, it is important to look specifically at the target population of interest, in this case forensic.

An earlier study (Selby, 1984) had staff at a correctional facility rate offenders on five dimensions of hostility in an effort to categorize offenders into violent and nonviolent groups. Group assignment was also influenced by three other criteria: history of violent behaviour, institutional behaviour, and degree of violence in current offence. Offenders whose only violence was committed while incarcerated were dropped from the sample. This process resulted in two extreme groupings of violence.

A negative relationship was found between offenders' scores on the MCSD and violence as measured by an external source. Because this study used an external source to measure degree of violence, the results demonstrates that the negative relationship observed between violence and SDR is not just due to the offender's reluctance to report engaging in violent behaviour but actually suggests that offenders who score high on a measure of SDR may actually engage in less violent behaviour. It remains to be seen whether this relationship persists for less extreme manipulations of violence.

A more recent study (Arias & Beach, 1987) failed to find such a relationship, suggesting that the relationship between SDR, as measured by the MCSD and violence in the Selby (1984) study, may have been due to the extreme manipulation of aggression. However, evidence is accumulating to support the contention that the MCSD is losing some of its sensitivity (Ballard, Crinco, Rubinfeld, 1988). Therefore, caution must be exercised when evaluating the

merits of recent studies which assess SDR using this scale. An additional shortcoming of the MCSD is that it does not discriminate between the two components of SDR, impression management and self-deception.

Some of these issues were clarified in a study by Dutton & Hemphill (1992). This study compared the relationships between self-reported violence and the MCSD and the more refined measure of SDR, the BIDR. In this study of participants in a wife-assault treatment group, it was found that although the MCSD was not related to self-reports of frequency of violence, as measured by the Conflicts Tactics Scale (CTS: Straus, 1979), the impression management subscale of the BIDR correlated negatively with measures of violence. Moreover, wife assaulters' scores on the self-deception subscale of the BIDR were not related to self-report measures of physical aggression but were related to several self-report measures of emotional and verbal aggression. The fact that a distinct pattern of correlations was observed for self-deception and impression management with self-reports of aggressive behaviour underscores the importance of employing a measure that allows for the contributions of the two components of SDR to be examined separately.

Importantly, all measures of SDR (the MCSD and both subscales of the BIDR, impression management and self-deception) were unrelated to the victims' reports of verbal and physical abuse. Contrary to the findings reported in Selby (1984), the fact that victims' reports of violence do not vary as a function of wife

assaulters' scores on measures of SDR suggests that wife assaulters are under reporting their violent behaviour rather than actually engaging in less violent behaviour. The negative relationship between impression management and reports of physical aggression also implies that wife assaulters are consciously under reporting their use of physical abuse.

This study also examined how self-reported anger, as measured by the MAI, related to measures of SDR. Almost all of the theoretically relevant anger constructs had significant negative correlations with the MCSD and the two subscales of the BIDR, the strongest associations being observed with anger-out, hostile outlook, and range of anger-eliciting situations. Self-reports of anger appear to be influenced by both self-deception and impression management. The investigators suggested that individuals who experience extreme anger may view their anger as socially undesirable and report less anger as their SDR scores increase. Again, the negative association observed between impression management and self-reports of anger and physical aggression suggests that conscious dissimulation may contribute to the under reporting of frequency of anger and emotional and physical aggression.

In a similar study, Dutton and Starzomski (1994) examined psychological differences between court-referred and self-referred wife-assaulter participants in a treatment program. The groups were similar in that both self-referred and court-referred participants demonstrated significant negative correlations between SDR

as measured by the MCSD and the MAI. However, no association was found between SDR and self-reports of frequency of physical aggression for either court-referred or self-referred participants. The absence of a relationship between SDR, as measured by the MCSD and self-reports of physical aggression, is in line with the findings in Arias and Beach (1987) and Dutton and Hemphill (1992). It appears that the MCSD is not a sensitive measure of impression management; therefore it is not correlated with self-reports of physical abuse.

The findings of the studies by Dutton and associates are in line with earlier work by Hall (1989), who also found a negative association between self-reports of hostility and SDR. Specifically, Hall's study examined the relationships among two measures of hostility and two measures of SDR in a sex offender population. The self-report measures of hostility used were the Hostility Towards Women Scale (HTWS: Check, 1985) and the Buss-Durkee Hostility Inventory (BDHI: Biaggio, 1980). Whereas the HTWS measures hostility directed at women, the BDHI is a general measure of hostility. The two measures of SDR administered were the MMPI L+K-F index (Lanyon & Luz, 1984), which reflects defensiveness or self-deceptiveness, and the Edwards SD scale, which is more closely aligned with measures of impression management. Both of these measures were negatively correlated with the HTWS, but only the MMPI L+K-F was negatively associated with the BDHI. Together the two measures of SDR accounted for more of the shared variance in self-reported hostility than sex

offenders' offence characteristics (i.e., maturity of victim and level of force used in victimization).

The different patterns of relationships observed between each SDR measure and the two hostility measures may be accounted for by the nature of the hostility construct each is measuring. That is, because their crime was an act of violence against women, sex offenders may be more self-protective when being questioned specifically about their attitudes towards women (using the HTWS) than when being questioned about general hostility (using the BDHI). Specifically, Sex offenders became more concerned about how they appeared to others (i.e., engaged in more impression management) when questioned directly about their hostile feelings towards women.

Gudjonsson, Pertursson, Sigurdardottir, and Skulason (1991) explored the relationship between overcontrolled hostility and other-deception and self-deception using measures developed by Sackeim and Gur (Sackeim & Gur, 1979). Other-deception is commonly measured by so-called "lie" or "impression management" scales. "Self-deception" (i.e., denial to oneself), on the other hand, is more closely related to denial of psychopathology and unpleasant emotions (Sackeim & Gur, 1979). Gudjonsson (1990) argues that self-deception is best construed as a potential clinical entity because of its negative association with self-reported psychopathology and positive relationship with adjustment. Its

relationship with denial of negative emotional experience makes it particularly relevant to the construct of overcontrol.

These investigators had 74 Icelandic prisoners complete the Overcontrolled Hostility (O-H) Scale of Megargee, Cook, and Mendelson (1967). The O-H scale measures individual differences in response to provocation, along a continuum from undercontrolled (i.e., uninhibited) to overcontrolled (i.e., generally inhibited about expressing anger, which leads to built up frustration, which after a period of time may be explosively released in the form of extreme anger or aggression). The prisoners also completed the Eysenck Personality Questionnaire (EPQ: Eysenck & Eysenck, 1974), the Gough Socialization Scale (Gough, 1960) and the Superego subscale of the Arrow-Dot Test (Dombrose & Slobin, 1958), as well as the SDQ and the ODQ. It was hypothesised that both other-deception and self-deception would be positively correlated with overcontrol.

A stepwise multiple regression analysis was used to measure how much of the variance in overcontrol was accounted for by the joint linear influences of Other-Deception, Self-Deception, Lie Scale, Neuroticism, Psychoticism, Gough Socialization score, and Arrow-Dot Test Superego score. The three deception scores accounted for 44% of the variance in overcontrol (Multiple $R=.66778$). The personality variables did not add anything significant to the variance once

deception had been controlled for, because they themselves correlated significantly with the deception scores.

The other-deception and self-deception scales are based on different theoretical conceptualization, but they are correlated (Sackeim & Gur, 1979). The correlation between the ODQ and the SDQ in this study was 0.35 ($p < 0.001$). The two scales measure the need of the individual to behave in a way that elicits social approval. With respect to other-deception, undesirable behaviours are denied to achieve this objective. As far as self-deception is concerned, the denial relates to a reluctance to properly experience and act out uncomfortable emotions.

Gudjonsson and associates agree that other-deception and self-deception may lead to under reporting of socially disapproved-of behaviours and emotions. However, they also point out an alternative explanation: these two types of deception may in fact lead individuals to engage in or experience fewer socially disapproved-of behaviours and emotions.

For example, Gudjonsson (1990) argues that "Lie" or other-deception scales do not necessarily measure actual lying or dissimulation. Individuals may exhibit a high "Lie" score for a variety of reasons, and in some instances it seems to reflect a relatively stable personality or temperament characteristic. Of particular relevance to overcontrol are factors such as social conformity, conventionality and lack of insight, which have been associated with a high "Lie" score (Branthwaite, Trueman, & Berrisford, 1981; Michaelis & Eysenck, 1971).

Kroner and Weekes (1996a) examined the relationships among a variety of response bias measures in an inmate population in a federal correctional facility. These included impression management, self-deception, denial, test-taking attitudes, acquiescence, and person reliability. Impression management and self-deception were assessed using the BIDR. One of the primary purposes of this study was to examine the factor structure of the BIDR in a forensic population. A three-factor solution similar to that reported by Paulhus and Reid (1991) emerged for the BIDR. The impression management factor was retained, but the self-deceptive factor broke down into two factors: (a) denial of the undesirable, which contained items reflecting an unwillingness to admit to undesirable characteristics of oneself and (b) overconfident rigidity, which was comprised of items that suggest a self-perception of infallibility and inflexibility. The results of this study indicated that older offenders and sex offenders had higher scores on the impression management scale. No other inmate differences were observed on the different measures of SDR.

In a second study, Kroner and Weeks (1996b) examined the relationships between SDR and offence characteristics of male rapists. SDR was assessed using the expanded 60-item version of the BIDR (Paulhus, 1991) which is comprised of four subscales: impression management, denial of the negative, overconfident rigidity, and denial. The investigators examined the relationships between these measures of SDR and the rapist's relationship to the victim, extent of victim injury

as documented in reports by the police and courts and in victim statements, and degree of offender admission. Results indicated that impression management and degree of victim injury was negatively correlated and that the strength of this relationship was stronger for admitters than nonadmitters. Offenders who were higher in impression management tended to engage in significantly less violence with their victims and were more willing to admit to their offence. Because the measure of physical aggression in this study was not a self-report, the relationship between aggression and impression management cannot be solely accounted for by offenders' unwillingness or reluctance to report aggressive acts.

Several explanations were put forth to account for the relationship between impression management and degree of victim injury. The researchers suggest that individuals with high impression management scores have better developed social skills and are able to use these skills to get more compliance from their victims, a contention that has some empirical basis (Selby, 1984). A second explanation is that individuals with high impression management needs cannot allow themselves to be extremely violent because they are more concerned about presenting themselves in a favourable light or in accordance with social norms; they continue with the rape only if they do not have to use extreme force. The notion that impression management can be conceptualized as a relatively stable trait that reflects social conformity and conventionality was previously put forth by Gudjonsson (1990).

A curvilinear relationship was observed between denial and degree of victim injury. High denial was associated with both low and high degrees of victim injury. Low denial was associated with a moderate degree of victim injury. The investigators point out that denial may sometimes act as an agent of disinhibition or operate in a way that enables the perpetrator to distance himself from the rape. However, given the significant correlation between denial and impression management ($r=.68$, $p < 0.01$), it may be possible that the denial scale was measuring some aspects of impression management.

Overall, these results support and extend the literature with respect to the frequently observed negative relationship between impression management and self-deception with anger and interpersonal violence. The results are consistent with the Dutton and Hemphill (1992) study which found that impression management, but not self-deception, was related to physical aggression. However, unlike the study by Dutton et al (1992), participants in this study were incarcerated offenders who had been convicted of rape, as opposed to participants in probation spousal-assault treatment programs. Furthermore, Kroner and Weeks used a severity of physical aggression measure derived from police and court reports and victims' statements, instead of self-reported frequency of engaging in physical abuse. Given these substantial methodological differences, the relationship between impression management and physical aggression appears to be enduring.

It is evident from this review of the literature that socially desirable responding plays a significant role in the self-reports of negative emotions and behaviours such as anger, physical and emotional abuse, and interpersonal violence. There is an association between SDR and a reluctance on the part of respondents to report their personal experience with these emotions and related behaviours. For the most part, this relationship persists across samples of students, offenders, male rapists, and wife assaulters, though some sample differences have been noted.

Nonetheless, it appears that SDR measures do differ in their ability to detect such a relationship. The most sensitive measure of SDR to date appears to be the BIDR (Paulhus, 1984; 1986). An important dimension of this inventory is its composition of subscales that allow for the independent measurement of self-deception and impression management. This is crucial, since these two components of SDR measure theoretically distinct constructs which have been shown to relate to under reporting of anger and interpersonal violence in unique ways.

The patterns of relationships observed between self-reported anger and interpersonal violence and self-deception and impression management vary as a function of the measurement methodologies employed, as well as of the nature of the anger and physical aggression constructs being measured. An important aspect highlighted in the review of the literature is the different ways in which SDR

relates to self-reports and reports from victims of anger and interpersonal violence. When self-reports are used, an overwhelming number of the studies report negative associations between anger and interpersonal violence with both components of SDR. However, when anger and interpersonal violence are measured using reports from spouses, police and court records, victim statements and reports from correctional staff, the pattern is not as clear. Some studies report no relationship, while others report a negative association. But again, these findings tend to vary depending upon whether impression management or self-deception is the SDR construct of interest. For example, there is some support for the contention that individuals who are high in impression management tend to engage in less violent behaviour. However, this relationship has not been observed uniformly across studies.

Another important observation is that some populations of offenders (e.g., sex offenders and older offenders) appear to be higher in impression management than others. It has also been found that violent offenders including male rapists who are high in impression management tend to use less violence towards their victims than their counterparts who are low in impression management (Kroner & Weeks, 1996b; Selby, 1989). These findings suggest that at times, impression management may operate like a relatively stable trait of the individual, that leads him or her to be concerned about engaging in "relatively" more socially appropriate behaviour.

In short, the review of the literature examining the relationship between SDR and assessment of self-reported anger and aggression suggests strongly that researchers and clinicians must take care to guard against the potential for impression management and self-deception to mask the degree to which respondents are willing to admit experiencing these emotions and behaviours. This appears to be particularly true when dealing with forensic populations. However, there is also evidence which suggests that impression management has an inverse relationship with nonself-report measures of aggression.

Cognitive-Behavioural Approaches to the Treatment of Anger in Offender Populations

It was not until the late 1970's that researchers began to evaluate the effectiveness of anger management treatments to alleviate anger and aggression problems in youth and adult offender populations. This approach conceptualizes violence as resulting from an offender's inability to identify and manage anger. The cognitive component emphasizes how the individual's cognitive schema (attitudes, values, and beliefs) influences their interpretation of a stimulus situation (Novaco, 1975). In contrast, the behavioural component is built on the premise that anger and aggressive behaviour is the result of a skills deficit which renders the individual incapable of expressing anger in an appropriate, adaptive, and socially acceptable manner (Rimm & Masters, 1974). Hence, the cognitive-behavioural approach involves a comprehensive treatment that includes training in

cognitive reframing, assertive communication, and relaxation skills. Treatment also targets the factors that are believed to affect the offenders hostile schemes, such as aggressive beliefs and attitudes. This approach has produced promising results in the treatment of violent offenders. The following is a chronological review of this literature.

Petralla (1978) reported the first systematic application of cognitive-behavioural treatment techniques to anger problems in male and female offenders. Although no significant differences emerged between a cognitive-behavioural treatment group and a self-recordings control group, the results revealed nonsignificant trends in the desired direction on Novaco's Anger Inventory, participants' diary recordings of anger experiences, and staff reports of participants anger during the course of treatment.

Ritter (1980) compared two treatment groups of female offenders: (a) a combination of cognitive restructuring and systematic desensitization and (b) systematic desensitization alone. Results demonstrated that participants receiving the combination treatment showed significant increases on self-estimates of coping and greater reductions in self-reported anger intensity when compared with a similar group of female offenders who did not receive treatment.

Fleming (1982) compared a cognitive-behavioural anger management treatment to an attention control condition in which emotions other than anger were the focus. Participants were adolescent boys living in a residential treatment

facility who had been identified as aggressive. Participants in the two treatment conditions were seen individually for 18 half-hour therapy sessions. The study yielded mixed findings. At posttest, participants receiving the anger management treatment did not significantly differ from participants in the attention control condition on any of the objective measures (e.g, teacher ratings, unit staff ratings, and behavioural observations). However, on self-report measures of anger and aggression, participants in the anger management group indicated lower scores than participants in the attention control condition.

Gaertner (1983) compared the relative effectiveness of four treatment combinations: education, education plus coping skills, and education plus exposure, and education plus coping skills, plus exposure and a no treatment control in the reduction of anger-related aggression for 50 adult male incarcerated offenders. At posttest immediately following treatment, a significant main effect emerged for the coping skills component on the Anger Inventory and behavioural ratings to role-played provocations scenes. Compared to the no treatment control group, there was no effect for the education only condition on any of the dependent measures. The education plus exposure was superior to the no treatment control group on the role-play measure but not on the Anger Inventory. The education plus coping skills group and the exposure only group incurred fewer institutional aggressive infractions at posttest but these effects were not maintained at a 3-month follow-up. The investigator attributed the absence of

treatment gains on institutional behaviour to the negative effects of the institutional environment. It was suggested that booster sessions may be necessary to maintain treatment gains.

Schlichter and Horan (1981) investigated the relative effectiveness of two stress inoculation training (i.e., cognitive restructuring and skills training) programs for 38 institutionalized aggressive adolescent offenders. The three experimental conditions examined were stress inoculation training, a "treatment elements" or abbreviated version of stress inoculation training, and a no treatment control. At posttest, participants in both treatment groups reported less anger and aggression than control participants. However, only participants receiving the full stress inoculation training demonstrated reductions in institutional behaviour ratings of verbal aggression.

Stermac (1986) evaluated the efficacy of a short-term cognitive-behavioural anger control intervention with forensic patients. In line with previous studies, analyses of pre- and postintervention self-report measures of anger supported the efficacy of this treatment for anger control within a forensic population. Her treatment conditions consisted of six, one-hour sessions of a cognitive-behavioural anger management training procedure. The control condition consisted of six one-hour psychoeducational sessions. Relative to control participants, results revealed that treatment participants decreased their

scores on the Anger Inventory and increased their scores on the Coping Strategies Inventory.

Rokach (1987) investigated the efficacy of anger management training based on Novaco's stress inoculation training (cognitive restructuring and skills training) (Novaco, 1975, 1983) with incarcerated adult male offenders who had violent criminal histories. Participants in treatment, when compared to offenders who did not receive treatment, showed significant reductions in self-reported anger and were rated as less aggressive, less withdrawing, and more cooperative during a post-treatment informal interview.

Glick and Goldstein (1987) evaluated an aggression replacement training (ART) procedure. ART consists of three coordinated interventions: anger control training (cognitive), structure learning therapy (behavioural), and moral education. Sixty adolescents with histories of aggression were randomly assigned to conditions: aggression replacement training, a brief instruction control, and a no treatment control. Participants exposed to the ART program showed significantly greater acquisition and transfer of prosocial skills than control participants. ART participants were also rated by staff as lower in impulsiveness than participants in the other groups. In addition, youths who received ART demonstrated significantly less acting-out behaviour as measured by the number and intensity of acting-out incidents on weekly staff reports than those in the other conditions.

In the second phase of this study, participants in the control group were exposed to ART. For these participants, both the number and severity of behavioural incidents showed a significant reduction from phase 1 to phase 2. Furthermore, approximately three months after their release from the institution, adolescents who completed ART were rated by parole officers who had no knowledge as to whether the youths had or had not received ART, as being significantly higher in adjustment with peers, family, and the criminal justice system, and in overall community adjustment compared with youths who had not received ART.

Glick and Goldstein (1990) subsequently replicated their study at a different secure facility for male adolescent offenders. Once again, participants who completed ART demonstrated greater acquisition and transfer of prosocial skills than youth offenders who did not receive ART. However, in this study, no significant effects were reported for number or intensity of acting-out behaviours or in staff ratings of impulsiveness.

In a study on incarcerated male offenders with violent histories, Kennedy (1990) found that exposure to a cognitive-behavioural anger management program produced significant pre- to posttest reductions in self-reported anger to a range of provocation scenarios common to the prison setting. In general, program participants reported decreases in frequency, intensity, and duration of anger, and more appropriate modalities of expression. Objective behavioral ratings of their

verbal responses to role-played provocations indicated their responses were more appropriate after exposure to treatment. In addition, following the program, participants demonstrated more prosocial attitudes. At 2-month follow-up, the overall findings provided strong support for the extended maintenance of the treatments gains on self-reports of anger. Comparisons conducted on institutional misconduct were inconclusive.

Hunter (1993) compared incarcerated offenders who completed a 10-week cognitive-behavioural anger management program to offenders on a waiting for treatment list on a number of variables. In comparison to the control group, offenders who participated in treatment showed significant gains in a number of areas. Treated offenders decreased their scores on self-report measures of aggression, impulsiveness, depression, and interpersonal problems. Verbal assaults on staff, as measured by institutional records were significantly reduced for treated offenders as compared to untreated offenders.

Hughes (1993) evaluated the short- and long-term impact of a cognitive-behavioural anger management program for incarcerated adult male offenders. Offenders who completed the program were compared with a group of offenders who were referred to the program and assessed as suitable candidates for the program, but who did not start or finish the program for various reasons. All clients were given a battery of tests prior to treatment and within four weeks of completing the program. Unfortunately, attempts to retest non-treatment

participants were largely unsuccessful. Consequently, no retest data was reported for this group. Only 50 percent of the clients who completed treatment were available for posttest. Results demonstrated that treated clients significantly decreased in self-reported anger, irrational beliefs, aggression, dependency, shyness, and physical symptoms. However, the author concluded that such changes may not be entirely trustworthy, as evidenced by the significant increase in impression management. This finding supports the contention that clinicians and researchers must take care to guard against the potential for self-presentational style (e.g., impression management) to contaminate self-reported therapeutic gains. Behavioural measures and/or clinician treatment outcome ratings of the participants would have been useful in this case. Follow-up outcome behavioural measures yielded mixed results. At a four year follow-up, program participants had recidivated at the same rate as offenders who did not complete the treatment. However, latency to rearrest was significantly longer for participants (22- months) verses nonparticipants (5.5- months).

Marquis, Bourgon, Armstrong, and Pfaff (1996) compared three conditions; a group of offenders who completed a substance abuse program, a group of offenders who completed an anger management program and a group of offenders who completed a substance abuse plus an anger management program with a matched comparison group of offenders who were on a waiting list for treatment. Results demonstrated that offenders who completed the substance

abuse plus the anger management (36 percent) or the anger management alone (33 percent) recidivated at a lower rate than the no treatment comparison group (60 percent) and the substance abuse program (48 percent), the latter two groups did not significantly differ. The programs in this study were delivered in group format and were based on cognitive-behavioural principles. Programs were intensive, running 3- hours a day for at least 20 days. It appears that intensive, client-specific cognitive-behavioural programs that target criminogenic needs such as substance abuse and anger can reduce recidivism. This study also reported increases in the length of time to rearrest for treated versus untreated offenders.

Motiuk, Smiley, and Blanchette (1996) compared 60 male offenders who had completed an intensive program for violent offenders with a matched sample of 60 male offenders who had not participated in the program. The treatment emphasized a cognitive-behavioural and psychosocial dynamic approach to changing antisocial behaviour. Treatment was delivered in groups of 12 to 16 offenders over the duration of 8-months. Results of the study demonstrated that the overall recidivism rate for any type of offence was 40 percent for the treatment group and 35 percent for the comparison group. These numbers fell to 18 and 15 percent for violent recidivism for the treatment and comparison group, respectively. No significant group differences emerged for either of these rates. However, further analysis of post-release data revealed that robbery offenders in the treatment group committed fewer personal injury offences (e.g., sexual

assaults, homicides) than robbery offenders in the comparison group. Hence, it appears that participation in an intensive program can reduce violent recidivism, particularly for robbery offenders. Risk level, calculated mainly on the basis of the offender's criminal history, was related to post-release general but not violent recidivism for offenders in both groups.

Wolfus and Bierman (1996) compared three groups of incarcerated male offenders: a group of offenders with a history of domestic violence who completed a 12- week Relating Without Violence (RWV) program, a group of offenders with a history of domestic violence (no treatment control) and a group of offenders with no history of violence. Results demonstrated that the abusive-treated group showed greater improvement on the adapted Conflict Tactics - Scale than the other two groups. Relative to the nonabusive group, the abusive-treated group showed a significant decrease on aggression and defensiveness subscales of the Personality Research Form (PRF). In all three groups, offenders' scores on a measure of social desirability moved from below the mean to a position closer to the mean. Because all three groups showed equal increments in socially desirable responding, the authors concluded that SDR did not account for the improvement noted on some of the measures by the abusive-treated group.

Valliant and his associates conducted three evaluation studies on cognitive-behavioural anger management programs for offenders (Valliant & Raven, 1994; Valliant, Ennis, & Raven - Brooks, 1995; and Valliant, Sloss, &

Raven - Brooks; 1997). In these studies participants reported significant positive changes on a host of self-report measures including anger, aggression, self-esteem, anxiety, guilt, and verbal hostility relative to offenders who did not receive treatment. No behavioural measures, ratings by staff, or recidivism data were reported.

Blanchette, Robinson, Alksnis, and Serin (1998), evaluated six family violence treatment programs that were implemented by Correctional Services Canada in both correctional institutions and community settings. The treatment programs were based on both the cognitive-behavioural model and a feminist model. The primary goal in each case was to reduce or eliminate aggression in all its forms. Pre- and post-intervention assessments were conducted to calculate self-reported change on a variety of dimensions including; Inventory of Beliefs about Wife Beating (IBWB), Inventory of Controlling Behaviours (ICB), and the Multidimensional Anger Inventory (MAI). The Self-Deceptive Enhancement (SDE) and Impression Management (IM) scales from the BIDR were used to measure the tendency to present oneself in a socially desirable manner. Results indicated positive change in attitudes and behaviours (as measured by five of the IBWB subscales and two of the MAI subscales) after program participation. However, the authors caution that a number of these measures were associated with the social desirability measures. At pretest at least one of the BIDR measures was significantly negatively correlated with four of the five IBWB subscales,

three of the four ICB subscales, and four of the five MAI subscales (r s in the range of $-.22$ to $-.49$). At posttest, the tendency to display a positive self-image was less pronounced but did not disappear completely: one of the IBWB subscales and four of the five MAI subscales were correlated with the BIDR. Of particular relevance to the present study, the MAI, a self-report measure of anger experience, exhibited correlations that were of a moderate magnitude with both SDE and IM at pretest and posttest (r s in the range of $-.34$ to $-.55$). The finding of numerous accounts of negative relationships between self-report anger and violence measures and measures of socially desirable responding underscores the importance of taking into account SDR as a potential contaminant.

To summarize, the findings of the evaluative research on variants of cognitive-behavioural anger management training procedures with aggressive offenders are encouraging. The comprehensiveness of these multimodal programs is noteworthy - It is not uncommon for participants to receive 20 or more hours of intensive group therapy. Further, treatment has proven to be successful with adolescent and adult offenders of both genders in the community and correctional facility environments. The robustness of these treatments seems irrefutable.

Nonetheless, upon closer inspection a number of gaps emerge. For example, in the vast majority of these studies the outcome data are based on participants' self-reported experiences and not observations of their actual behaviour. In fact, the most substantial and consistent therapeutic gains have been

observed on self-report measures. The treatment outcome data drawn from behaviour ratings to role-plays of provocation scenes, program coordinator ratings, staff unit ratings, community ratings from parole officers, and institutional misconduct data are less prevalent. The studies measuring these outcomes are less conclusive with respect to treatment efficacy. Only a handful of studies have included longitudinal follow-ups and recidivism measures (e.g., latency to rearrest, recidivism rate, and type of re-offending).

This review of the research literature on anger management treatment for offenders with a history of anger and aggression indicates that evidence continues to accumulate to demonstrate that with appropriate treatment positive gains can be achieved. However, most empirical studies report only within- treatment effects and pre-release short-term follow-up as measured by offender self-reports. Some studies report on behavioural indices such as institutional misconducts and behavioural ratings by staff and program coordinators. Here, however, the picture is mixed with respect to treatment efficacy. This picture becomes even more vague when recidivism data are examined. Although some studies report increases in latency to rearrest and decreases in general recidivism for treatment participants relative to matched nonparticipants, time to follow-up is usually less than one year (Marquis et al., 1996). Treatment does not appear to reduce rates of violent recidivism (Motiuk et. al., 1996).

In general the literature demonstrates that "appropriate" treatment is highly structured, behavioural, or cognitive-behavioural, and responsive to risk/ needs principles. Treatment efficacy is further improved by sustained treatment integrity, qualified and dedicated staff, and a hospitable setting (Andrews, Zinger, Hoge, Bonta, Gendreau & Cullen; 1990; Gendreau, Little, & Goggin; 1996; Serin, 1996).

Purpose of the Present Study

The primary purposes of the present study were: (a) to determine the extent to which socially desirable responding (SDR) contaminates self-report measures of anger and (b) to determine whether removing SDR bias would increase the predictive validity of the self-report measures. This issue is considered important because, as we have seen, evaluations of anger management programs are often based on changes in self-report anger measures. The utility of those evaluations is affected, then, by the extent to which these measures are influenced by socially desirable response bias.

SDR was measured in the current study with the Balanced Inventory of Desirable Responding (Paulhus, 1989). This scale is comprised of two subscales: Impression Management (IM) and Self-Deceptive Enhancement (SDE). The first, Impression Management, involves the respondent purposefully manipulating answers to make themselves look good. This involves lying or conscious dissimulation. However, as noted earlier in the review, there is evidence to

suggest that IM may be associated with behaving in a manner consistent with social norms. The second scale, Self-Deceptive Enhancement, is characterized as an effort, probably unconscious, to distort one's perceptions of the self to maintain a positive self-view. As indicated earlier, there are also suggestions that self-deceptive enhancement is related to emotional adjustment and self-esteem.

There are a variety of self-report anger measures available. The Multidimensional Anger Inventory (Seigel, 1986) is one of the most commonly used in this research, and it was included in this study. However, in an effort to explore a broader range of anger constructs, several other measures were utilized as well: Reactions to Provocation Scale Part-A & Part-B (Novaco, 1994), the Multidimensional Anger Inventory-Revised (Kroner, Reddon, and Serin, 1992), and the Rideau Anger Inventory (Armstrong, 1992). All of these measures assess the extent to which the individual engages in the negative expression of anger or has problems in dealing with anger. There is also a need, particularly in program evaluation studies, for measures of competence in dealing with anger expression. Three measures of competence developed by Robinson (1995) were included: Insight into Anger Problems, Knowledge of Anger Management Skills, and Anger Management Self-Competence.

The relationship between SDR and the self-report anger measures was explored with two groups of inmates of a provincial correctional facility. One group was composed of inmates participating in an anger management program,

and the other was a comparison group of inmates from the same facility who did not participate in the program. The use of these groups made it possible to explore the link between socially desirable responding and self-reported anger on two occasions (pretest and posttest) with inmates exposed to an anger intervention and a group not exposed to treatment. It was predicted that SDR would correlate negatively with self-reported anger scores at both pretest and posttest.

A secondary purpose of the study was to evaluate the effects of the anger management intervention on the self-report anger measures. The effects were explored (a) within the treatment group alone (a common practice in this research), (b) through a comparison of the treatment and comparison groups, and (C) with controls for socially desirable responding. The study did not entail a true experimental design since individuals were not randomly assigned to the two groups. However, the use of the comparison group does help in evaluating the impact of treatment. The specific predictions for this aspect of the study were as follows (a) treatment participants would demonstrate therapeutic gains on all self-report measures from pretest to posttest, (b) decreases in self-report anger scores would be greater for inmates in the treatment group compared with comparison subjects; and (c) employing statistical controls for SDR, particularly impression management, would reduce the treatment gains observed in the treatment condition.

The anger management program evaluated in this study was also designed to impact on criminal attitudes and values and for this reason a measure of antisocial attitudes was included. The Criminal Sentiments Scale (CSS; Wormith & Andrews, 1984) is a well validated measure of antisocial attitudes which yields three subscores: Attitudes Toward Law, Courts, and Police; Identification With Criminal Others; and Tolerance for Law Violations. The prediction was that inmates in the treatment condition would show significant reductions in antisocial attitudes relative to those in the comparison groups, but that the effects of treatment would be reduced with controls for SDR.

The study was also designed to further explore the validity of the SDR and self-report anger measures. For this reason two measures of external criteria were included. The first was the Level of Service Inventory - Ontario Revision (Andrews, Bonta, & Wormith, 1995). This is a well validated measure of criminogenic risk and need factors. Post-program ratings by course instructors of the inmates on a scale comprised of items tapping the inmates' motivation, anger management skills, and insight into anger problems constituted the second external measure. It was predicted that the self-report anger measure would be positively associated with risk/need scores and negatively with the instructor ratings.

The relationships between self-reported anger scores and the external measures were also explored with controls for the two dimensions of SDR,

impression management and self-deceptive enhancement. If SDE and IM are valid measures of socially desirable responding (i.e., artifacts that contaminate self-reports of negative emotions and antisocial attitudes) then the associations observed between self-report measures and external criteria such as measures of criminogenic risk/need and program instructors' evaluations should increase in magnitude following the employment of statistical controls for SDE and IM. Conceptually, the use of the corrections in the above situation treat the measures of SDR as suppressor variables, removing variance that is assumed to be irrelevant in order to "unmask" the relationships between the predictors (i.e., self-report measures) and criterion (risk/need factors and instructor evaluation). On the other hand, if employing statistical controls for SDE and IM reduces the magnitude of the associations observed between the self-report measures and either the criminogenic risk/need factor or instructor evaluation, a strong case could be made for interpreting the correlations between the self-report measures of anger and antisocial attitudes and SDR as indicative of shared substantive content and that the practice of correcting scores for SDR should be questioned. In this case, the measures of SDR would be more accurately viewed as "correlates" of the predictors (i.e., self-report measures) and the external criterion (e.g., risk and instructor ratings). To the extent that SDR scales provide valid character information, it may be more appropriate to treat SDR scores as other predictors

rather than as suppressor variables whose variances are removed from the predictors by way of correction (i.e., using SDR scores as covariates).

Although a number of previous studies have reported a negative correlation between external criterion measures of offenders' aggressive behaviour and offenders' scores on SDR scales (Selby, 1984, Kroner & Weekes, 1996), no study to date has examined the relationship between self-report measures and external criterion with and without controls for SDR. Hence, the present study addresses these issues on an exploratory basis.

Method

Participants

The participants were recruited from a prison population of approximately 340 inmates at Rideau Correctional and Treatment Centre (RCTC) located in Merrickville, Ontario. RCTC is a medium-security provincial institution for adult male offenders who are serving sentences from three months to two years less a day. Participants selected for the Anger Management program met the following criteria: (a) a history of self-reported anger control difficulties, (b) a clinician assessed history of anger control difficulties, and (c) a criminal history of aggressive behaviour. Over the course of a 10 month period, nine anger management programs were run and the 62 inmates who participated in these anger management programs were recruited for this study. A total of four program instructors were involved, two instructed one program each, one instructed three programs, and one instructed four programs. The pretest and posttest measures used in the present study were also used by the program instructors to evaluate participant performance. Although the participants could refuse to allow the principal investigator to use their responses to questionnaires as data for research purposes, completing the battery of tests was considered a mandatory part of the program. All participants complied with this program requirement and all permitted their test results to be used for the purpose of research.

Participants in the Comparison group were referred to the principle investigator by the staff classification department who had knowledge of the study (see Appendix A for Notice of Recruitment). They differed from the Treatment group in that they did not volunteer or consent to the anger management program, and they reported no previous treatment for anger. Unlike treatment participants these offenders did not complete a formal intake assessment to identify anger problems. A number of inmates declined participation at this point. Comparison group participants were informed that they would be given individualized feedback on their questionnaires if such a request was made. A total of 31 participants were recruited on this basis and completed the battery of questionnaires on two occasions.

Procedure

The purpose of the study and the nature of the testing involved was disclosed to participants prior to their signing the consent form. They were assured of confidentiality and informed that their participation in the study would not influence their stay at the institution in any manner. Participants were told that they could withdraw from the study at anytime without any consequences (See Informed Consent Form, Appendix A-1 & Appendix A-2).

The participants in the Comparison condition completed the battery of self-report measures without receiving an intervening treatment. Five weeks later they completed the same battery of tests. The battery of tests were administered

by the principal investigator. Participants in the Anger Management Treatment condition completed the battery of self-report measures just prior to commencing treatment and again in five weeks, when treatment was completed. For these participants, the battery was completed within the context of the treatment program and administered by the principal investigator.

Treatment

The treatment intervention employed in this study was developed by Armstrong (1995) and designed to identify anger management difficulties, increase awareness of cognitions contributing to these management problems, develop skills to manage anger more appropriately and provide an opportunity to practice the newly acquired strategies. It involved the demonstration of cognitive and behavioural techniques through problem situations provided by the participants within the group, as well as some examples which are provided by the therapist. Techniques for anger modulation included self-instruction as both a preventative and coping strategy, assertiveness and relaxation training, cognitive reappraisal, thought-stopping, and substitution and distraction techniques. The program, which consisted of daily three-hour sessions five days a week for five weeks, was presented by the staff counsellors and psychologists. Despite the potential for some minor variation in treatment and delivery across each program, the basic goals of all interventions remained the same and as described above. All treatment coordinators were experienced in the delivery of anger management

training in correctional setting and all followed the anger management training manual written by Armstrong (1995).

Measures

The measures employed in the study are described in the following section, along with available reliability and validity information.

Balanced Inventory of Desirable Responding Version 6 - Form 40A

(BIDR: Paulhus, 1989; Appendix B): This is a 40-item inventory comprised of two 20-item subscales: Self-Deceptive Enhancement (SDE) and Impression Management (IM). SDE measures the extent to which one is overconfident to the extent of lacking insight. IM measures the degree to which an individual attempts to present himself or herself in a manner consistent with situational demands. IM is considered to be the best available measure of socially desirable responding (i.e., intentional employment of a fake-good response style; Paulhus, 1991). Each item on the SDE and IM subscales is rated on a seven-point Likert-type scale with end points at 1 (not true) to 7 (very true). The scoring key is balanced. In accordance with standard scoring procedure (Paulhus 1989), after reversing the negatively keyed items, one point is added for each extreme response (6 or 7). Hence, total scores on SDE and IM can range from 0 to 20. This scoring procedure ensures that high scores are attained only by individuals who give exaggeratedly desirable responses.

Values of coefficient alpha range from .68 to .80 for SDE and from .75 to .86 for IM (Paulhus, 1989). As summarized in Paulhus (1991), test-retest correlations over a 5-week period were .69 and .65 for the SDE and IM scale, respectively. In terms of validity as a measure of SDR, the sum of all 40 BIDR items correlated .71 with the Marlowe-Crowne scale and .80 with the Multidimensional Social Desirability Inventory of Jacobson, Kellogg, Cause, and Slavin (1977). Additional validity data are presented by Paulhus (1991).

Reactions to Provocation Scale (Novaco, 1994: Appendix C): This scale consists of 73 items which comprise two sections, Part A contains 48 items which fall equally into one of three clinically oriented domains with each having four subscales. These include Cognitive (Attentional Focus, Suspicion, Rumination, and Hostile Attitude), Arousal (Intensity, Duration, Somatic Activation/Tension, and Irritability) and Behavioural (Impulsive Reaction, Verbal Aggression, Physical Confrontation, and Indirect Expression). The 3-point response alternatives are "never true", "sometimes true", and "always true". Part B contains 25 items which are intended to measure anger intensity and generality across a range of potentially provocative situations. These items are equally divided to form five sub-scales; Disrespectful Treatment, Unfairness/Injustice, Frustration/Interruption, Annoying Traits, and Irritations. Item responses were made on a 4-point intensity scale, "not at all angry", "a little angry", "fairly angry", and "very angry".

For the Total scale, reported alpha is 0.97 and two week test-retest correlation is 0.86. Alphas for the three domain scales and Total Part-B fall in the range of .81 to .95. Two week test-retest reliability for these same scales fall in the range of .74 to .86 (Novaco, 1994). This scale has been validated for use within an offender population (Mills, Kroner, & Forth, 1997)

Multidimensional Anger Inventory (MAI: Siegel, 1986: Appendix D):

This is a 38-item self-report inventory comprised of 5-point rating scales designed to measure different facets of anger from a health perspective. The inventory is comprised of five subscales measuring : Anger Arousal (or proneness to anger experience is composed of frequency, duration, and magnitude items). Range of Anger (or breadth of anger eliciting situations), Hostile Lookout (or tendency for others to provoke the respondent's anger), Anger-In (or suppression of and rumination on anger) and Anger-Out (or tendency to express anger). The alphas for subscales range from .75 to .92 while the alpha for the total inventory is .94. Alphas in this range indicate satisfactory levels of internal consistency for the MAI and its subscales. The inventory has a test-retest reliability over a six-week interval of $r=.83$.

Multidimensional Anger Inventory - Revised (MAI-R, Kroner, Reddon,

Serin, 1992): The original factor structure reported by Siegel (1986) was not maintained when the MAI was applied to an offender population. Instead, Kroner and his associates found that a two factor solution of anger arousal/experience

(16-items, alpha .90) and range of anger eliciting situations (12-items, alpha .85) provided the best fit for the item domains. Responses to the 32-item MAI-R are made on a 1 to 5 Likert-type scale similar to that used on the original MAI. The full scale summary score (32-items) has an alpha of .93.

Anger and Emotions Management Questionnaire (Unpublished scale developed by Robinson, 1995; Appendix E): This 38-item questionnaire developed on a rational basis is comprised of three subscales: Insight into Anger Problems (19-items), Knowledge of Anger Management Skills (5-items), and Anger Management Self-Competence (14-items). Each subscale item is rated on a 4-point Likert-type scale with end points at 1 (almost never) and 4 (almost always). To date, no published reliability and validity data are available for this questionnaire. The means, standard deviations as well as, reliability and validity data for the three subscales on this instrument are presented in the Results section.

Rideau Anger Inventory (RAI, Unpublished scale developed by Armstrong, 1992; Appendix F): This 10-item questionnaire briefly describes anger-provoking situations. Participants rate their anger intensity to each situation on a 5-point Likert-type scale with end points at 1 (not angry at all) and 5 (very, very angry). Alpha and split-half reliabilities for this scale are .83 and .69, respectively and test-retest reliability over a five week interval is .87 (unpublished data at RCTC, Bourgon, 1998).

Criminal Sentiments Scale (CSS: Andrews & Wormith, 1984; Appendix

G): This inventory was designed to measure individual personal attitudes, values, and beliefs regarding the criminal justice system, law violations, and law violators. It is included in this study to evaluate the extent to which therapeutic gains generalize to other manifestations of prosocial behaviour. The 41 items are rated on a 5-point Likert-type scale with end points at 1 (strongly disagree) to 5 (strongly agree). This scale is comprised of three subscales: Law, Courts, and Police (LCP) consists of 25 items pertaining to respect or disregard for the law and criminal justice without specific reference to law violations or law violators with higher scores indicating greater prosocial attitudes; Tolerance for Law Violations (TLV) consists of 10 items which pertain to specific justifications for illegal activity; and Identification with Criminal Others (ICO) consists of 6 items which elicit personal judgements regarding criminals. Higher scores on TLV and ICO indicate greater procriminal attitudes. The CSS (Gendreau, Grant, Leipeiger, & Collins, 1979) was adapted from the work of Reckless and his colleagues (Mylonas & Reckless, 1963; Reckless, 1967). The CSS has been used with a wide range of offender populations as an effective prediction tool for recidivism (Andrews & Bonta, 1994; Wormith & Andrews, 1995).

Instructor Post-Program Evaluation of Participants Questionnaire

(Appendix H): This 3-item questionnaire was designed by the principal investigator to assess the extent to which participants benefited from the program

according to the ratings provided by the clinician who delivered the program (see Appendix I). Items on this scale measure motivation to work on anger problems, improvements in anger management skills, and gains on insight into anger problems. Each item is rated on a 5- point Likert-type scale with end points "not at all" to "completely". These items were summed to form a composite scale score. The scale mean for the nine groups was 10.44 with a standard deviation of 2.73. Internal consistency of the scale was alpha .93. Standardized scores were computed for this composite and these scores were used in all subsequent analyses.

Participant Treatment Evaluation Questionnaire (Appendix I): This questionnaire was developed by the principal investigator for the purpose of this study. It included 5 items designed to measure how favourably the participant viewed various aspects of the program. Ratings were made on a 5-point Likert type scale with end points "not true" to " very true". Scores on this scale were summed to form a composite yielding a scale mean of 23.61 with a standard deviation of 2.60 and alpha .90. This questionnaire intends to provide a measure of consistency between each group. As noted previously, there were four different instructors who taught the nine Anger Management programs. Although the curriculum of each course was essentially the same, instructor characteristics, teaching style, and emphasis of material may have had an impact on participant's evaluation of the program. Furthermore, group dynamics are likely to vary as a

function of group membership and these dynamics may have had a differential influence on participant's view the program. An analysis of variance using the composite score on the treatment participant evaluation questionnaire as the dependent variable and the nine anger groups as the independent variable was not significant ($F(8,53)=0.48, p>.05$).

Level of Service Inventory - Ontario Revision (LSI-OR: Andrews, Bonta, & Wormith, 1995). The scores on the General Risk/Need Factors from the LSI-OR were collected from inmate institutional files. Originally, developed from a social learning perspective of criminal conduct (Andrews & Bonta, 1994), the LSI-OR is a correctional assessment instrument which was designed to assess criminal risk and need factors that have been shown to be predictive of recidivism (Risk). In its current form, the LSI-OR is comprised of a 43 item checklist that is completed in a structured interview in combination with a review of official records. It contains 8 subscales which represent different risk/need domains including: criminal history, education/employment, family/ marital, leisure/recreation, companions, procriminal attitude/orientation, substance abuse, and antisocial pattern. The scale has a binary format with each item either receiving a zero for absent or one for present. Risk/need scores are categorized as 0 to 4 "very low", 5 to 10 "low", 11 to 19 "medium", 20 to 29 "high", and 30 to 43 "very high". This instrument has demonstrated internal consistency ($\alpha = .72$) and interrater reliability ($r = .94$) (Andrews, 1996). It has also been shown to be

useful in the prediction of both offender institutional and program behaviour, as well as general recidivism (Bonta & Motiuk, 1987, 1990, 1992). In the present study, criminogenic risk was examined as an independent variable in the investigation of treatment effects. In this regard, it was anticipated that the therapeutic gains observed in the treatment group would be greater for high risk offenders than those observed for low risk offenders (Andrews & Bonta, 1994; Andrews, Bonta, & Hoge, 1990; Andrews et al., 1990; Bonta, 1995; Robinson, 1996).

Demographic and Normative Data. Participants' level of education, occupation, age and index offence were documented. When availability permitted, participants' scores on the dependent measures were compared to normative data collected on provincial offenders.

Results

Internal consistencies, bivariate correlations, partial correlations, multivariate and univariate analyses were completed using Statistical Package for Social Sciences for Windows Version 6.2. 1995.

Subject Attrition

There was no subject attrition in either the Treatment or Comparison groups. Treatment participants went through a rigorous evaluation before being admitted to an anger management program to identify inmates who were highly motivated for treatment and to ensure that there was sufficient time left in their sentences for them to complete the program.

Equivalence of the Groups

Separate analyses were conducted to evaluate equivalences (a) among the nine anger management groups and (b) the Treatment and Comparison groups.

Anger Management groups. Nine different Anger Management groups were represented in the study. Therefore analysis of variance (ANOVAs) were conducted to establish whether group membership had an impact on the treatment participant's performance. The results from these analyses found no statistical differences for group membership on the gain scores calculated for each of the dependent variables (Appendix J provides a summary of these analyses).

Furthermore, no group differences emerged on two scales designed to assess participant evaluation of the program and instructor evaluation of the participant,

$F(8,53) = 0.48$, $p > .05$ and $F(8,53) = 0.78$, $p > .05$, respectively. Because these results provide evidence for the equivalency of the nine Anger Management groups, groups were collapsed to form one treatment group in all further analyses. A total of 62 inmates received treatment.

Treatment and comparison groups. Because the Treatment and Comparison groups were not formed randomly, it was important to establish that they were comparable on a variety of demographic and criminal history variables. Table 1 summarizes these data. Although the groups differed in age, they did not differ in terms years of formal education, total number of prior and current offences, or aggregate sentence. The frequency distributions for marital status, race, offence classification, employment status, and occupational group are summarized in Table 2, while Table 3 summarizes the frequency distributions for the items comprised on the History of Perpetration subscale on the LSI-OR. An examination of the frequency data on these variables using crosstabs comparisons indicates no significant differences between the Treatment and Comparison groups. Further comparisons were made using the LSI-OR total Risk index and the eight risk factor subscales (see Table 4). Again, for the most part the groups were equivalent. The exceptions were the Family/Marital and Substance Abuse subscales. On the whole, the Treatment and Comparison groups were comparable. Furthermore, the demographic and criminal history variables

Table 1

Demographic and Criminal Record Variables by Groups

Variable	Treatment M	Comparison M	t	p <
Age	33.83 (7.88)	27.84 (8.80)	3.33	.001
Education	10.45 (1.58)	10.65 (1.47)	-.51	ns
Total Prior Convictions	7.05 (5.12)	4.74 (4.79)	1.87	ns
Total Current Convictions	4.61 (4.41)	4.87 (3.57)	-.28	ns
Aggregate Sentence	349.79 (179.)	429.57 (182.)	-1.81	ns

Note. Treatment Group N = 62; Comparison Group N = 31. M = Mean (standard deviations in parentheses).

Table 2

Demographic and Criminal Record Variables by Groups

Variable	Treatment	Comparison	Chi-Sq	p <
Marital Status			4.49	ns
Single	36%	61%		
Married/Common Law	43%	22%		
Separated/Divorced	21%	17%		
Race			2.45	ns
White	90%	96%		
First Nations	2%	4%		
Black	8%	0		
Offence Classification				
Property	49%	61%	.91	ns
Robbery	5%	13%	1.66	ns
Other Violent	56%	39%	1.84	ns
Narcotics/Traffic	11%	17%	.51	ns
Alcohol/Driving	26%	9%	2.61	ns
Parole/Probation	54%	43%	.74	ns
Employment			1.59	ns
Employed	38%	39%		
Unemployed	56%	61%		
Disabled	6%	0		
Occupational Group			4.48	ns
Labourer	72%	83%		
Trades	16%	0		
Technical	8%	13%		
Student	3%	4%		

Table 3

Group Differences in History of Perpetration (Level of Supervision Inventory - Revised)

Offence Category	Treatment	Comparison	ChiSq	p <
Sexual Assault - EF	3 %	3 %	.00	ns
Sexual Assault - IF	2 %	0	.51	ns
Physical Assault - EF	39 %	23 %	2.41	ns
Physical Assault - IF	42 %	23 %	3.38	ns
Assault on Authority Figure	13 %	6%	.91	ns
Weapon Use	23 %	19 %	.13	ns
Fire Setting	3 %	3 %	.00	ns
Escape/UAL	11 %	13 %	.05	ns
Impaired Driving	42 %	26 %	2.32	ns

Note. Treatment Group N = 62; Comparison Group N = 31. EF = Extra-Familial; IF = Intra-Familial.

Table 4

Level of Supervision Inventory - Ontario Revision Subscores and Total Score by Groups

Scale	Treatment M	Comparison M	t	p <
Criminal History	5.71 (1.59)	5.65 (1.84)	.17	ns
Education/Employment	4.44 (2.45)	5.35 (2.07)	-1.79	ns
Family/Marital	1.95 (1.09)	1.42 (1.09)	2.22	.05
Leisure/Recreation	1.51 (.67)	1.29 (.78)	1.45	ns
Companions	1.59 (.89)	1.87 (.62)	-1.53	ns
Procriminal Attitudes	1.05 (1.01)	1.09 (.91)	-.22	ns
Substance Abuse	5.03 (1.91)	3.94 (2.63)	2.29	.05
Antisocial Pattern	1.34 (1.10)	1.42 (1.21)	-.32	ns
Total	22.68 (6.49)	21.81 (5.9)	.63	ns

Note. Treatment Group N = 62; Comparison Group N = 31.

presented here are similar to those reported by Kennedy (1990) in her study of offenders from the same institution (R.C.T.C.).

Descriptive Statistics and Psychometric Analyses

The means, standard deviations, and Cronbach's Alpha's for each of the measures for the total sample are presented in Tables 5 and 5a. All but two scales (e.g., Anger-Out subscale from the MAI and Insight into Anger Problems scale from the Anger and Emotion Questionnaire) demonstrated adequate internal consistency as measured by Cronbach's Alpha's.

Intercorrelations among anger measures. Table 6 presents the intercorrelation matrix for the anger measures at pretest for the Treatment and Comparison groups. For the most part, the pattern of correlations between the different anger measures were similar in both direction and magnitude in each group. The two most notable differences were that Insight did not correlate with other dimensions of anger in the Treatment group as it did for their counterparts in the Comparison group. Similarly, the magnitude of the correlations between the Rideau Anger Inventory and the other anger measures was generally lower for the Treatment group compared with those observed for the Comparison group. Otherwise, the results for the two groups are comparable. As predicted, in both cases, Knowledge of Anger Management Skills, Self- Competence in Anger Management, and Insight into Anger (in the Comparison group) were positively correlated with one another (i.e., correlations in the range of .40 to .70) and

Table 5
Self-Report Measures: Means, Standard Deviations, and Coefficient Alphas for the Total Sample (N = 93)

A. Novaco Reactions to Provocation Scale - Part A			
Scale	Mean	SD	CA
Total	94.46	16.82	.95
I. Cognitive Domain	32.02	4.93	.79
(a) Attentional focus	8.72	1.36	.63
(b) Rumination	8.2	1.77	.64
(c) Hostile attitude	7.40	1.57	.57
(d) Suspicion	7.70	1.48	.58
II. Arousal Domain	31.57	6.50	.88
(a) Intensity	7.90	1.95	.67
(b) Duration	7.77	1.94	.64
(c) Somatic activation	7.72	1.88	.65
(d) Irritability	8.17	1.66	.58
III. Behavioural Domain	30.87	6.68	.91
(a) Impulsive reaction	7.57	2.31	.85
(b) Verbal aggression	8.11	1.69	.64
(c) Physical confrontation	7.72	2.00	.75
(d) Indirect expression	7.47	1.71	.64
B. Novaco Reactions to Provocation Scale - Part B			
Scale	Mean	SD	CA
Total	63.73	15.16	.95
I. Disrespectful treatment	12.52	3.42	.80
II. Unfairness/injustice	14.15	2.93	.74
III. Frustration/interruption	13.29	3.29	.84
IV. Annoying traits	12.58	3.63	.85
V. Irritations	11.20	3.39	.83

Table 5 (continued)

Self-Report Measures: Means, Standard Deviations, and Coefficient Alphas for the Total Sample (N = 93)

C. Multidimensional Anger Inventory - Siegel				
	Scale	Mean	SD	CA
Total		72.29	18.40	.84
Anger-Arousal		20.65	8.13	.91
Range of Anger Situations		31.60	6.89	.79
Hostile Outlook		11.44	3.71	.71
Anger-In		14.27	5.06	.84
Anger-Out		6.71	2.14	.09
D. Multidimensional Anger Inventory - Revised				
	Scale	Mean	SD	CA
Total Score		92.19	22.40	.84
Factor 1		43.99	13.74	.79
Factor 2		37.10	9.11	.82
E. Rideau Anger Inventory				
	Scale	Mean	SD	CA
Total		28.99	2.90	.85
F. Anger and Emotion Questionnaire				
	Scale	Mean	SD	CA
Insight Into Anger Problem		48.65	4.61	.27
Knowledge of Anger Management		13.66	3.01	.59
Anger-Management Competence		35.22	7.84	.88
G. Criminal Sentiments Scale				
	Scale	Mean	SD	CA
Attitudes Toward Law, Courts, etc.		86.83	16.06	.93
Tolerance for Law Violations		26.63	6.78	.81
Identification With Criminal Others		16.08	4.11	.71

Note. SD = Standard Deviation; CA = Coefficient Alpha.

Table 5a

Balanced Inventory of Desirable Responding: Means, Standard Deviations and CoefficientAlphas for the Total Sample (N = 93)

Scale	Mean	SD	CA
Self-Deceptive Enhancement	5.39	2.73	.60
Impression Management	6.69	3.35	.80

Note. SD = Standard deviation; CA = coefficient alpha.

Table 6

Inter-correlations of Anger Measures on Pretest for Treatment and Comparison Groups

Measures	1.	2.	3.	4.	5.	6.	7	8.	9.	10.	11.	12.	13.
1.	1.00	.22	.12	-.09	-.04	-.16	-.10	-.10	-.04	-.01	.04	-.02	.01
2.	.44	1.00	.46	-.37	-.39	-.50	-.46	-.27	-.33	-.39	-.43	-.14	-.32
3.	.46	.72	1.00	-.58	-.67	-.66	-.69	-.44	-.36	-.68	-.77	-.39	-.67
4.	-.42	-.42	-.66	1.00	.83	.70	.89	.66	.39	.74	.69	.66	.75
5.	-.38	-.58	-.79	.79	1.00	.81	.96	.59	.32	.76	.74	.60	.75
6.	-.42	-.65	-.84	.68	.92	1.00	.92	.46	.39	.66	.68	.43	.62
7.	-.44	-.61	-.83	.86	.98	.95	1.00	.60	.40	.77	.76	.59	.76
8.	-.46	-.59	-.79	.75	.84	.78	.85	1.00	.65	.75	.63	.79	.77
9.	-.34	-.47	-.70	.60	.67	.61	.68	.77	1.00	.65	.61	.60	.65
10.	-.35	-.68	-.88	.71	.90	.90	.91	.83	.72	1.00	.94	.82	.98
11.	-.29	-.70	-.83	.61	.85	.87	.85	.69	.62	.94	1.00	.63	.93
12.	-.34	-.63	-.81	.69	.78	.79	.82	.86	.81	.89	.73	1.00	.86
13.	-.33	-.73	-.89	.68	.88	.90	.89	.82	.74	.98	.94	.91	1.00

Notes. (a) correlations for Treatment Group above diagonal and for Comparison Group below diagonal. (b) Anger and Emotions Questionnaire: Insight Into Anger (1), Knowledge of Anger (2), Self-Competency (3); Novaco Reactions to Provocation Scale: Cognitive Domain (4), Arousal Domain (5), Behaviour Domain (6); Total Part A (7), Total Part B (8); Rideau Anger Inventory (9); Multidimensional Anger Inventory Total (10); Kroner Multidimensional Anger Inventory: Factor 1 (11), Factor 2 (12), Total (13). (c) Treatment Group (N = 62) significance ranges: $p < .05$, $r \geq .25$; $p < .01$, $r \geq .32$; Comparison Group (N = 31) significance ranges: $p < .05$, $r \geq .35$; $p < .01$, $r \geq .44$.

negatively correlated with measures of anger triggers and experience (i.e., correlations in the range of $-.40$ to $-.80$). The remaining measures of anger triggers/experience were positively correlated with one another (i.e., correlations in the range of $.50$ to $.80$). These results lend credence to the construct and concurrent validity of the measures.

Appendix K displays the intercorrelation matrix for the different measures of anger at posttest for the Treatment and Comparison groups. The pattern of results was comparable for the two groups and essentially the same as that observed at pretest with two exceptions. In the Treatment group, the magnitude of association between Insight into Anger and the Rideau Anger Inventory and other measures of anger increased in magnitude and were generally of a similar magnitude as those reported for the Comparison group. Again, the pattern of intercorrelations among the anger measures provided evidence for their construct and concurrent validity.

Correlations of the anger measures and Criminal Sentiments Scales

Scores. Table 7 presents the correlations between the anger measures and the three subscales from the Criminal Sentiments Scale for the Total sample at pretest.

The ICO and TLV subscales were negatively correlated while LCP subscale was positively correlated with Insight into Anger, Knowledge of Anger

Management Skills, and Self-Competency in Anger Management. In contrast, ICO and TLV were positively correlated with measures of anger experience (i.e., the higher the criminal sentiments, the higher the degree of anger experience) while LCP (i.e., a measure of positive attitudes towards law, courts, and police) was negatively correlated with measures of anger experience. These patterns were consistent with the experimenter's predictions and also provide support for the construct validity of the measures. That is, antisocial attitudes and criminal sentiments are positively associated with measures of anger experience and negatively associated with measures of skills and self-competence in anger management.

Intercorrelations Among the Criminal Sentiments Scales Scores. The pattern of correlations among ICO, TLV, and LCP was essentially the same for the two groups at pretest and posttest. ICO (in the range of $r = -.50$) and TLV (in the range of $r = -.80$) were negatively correlated with LCP and positively correlated with each other (in the range of $r = .60$).

Correlations between pretest self-report measures and LSI-OR for the total sample. The correlations between the self-report measures of anger and criminal sentiments at pretest and the total Risk and the eight subscale scores for the LSI-OR are displayed in Table 8. Pretest self-report measures of anger experience, anger management skills and self-competency, and criminal sentiments were all

Table 7

Correlations Among Anger and Criminal Sentiments Scale Subscores for the TotalSample at Pretest

Anger Measures	Criminal Sentiments Scale		
	ICO	LCP	TLV
Novaco Reactions to Provocation Scale			
Arousal Domain	.31	-.43	.37
Cognitive Domain	.36	-.41	.43
Behavioural Domain	.38	-.46	.41
Total Part A	.37	-.47	.43
Total Part B	.35	-.43	.47
Multidimensional Anger Inventory (Siegal)	.37	-.47	.44
Multidimensional Anger Inventory-Revised	.37	-.47	.43
Rideau Anger Inventory	.43	-.43	.42
Anger & Emotion Management Quest.			
Insight Into Anger	-.17	.28	-.36
Knowledge of Skills	-.44	.25	-.24
Self Competence	-.38	.40	-.38

Note. N = 93. ICO = Identification with Criminal Others; LCP = Attitudes Toward Law,

Courts, and Police; TLV = Tolerance for Law Violations. Significant ranges: $p < .05$.

$r \geq .20$; $p < .01$, $r \geq .27$.

Table 8

Correlations Between the Self-Report Measures at Pretest and Level of Supervision Inventory -Ontario Revision Scores

A. Novaco Reactions to Provocation Scale

Measure	Level of Supervision Inventory - Ontario Revision Subscores								
	CH	E/E	F/M	L/R	C	PO	SA	AP	TOT
Part A	.21	.21	.15	.14	.25	.04	.19	.14	.30
Arousal Domain	.21	.19	.16	.11	.22	.03	.21	.18	.29
Intensity	.21	.18	.05	.08	.24	.05	.14	.10	.25
Duration	.14	.16	.22	.08	.25	.04	.16	.13	.26
Somatic Activ.	.21	.08	.10	.06	.11	-.09	.21	-.02	.17
Irritability	.17	.27	.19	.16	.15	.10	.23	.21	.34
Cognitive Domain	.18	.19	.16	.13	.17	-.01	.19	.13	.28
Attentional	.18	.07	.26	.13	.17	-.15	.20	.10	.21
Rumination	.12	.19	.08	.25	.22	.02	.11	.13	.23
Hostile Attitude	.18	.11	.10	-.07	.02	.03	.15	.13	.18
Suspicion	.10	.23	.07	.08	.11	.04	.16	.07	.23
Behavioral Domain	.20	.21	.11	.14	.28	.08	.13	.15	.28
Impulsive R	.14	.19	.09	.16	.27	.09	.12	.16	.26
Verbal Agg.	.21	.13	.07	.13	.27	.01	.17	.03	.23
Physical Con.	.18	.24	.02	.04	.26	.10	.03	.16	.23
Indirect Exp.	.17	.10	.21	.17	.17	.04	.14	.13	.24
Part B	.19	.24	.06	.16	.07	.07	.28	.09	.30
Disrespect	.17	.24	-.02	.23	.07	.09	.24	.13	.28
Unfairness	.14	.19	.09	.11	.01	.04	.29	.04	.24
Frustration	.12	.26	.06	.13	.01	.08	.24	.05	.25
Annoy Traits	.22	.27	.08	.11	.03	.06	.30	.06	.30
Irritations	.21	.19	.09	.16	.20	.03	.24	.13	.29

Table 8 (continued)

Correlations Between the Self-Report Measures at Pretest and Level of Supervision Inventory -Ontario Revision Scores

B. Rideau Anger Inventory

Measure	Level of Supervision Inventory - Ontario Revision Subscores								
	CH	E/E	F/M	L/R	C	PO	SA	AP	TOT
Total Score	.15	.27	.07	.09	.20	.08	.16	.14	.27

C. Multidimensional Anger Inventory - Siegel

Measure	Level of Supervision Inventory - Ontario Revision Subscores								
	CH	E/E	F/M	L/R	C	PO	SA	AP	TOT
Total Score	.18	.25	.06	.07	.21	.07	.23	.07	.29
Anger Arousal	.24	.26	.03	.01	.24	.08	.20	.08	.30
Range of Anger	.05	.21	.05	.12	.16	.06	.13	.05	.19
Anger-In	.10	.19	.10	.09	.18	.03	.17	.08	.22
Anger-Out	.09	-.19	-.18	-.01	.10	.08	-.12	-.03	-.08
Hostile Outlook	.12	.23	.01	.07	.09	.12	.27	.04	.27

D. Anger and Emotions Questionnaire

Measure	Level of Supervision Inventory - Ontario Revision Subscores								
	CH	E/E	F/M	L/R	C	PO	SA	AP	TOT
Insight	.01	-.21	.08	-.14	-.05	-.16	.12	-.21	-.09
Knowledge	-.24	-.18	.03	-.20	-.18	-.34	-.07	-.24	-.29
Self-Competence	-.33	-.25	.02	-.02	-.19	-.11	-.24	-.15	-.33

E. Criminal Sentiments Scale

Measure	Level of Supervision Inventory - Ontario Revision Subscores								
	CH	E/E	F/M	L/R	C	PO	SA	AP	TOT
ICO	.26	.34	-.08	.17	.31	.09	-.08	.26	.34
LCP	-.20	-.43	-.02	-.14	-.37	-.10	.14	-.32	-.39
TLV	.15	.41	.05	.09	.31	.05	.14	.25	.35

Note. CH = Criminal History; E/E = Education/Employment; F/M = Family/Marital; L/R = Leisure/Recreation; C = Companions; PO = Procriminal Orientation; SA = Substance Abuse; AP = Antisocial Pattern; TOT = Total Risk; ICO = Identification With Criminal Others; LCP = Law, Courts, Police; TLV = Tolerance for Law Violations. Significance ranges: $p < .05$, $r \geq .20$; $p < .01$, $r \geq .27$.

associated with Risk in a direction that indicated agreement. That is, higher anger management skills, self-competence in anger management, and prosocial attitudes (LCP) were associated with relatively lower Risk whereas higher anger experience and criminal sentiments were associated with relatively higher Risk.

In terms of measures of anger experience; the Arousal, Cognitive and Behavioural domains from Part-A of Reactions to Provocation Scale did not differ in terms of magnitude of association with Risk ($r_s = .29, .28, \text{ and } .28$ respectively). The relationship between subscales comprised on the Behavioural domain and Risk were examined separately; Impulsive Reaction, Verbal Aggression, Physical Confrontation, and Indirect Expression ($r_s = .26, .23, .23, \text{ and } .24$, respectively). Other measures of anger experience (i.e., triggers) had similar associations with Risk (e.g., Total scale from Part-B of Reactions to Provocation Scale and the Rideau Anger Inventory, $r_s = .30 \text{ and } .27$, respectively). Also, the relationship between two hostility measures and Risk were examined; the Hostile Outlook subscale from the MAI and the Hostile Attitude subscale from the Cognitive domain on Part-A of Reactions to Provocation Scale ($r_s = .27 \text{ and } .18$).

An examination of the relationships between the self-report measures of anger and the subscales from the LSI-OR for the most part showed negligible results. The exceptions were the Criminal History, Employment /Education, Companions, and Substance Abuse subscales from the LSI-OR consistently show

substantial correlations with measures of anger experience (i.e., Reactions to Provocation Scale Part A & B & subscales, Rideau Anger Inventory, and MAI & subscales). The only measure of anger experience that was related to the Anti-social Pattern subscale from the LSI-OR was the Irritability subscale from the Arousal Domain of the PRC Part-A which had a correlation of .21 with Anti-social Pattern. Surprisingly, none of the anger experience measures were associated with the procriminal orientation subscale.

A significant relationship was observed between Risk and two measures which reflect dimensions of adaptive coping strategies with respect to anger management: Knowledge of Anger Management Skills and Self-Competence in Anger Management ($r_s = -.29$ and $-.33$). Knowledge of Skills was also inversely related to the Procriminal Orientation and Anti-social Pattern subscales of the LSI-OR ($r_s = -.34$ and $-.24$).

The three measures of criminal sentiments; Identification with Criminal Others (ICO), Tolerance for Law Violations TLV), and Attitude towards the Law, Court, Police (LCP, high scores on this measure reflect more pro-social responses) were all significantly associated with Risk ($r_s = .34$, $.35$, and $-.39$, respectively). Identification with Criminal Others, TLV, and LCP were also significantly associated with the Anti-social Pattern subscale ($r_s = .26$, $.25$, and $-.32$, respectively). The three criminal sentiments scales showed similar correlations with the LSI-OR Employment/Education and Companion subscales.

On the whole, the pattern of correlations between the self-report measures and the LSI-OR provide construct and concurrent validity for the former.

Test-retest reliabilities. Table 9 presents the correlations between pretest and posttest on the self-report measures of anger and criminal sentiment for each of the groups. Although some variability in the magnitude of correlations is evident across the various measures, as expected the magnitude of the correlations between each of the pretest and posttest measures is uniformly higher in the Comparison group (generally falling within the .60 to .90 range) as these are essentially test-retest reliabilities for the measures since no intervening treatment was introduced. In each case, the pretest and posttest correlations for each of the measures in the Treatment group are significant but lower than those observed in the Comparison group. Some variability exists across the measures (with r_s generally falling within the .30 to .70 range). In general, the correlations reported in the Treatment group were about half the magnitude of those observed in the Comparison group. In light of this pattern it appears that the intervention had an impact on Treatment participants' posttest self-reports.

Table 9

Correlations Between Pretest and Posttest Measures by Groups

Scale	Treatment	Comparison
Novaco Reactions to Provocation Scale		
Part A	.39	.86
Arousal Domain	.41	.89
Cognitive Domain	.39	.73
Behavioural Domain	.41	.84
Part B	.42	.94
Disrespectful Treatment	.30	.92
Unfairness/Injustice	.41	.85
Frustration/Interruption	.40	.76
Annoying Traits	.47	.85
Multidimensional Anger Inventory (Siegel)	.58	.87
Multidimensional Anger Inventory- Revised	.75	.89
Rideau Anger Inventory	.62	.87
Anger and Emotions Questionnaire		
Insight Into Anger	.44	.68
Knowledge of Anger Management Skills	.40	.55
Self-Competence in Anger Management	.36	.63
Criminal Sentiments Scale		
Identification With Criminal Others	.74	.78
Attitudes Toward Law, Courts, Police	.75	.70
Tolerance for Law Violations	.68	.89
Balanced Inventory Desirable Responding		
Self-Deceptive Enhancement	.34	.69
Impression Management	.43	.81

Note. Treatment Group (N = 62) significance ranges: $p < .05$, $r \geq .25$; $p < .01$, $r \geq .32$; Comparison Group (N

Analyses of the Relationship Between SDR and Self-Report Anger and Criminal Sentiments Measures

A primary purpose of the study was to explore the extent to which anger experience, knowledge of anger management skills, self-competence in anger management, antisocial attitudes, and criminal sentiments through self-report measures are affected by socially desirable responding (SDR). Two measures of SDR were employed: Self-Deceptive Enhancement (SDE) and Impression Management (IM). A Group x Trial mixed-MANOVA performed on the two subscales which comprise this scale, Self-Deceptive Enhancement (SDE) and Impression Management (IM) yielded a significant Group x Trial interaction. Subsequent Group x Trial mixed-ANOVAs on each of these subscales also yielded significant Group x Trial interactions (see Table 10 for a summary of these analyses). The means and standard deviations for these interactions are presented in Table 11.

Simple main effects for SDE indicated that the Treatment and Comparison groups were equivalent at pretest. At posttest, the Treatment group presented with more SDE than the Comparison group; ($F(1,91) = 6.36, p < .013$). Participants in the Treatment group, in contrast to those in the Comparison group, showed an increase in SDE pretest to posttest: SDE ($F(1,91) = 21.92, p < .001$). In terms of IM, the groups were equivalent at pretest and posttest but the simple main effect for Group differences approached significance at posttest

Table 10

Multivariate and Univariate F Values for the Balanced Inventory of Desirable Responding: Group, Trials, and Group x Trials Interaction

A. Multivariate Tests

Variable	F	df	p <
Group	1.12	2.90	ns
Trials	7.49	2.90	.001
Group x Trials	5.45	2.90	.01

B. Univariate Tests - Group Effect

Measure	F	df	p <
Self-Deceptive Enhancement	2.23	1.91	ns
Impression Management	.56	1.91	ns

C. Univariate Tests - Trials Effect

Measure	F	df	p <
Self-Deceptive Enhancement	7.32	1.91	.01
Impression Management	13.76	1.91	.001

D. Univariate Tests - Group x Trials Interaction

Measure	F	df	p <
Self-Deceptive Enhancement	7.31	1.91	.01
Impression Management	8.56	1.91	.01

Table 11

Balanced Inventory of Desirable Responding Scores: Means and Standard Deviations by Groups and Trials

Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Self-Deceptive Enhancement	5.34	7.29	5.48	5.49
	(2.97)	(3.57)	(2.22)	(2.49)
Impression Management	3.76	6.23	4.35	4.65
	(3.10)	(4.15)	(2.67)	(2.56)

Note. Standard Deviations in parentheses. Treatment Group N = 62; Comparison Group N = 31.

($F(1,91) = 3.77, p.06$). Only the Treatment group showed an increase in IM as a function of Trial ($F(1,91) = 33.04, p<.001$).

The relationship between the self-report measures of anger and criminal sentiments was explored within the context of a correctional Anger Management program and also with a second group of inmates who were not involved in any correctional programming. For Treatment participants response bias contamination was examined on self-report measures both prior to and following participation in treatment. This pattern of correlations was also examined in the Comparison group on two occasions. The results for these two groups are discussed separately.

Link between SDR and self-report measures within the treatment group.

The correlations between each of the measures at pretest and posttest with the corresponding pretest and posttest measures of SDE and IM, as well as change on each of these anger and attitude measures with change in SDE and IM are presented in Table 12. Change scores were calculated for each measure in such a way that greater reduction in anger and antisocial attitudes resulted in higher change scores (i.e., $\text{change} = \text{pretest} - \text{posttest}$). Likewise, the greater the enhancement in pro-social attitudes, knowledge of anger management skills, self-competence in anger management, SDE, and IM the higher the change score (i.e., $\text{change} = \text{posttest} - \text{pretest}$).

Table 12

Correlations Between Pretest, Posttest, and Change Scores from Self-Report Anger and
Attitude Measures and Measures of Socially Desirable Responding: Treatment Group

A. Novaco Reactions to Provocation Scale

Measure	Pretest Score		Posttest Score		Change Score	
	SDE	IM	SDE	IM	SDE	IM
Total Part A	-.36	-.33	-.60	-.60	-.36	-.39
Arousal Domain	-.35	-.21	-.59	-.56	.35	.34
Intensity	-.19	-.22	-.54	-.58	.35	.33
Duration	-.29	-.22	-.58	-.49	.28	.33
Somatic Activation	-.37	-.23	-.49	-.42	.23	.24
Irritability	-.36	-.27	-.50	-.52	.32	.27
Cognitive Domain	-.44	-.39	-.57	-.59	.34	.37
Attentional Focus	-.30	-.18	-.47	-.41	.32	.36
Rumination	-.41	-.38	-.48	-.55	.32	.34
Hostile Attitude	-.36	-.39	-.43	-.55	-.23	-.43
Suspicion	-.33	-.29	-.39	-.26	-.13	-.04
Behavioural Domain	-.24	-.30	-.55	-.56	.36	.40
Impulsive Reaction	-.32	-.21	-.53	-.51	.33	.31
Verbal Aggression	-.06	-.27	-.49	-.52	.25	.33
Physical Confrontation	-.11	-.25	-.47	-.51	.27	.39
Indirect Expression	-.29	-.31	-.47	-.45	.32	.36

Table 12 (continued)

Correlations Between Pretest, Posttest, and Change Scores from Self-Report Anger and
Attitude Measures and Measures of Socially Desirable Responding: Treatment Group

B. Novaco Reactions to Provocation Scale - Part B

Measure	Pretest Score		Posttest Score		Change Score	
	SDE	IM	SDE	IM	SDE	IM
Total Part B	-.37	-.42	-.59	-.62	.44	.33
Disrespectful Treatment	-.34	-.39	-.63	-.65	.46	.31
Unfairness	-.32	-.35	-.42	-.55	.38	.29
Frustration	-.34	-.41	-.48	-.54	.35	.35
Annoying Traits	-.37	-.34	-.57	-.51	.36	.26
Irritations	-.30	-.43	-.58	-.55	.48	.29

C. Rideau Anger Inventory

Measure	Pretest Score		Posttest Score		Change Score	
	SDE	IM	SDE	IM	SDE	IM
Rideau Anger Inventory	-.36	-.35	-.38	-.49	-.08	-.06

Table 12 (continued)

Correlations Between Pretest, Posttest, and Change Scores from Self-Report Anger and
Attitude Measures and Measures of Socially Desirable Responding: Treatment Group

D. Multidimensional Anger Inventory - Siegel

Measure	Pretest Score		Posttest Score		Change Score	
	SDE	IM	SDE	IM	SDE	IM
Total	-.39	-.37	-.58	-.64	.42	.50
Anger-Arousal	-.46	-.41	-.60	-.63	.41	.46
Range of Anger	-.22	-.24	-.45	-.58	.28	.40
Hostile Outlook	-.14	-.21	-.48	-.51	.31	.33
Anger-In	-.44	-.42	-.56	-.56	.43	.48
Anger-Out	.24	.28	.50	.27	-.23	-.13

E. Multidimensional Anger Inventory - Revised

Measure	Pretest Score		Posttest Score		Change Score	
	SDE	IM	SDE	IM	SDE	IM
Total	-.38	-.35	-.39	-.53	.37	.31
Factor 1	-.45	-.40	-.61	-.61	.46	.48
Factor 2	-.21	-.22	-.50	-.59	.31	.38

Table 12 (continued)

Correlations Between Pretest, Posttest, and Change Scores from Self-Report Anger andAttitude Measures and Measures of Socially Desirable Responding: Treatment Group**F. Anger and Emotions Questionnaire**

Measure	Pretest Score		Posttest Score		Change Score	
	SDE	IM	SDE	IM	SDE	IM
Insight Into Anger Problems	-.06	.28	.18	.25	.04	.08
Knowledge of Skills	.47	.52	.46	.38	.36	.32
Self Competence	.46	.47	.65	.59	.48	.43

G. Criminal Sentiments Scale

Measure	Pretest Score		Posttest Score		Change Score	
	SDE	IM	SDE	IM	SDE	IM
Criminal Sentiments Scale						
ICO	-.37	-.40	-.53	-.49	.17	.35
LCP	.16	.28	.42	.41	.39	.30
TLV	-.14	-.22	-.41	-.27	.21	.13

Notes. SDE = Self-Deceptive Enhancement; IM = Impression Management; MAI =

Multidimensional Anger Inventory; ICO = Identification with Criminal Others; LCP = Law,

Courts, Police; TLV = Tolerance for Law Violations. Treatment Group N = 62. Significance

ranges: $p < .05$, $r \geq .25$; $p < .01$, $r \geq .32$.

Examination of these correlations revealed that the vast majority of the anger and attitude measures were moderately related to SDE and IM at both pretest and posttest and that change from pretest to posttest on each of the anger and attitudes measures was also related to change on SDE and IM. The direction of these correlations indicated that higher degrees of SDE and IM were associated with lower self-reports of anger experience and antisocial attitudes (i.e., negatively correlated). Similarly, knowledge of anger management skills, self-competence in anger management, and prosocial attitudes (as measured by LCP) were positively associated with SDE and IM. Finally, the magnitude of change on each of the anger and attitude measures was associated with the degree of increase noted on SDE and IM. That is, the magnitude of the reduction in expression of anger and antisocial attitudes and the magnitude of improvement in knowledge of anger management skills, self-competence in anger management, and pro-social attitudes were all positively associated with the magnitude of increase on both SDE and IM. Interestingly, insight into anger problems was not correlated with SDE. In sum, although some variability is noted, these analyses revealed that self-reports on these measures of anger and attitudes were associated with SDE and IM. The overall pattern of the observed association would suggest that participants were responding in a socially desirable manner.

Link between self-report measures and instructor ratings before and after controlling for SDR. The correlations between the anger experience and attitude

measures and the post-program instructor rating of participant responsiveness to treatment are contained in Table 13. Treatment participants' self-reports on the measures at posttest, and change scores, were correlated with instructors' rating in a direction that indicated agreement and supported the efficacy of the treatment. Specifically, the lower the participant's self-reported anger and antisocial attitudes at posttest and the greater the therapeutic gains indicated on change scores for these measures, the more favourable the rating received from the instructor became.

Furthermore, instructors' post-program ratings were positively correlated with participants' scores on SDE and IM at posttest and with change in SDE and IM (instructor rating with SDE: posttest $r = .45$ and change $r = .28$ and IM: posttest $r = .32$ and change $r = .26$). These associations indicated that individuals who held relatively more positive self-images (higher SDE) and those who were more concerned about their public image (higher IM) actually did better in the program according to the instructors' ratings. Hence, it is apparent that a portion of participants' SDE and IM was related to the rating they received from the treatment instructor.

The pattern of association between self-reports of anger and criminal sentiments at posttest and on change scores and instructor's ratings were re-examined while controlling for SDR (i.e., using posttest and change scores on SDE and IM as covariates). These partial correlations are shown in Table 13. In

Table 13

Correlations of Self-Report Posttest and Change Scores with Instructor Post-Program Ratings Both With and Without Controls for Socially Desirable Responding Scores

Measure	Phase	Simple Correlations	With SDR Controls
Novaco RPS-Part A			
Arousal Domain	Posttest	-.36	-.10
	Change	.50	.40
Intensity	Posttest	-.33	-.08
	Change	.49	.38
Duration	Posttest	-.36	-.12
	Change	.47	.37
Somatic Activation	Posttest	-.31	-.10
	Change	.43	.37
Irritability	Posttest	-.28	-.04
	Change	.33	.21
Cognitive Domain	Posttest	-.41	-.19
	Change	.49	.43
Attentional Focus	Posttest	-.41	-.24
	Change	.40	.35
Rumination	Posttest	-.37	-.17
	Change	.40	.29
Hostile Attitude	Posttest	-.22	.01
	Change	.40	.18

Table 13 (continued)
Correlations of Self-Report Posttest and Change Scores with Instructor Post-Program Ratings Both With and Without Controls for Socially Desirable Responding Scores

Measure	Phase	Simple Correlations	With SDR Controls
Behavioural Domain	Posttest	-.45	-.25
	Change	.48	.37
Impulsive Reaction	Posttest	-.43	-.23
	Change	.45	.36
Verbal Aggression	Posttest	-.51	-.35
	Change	.55	.43
Physical Confrontation	Posttest	-.38	-.19
	Change	.26	.10
Indirect Expression	Posttest	-.27	-.05
	Change	.40	.35
Total Part A	Posttest	-.43	-.20
	Change	.52	.42
Novaco RPS-Part B			
Disrespectful Treatment	Posttest	-.29	.03
	Change	.34	.22
Unfairness	Posttest	-.28	-.08
	Change	.36	.31
Frustration	Posttest	-.32	-.11
	Change	.35	.26
Annoying Traits	Posttest	-.29	-.02
	Change	.37	.27
Irritations	Posttest	-.36	-.11
	Change	.33	.23
Total - Part B	Posttest	-.34	-.07
	Change	.39	.29

NOTE TO USERS

Page(s) not included in the original manuscript are unavailable from the author or university. The manuscript was microfilmed as received.

96

This reproduction is the best copy available.

UMI

Table 13 (continued)

Correlations of Self-Report Posttest and Change Scores with Instructor Post-Program Ratings Both With and Without Controls for Socially Desirable Responding Scores

Measure	Phase	Simple Correlations	With SDR Controls
Rideau Anger Inventory	Posttest	-.47	-.35
	Change	.48	.43
MAI - Siegel	Posttest	-.35	-.06
	Change	.46	.30
Anger Arousal	Posttest	-.32	-.03
	Change	.33	.19
Range of Anger	Posttest	-.42	-.26
	Change	.53	.43
Hostile Outlook	Posttest	-.28	-.05
	Change	.50	.38
Anger-In	Posttest	-.18	-.14
	Change	.27	.07
Anger-Out	Posttest	.32	.12
	Change	-.15	-.09
MAI - R	Posttest	-.16	.05
	Change	.31	.26
Factor 1	Posttest	-.30	.01
	Change	.34	.15
Factor 2	Posttest	-.41	-.21
	Change	.54	.48

Table 13 (continued)

Correlations of Self-Report Posttest and Change Scores with Instructor Post-Program Ratings Both With and Without Controls for Socially Desirable Responding Scores

Measure	Phase	Simple Correlations	With SDR Controls
Anger and Emotions Quest.			
Insight	Posttest	.40	.36
	Change	.50	.44
Knowledge	Posttest	.51	.37
	Change	.37	.29
Competence	Posttest	.63	.49
	Change	.56	.42
Criminal Sentiments Scale			
ICO	Posttest	-.38	-.16
	Change	.19	.09
LCP	Posttest	.21	.04
	Change	.24	.08
TLV	Posttest	-.28	-.11
	Change	.23	.17

Note. SDR = Socially Desirable Responding; RPS = Reactions to Provocation Scale; MAI =

Multidimensional Anger Inventory; ICO = Identification with Criminal Others; LCP = Law, Courts, Police;

TLV = Tolerance for Law Violations. Treatment Group N = 62; Comparison Group N = 32. Significance

ranges: $p < .05$, $r \geq .25$; $r < .01$, $r \geq .32$.

each case, the magnitude of the association between self-report measures of anger experience, knowledge of skills, self-competence, and criminal sentiments at posttest and on change scores and program instructors' ratings was substantially reduced. The average simple correlation and partial correlation for posttest scores and change scores were significantly different, $t(58) = 4.44, p < .01$ and $t(58) = 3.50, p < .01$, respectively. These findings demonstrate that self-reports of anger and criminal sentiments, instructors' ratings, and the two measures of SDR (i.e., SDE and IM) are correlates.

Link between SDR and self-reports measures within the comparison group. The relationship between self-reported anger experience, knowledge of anger management skills, self-competence in anger management, and criminal sentiments on the one hand and SDE and IM on the other was also examined using the Comparison group. Because the inmates in this group were not participating in any correctional programs, this allowed for impact of contextual effects of a no treatment condition on SDR measures to be explored. The correlations between pretest and posttest self-report measures of anger and criminal sentiments with the corresponding measures of SDE and IM at pretest and posttest are presented in Table 14. An examination of these correlations revealed that the majority of the anger and criminal sentiments measures were associated with SDE and IM. The direction of these associations suggested that

Table 14

Correlations Between Pretest and Posttest Scores from Self-Report Anger Measures and Measures of Socially Desirable Responding at Pretest and Posttest: Comparison Group

Self-Report Anger Measure	Pretest		Posttest	
	SDE	IM	SDE	IM
Novaco Reactions to Provocation - Part A	-.31	-.25	-.17	-.27
Arousal Domain	-.37	-.25	-.20	-.27
Intensity	-.26	-.13	-.12	-.25
Duration	-.34	-.23	-.16	-.15
Somatic Activation	-.20	-.08	-.23	-.18
Irritability	-.36	-.27	-.53	-.46
Cognitive Domain	-.29	-.24	-.22	-.28
Attentional Focus	-.27	-.08	-.02	-.11
Rumination	-.28	-.24	-.36	-.24
Hostile Attitude	-.07	-.07	-.15	-.33
Suspicion	-.31	-.34	-.19	-.23

Table 14 (continued)

Correlations Between Pretest and Posttest Scores from Self-Report Anger Measures and Measures of
Socially Desirable Responding at Pretest and Posttest: Comparison Group

Self-Report Anger Measure	Pretest		Posttest	
	SDE	IM	SDE	IM
Behavioural Domain	-.22	-.23	-.09	-.23
Impulsive Reaction	-.31	-.26	-.08	-.11
Verbal Aggression	-.06	-.27	-.09	-.39
Physical Confrontation	-.03	-.07	-.05	-.09
Indirect Expression	-.38	-.40	-.29	-.22
Novaco Reactions to Provocation-Part B	-.30	-.29	-.17	-.27
Disrespectful Treatment	-.34	-.28	-.07	-.23
Unfairness	-.21	-.23	-.14	-.11
Frustration	-.26	-.25	-.17	-.20
Annoying Traits	-.25	-.27	-.28	-.40
Irritations	-.29	-.30	-.12	-.26
Rideau Anger Inventory	-.29	-.18	-.08	-.40
Multidimensional Anger Inventory - Siegel	-.28	-.19	-.08	-.25
Anger-Arousal	-.21	-.04	-.07	-.26
Range of Anger	-.33	-.28	-.08	-.25
Hostile Outlook	-.28	-.36	-.18	-.25
Anger-In	-.21	-.24	-.19	-.30
Anger-Out	.16	.32	.44	.38

Table 14 (continued)

Correlations Between Pretest and Posttest Scores from Self-Report Anger Measures and Measures of Socially Desirable Responding at Pretest and Posttest: Comparison Group

Self-Report Anger Measure	Pretest		Posttest	
	SDE	IM	SDE	IM
Multidimensional Anger Inventory - Revised	-.30	-.27	-.09	-.41
Factor 1	-.25	-.14	-.13	-.25
Factor 2	-.31	-.33	-.16	-.33
Anger and Emotions Questionnaire				
Insight Into Anger Problems	.06	-.01	.15	.06
Knowledge of Anger Skills	.41	.29	.25	.21
Self-Competence in Anger Management	.21	.08	.02	.04
Criminal Sentiments Scales				
Identification With Criminal Others	-.25	-.14	-.10	-.20
Law, Courts, Police	.19	.12	.30	.16
Tolerance Toward Law Violations	-.07	-.06	-.15	-.24

Notes. SDE = Self-Deceptive Enhancement; IM = Impression Management. Comparison Group N = 31.

Significance ranges: $p < .05$, $r \geq .35$; $p < .01$, $r \geq .44$.

participants were presenting a favourable picture of themselves. For example, measures of anger experience and antisocial attitudes were negatively correlated with both SDE and IM. Knowledge of anger management skills was positively associated with SDE and IM.

Insight into anger problems was not correlated with either SDE or IM at pretest or posttest. This scales appears to be less susceptible to the mechanisms of socially desirable responding. Self-competence in anger management and the physical confrontation subscale from the Behavioural Domain of RPC Part-A was also unrelated to SDE and IM at pretest and posttest.

Although some differences were observed, the general pattern and magnitude of the correlations were comparable to those observed with the Treatment group at pretest. The extent to which the Treatment and Comparison group showed a similar pattern of results attests to the robustness of the relationship between self-reports of anger and criminal sentiments and SDE and IM.

Analyses of links between SDR Measures and the LSI-OR scores for the Total Sample. Although it has been established that SDE and IM are related to one's presentation on self-report measures, a number of exploratory analyses were performed in search of support for the contention that SDE and IM are related to other types of measures (i.e., non- self- report) designed to assess an individual's attitudes and behaviour. Hence, the relationships between SDE and IM and each

of the eight subscales contained on the LSI-OR and the total Risk index (Risk) were examined. Because the pattern of relationships was similar, the Treatment and Comparison groups were combined for these analyses.

Four of the LSI-OR subscales (e.g., Criminal History, Employment/Education, Leisure/Recreation, and Antisocial Pattern) and the total Risk index showed substantial correlations with both SDE and IM (Table 15). In each case, an inverse relationship was observed between these measures and SDE and IM. In addition, an item on the LSI-OR that measures the number of institutional misconducts an inmate has been served to date was also negatively correlated with IM at pretest ($r = -.22$) and at posttest ($r = -.23$). On the whole, this pattern would suggest that SDE and IM are related to an individual's adjustment and prosocial orientation as measured by an external source.

Link between self-report measures and risk with controls for SDR for the total sample. Small to moderate correlations were observed among the pretest measures of anger experience, anger management skills, anger management self-competence, criminal sentiments, and Risk (Table 16). These correlations were re-examined with SDE and IM as covariates. An increase in the magnitude of the correlations between self-report measures of anger and attitudes on the one hand and Risk on the other would suggest that the SDR measures act as "suppressor" variables which mask the true relationship between these variables. Alternatively,

Table 15

Correlations Between Level of Supervision - Ontario Revision Scores and Socially DesirableResponding Scores at Pretest and Posttest: Total Sample (N = 91)

LSI - OR Scores	SDE Scores		IM Scores	
	Pretest	Posttest	Pretest	Posttest
Criminal History	-.36	-.27	-.24	-.26
Employment/Education	-.21	-.20	-.23	-.30
Leisure/Recreation	-.33	-.34	-.22	-.28
Family/Marital	-.13	-.17	-.15	-.17
Antisocial Pattern	-.39	-.26	-.23	-.34
Companions	-.12	-.11	-.05	-.14
Procriminal Orientation	-.15	-.11	-.16	-.23
Substance Abuse	-.17	-.05	-.21	-.17
Total Risk	-.41	-.34	-.26	-.38

Note. SDE = Self-Deceptive Enhancement; IM = Impression Management. Significance

ranges: $p < .05$, $r \geq .20$; $p < .01$, $r \geq .27$.

Table 16

Correlations Between Self-Report Measures and Risk Before and After Controls for SociallyDesirable Responding

Measure	Before SDR Controls	After SDR Controls
Novaco Reactions to Provocation S - Part A		
Arousal Domain	.29	.10
Intensity	.25	.13
Duration	.26	.05
Somatic Activation	.17	.02
Irritability	.34	.14
Cognitive Domain	.28	.12
Attentional Focus	.21	.11
Rumination	.23	.08
Hostile Attitude	.18	.06
Suspicion	.23	.10
Behavioural Domain	.28	.11
Impulsive Reaction	.26	.10
Verbal Aggression	.23	.13
Physical Confrontation	.23	.12
Indirect Expression	.24	.03
Total Part A	.30	.13
Novaco Reactions to Provocation S-Part B		
Disrespectful Treatment	.28	.14
Unfairness	.24	.09
Frustration	.25	.07
Annoying Traits	.30	.11
Irritations	.29	.12
Total Part B	.30	.12

Table 16 (continued)

Correlations Between Self-Report Measures and Risk Before and After Controls for SociallyDesirable Responding

Measure	Before SDR Controls	After SDR Controls
Rideau Anger Inventory	.27	.15
Multidimensional Anger Inventory-Siegel	.29	.12
Anger-Arousal	.30	.08
Range of Anger	.19	.07
Anger-In	.22	.06
Anger-Out	-.08	.02
Multidimensional Anger Inventory-Revised	.28	.08
Factor 1	.30	.10
Factor 2	.26	.07
Anger & Emotions Questionnaire		
Insight	-.09	-.05
Knowledge	-.29	-.10
Self Competence	-.33	-.15
Criminal Sentiments Scale		
ICO	.34	.21
LCP	-.39	-.34
TLV	.35	.32

Note. SDR = Socially Desirable Responding; ICO = Identification with Criminal Others; LCP = Law,

Courts, Police; TLV = Tolerance for Law Violations. Total sample N = 93. Significance ranges: $p < .05$, r

$\geq .20$; $p < .01$, $r \leq -.27$.

a decrease in the magnitude of the correlations between each of the self-report measures of anger and attitudes and Risk would suggest that the SDR measures are correlates of the former set of variables (i.e., measures of anger, attitudes, and Risk). In each case, the magnitude of the correlation between the anger and criminal sentiments measures with overall Risk was reduced after employing statistical controls for SDE and IM (see Table 14). The average simple correlation and average partial correlation were significantly different, $t(90) = 6.70$, $p < .01$.

Analyses of the Effects of the Treatment Intervention

For the purpose of comparing differences between the groups on the self-report measures, the present study is treated as a mixed between-within subjects design. However, because random assignment to conditions was not possible, the study is quasi-experimental in nature. Although some analyses utilized statistical controls for preexisting group differences, because the design is quasi-experimental, causal statements made with respect to any group differences that may emerge are limited. Nonetheless, using this mixed between-within subjects design allows for the change from pretest to posttest on self-report measures for the two groups to be compared. The independent variable "Group" is the between subjects factor and has two levels: Treatment and No Treatment Comparison. The second independent variable, Trial, is the within subjects factor. Treatment effects were assessed prior to and after the five week intervention (trial 1 and trial 2) whereas participants in the Comparison group were assessed on two occasions

separated by a five week interval corresponding to the duration of the anger management program. Scores obtained from each of the anger and attitude measures were treated as a repeated measure. Thus, the principal analyses followed a 2 x 2 (Group x Trial) design in which the various anger and criminal sentiments measures were submitted to a series of mixed- MANOVAs and follow-up mixed- ANOVAs.

It was expected that the groups would be equivalent at pretest and that only participants receiving the intervention would show change across the trials in a manner consistent with the goals of treatment (i.e., reductions in anger and criminal attitudes and enhancement of anger management skills and self-competence). In each case, it is the Group x Trial interaction that is of interest.

Reactions to Provocation Scale-Part A. The Reactions To provocation Scale - Part A is comprised of three domain measures; Cognitive, Arousal, and Behavioural. Using these measures, a significant multivariate effect was observed for the Group x Trial interaction. Follow-up individual Group x Trial mixed-ANOVAs on each of the three domain scores also revealed significant Group x Trial interactions (see Table 17 for a summary of this analysis). The means and standard deviations for each of these interactions are presented in Table 18.

Simple main effects indicated that the groups were equal at pretest on each domain; Cognitive, Arousal, and Behavioural . However, at posttest each of

Table 17

Multivariate and Univariate F Values for Novaco Reactions to Provocation Part A Domain
Subscales: Group, Trials, and Group x Trials Interaction

A. Multivariate Tests

Variable	F	df	p <
Group	5.60	3,89	.001
Trials	5.44	3,89	.01
Group x Trials	6.44	3,89	.001

B. Univariate Tests - Group Effect

Measure	F	df	p <
Cognitive Domain	14.12	1,91	.001
Arousal Domain	5.19	1,91	.01
Behavioural Domain	5.18	1,91	.01

C. Univariate Tests - Trials Effect

Measure	F	df	p <
Cognitive Domain	11.82	1,91	.001
Arousal Domain	16.52	1,91	.001
Behavioural Domain	10.48	1,91	.01

D. Univariate Tests - Group x Trials Interaction

Measure	F	df	p <
Cognitive Domain	13.55	1,91	.001
Arousal Domain	5.59	1,91	.05
Behavioural Domain	12.06	1,91	.001

Table 18

Mean Novaco Reactions to Provocation Scale Domain Scores by Groups and Trials(Standard Deviations in Parentheses)

Measure	Treatment		Comparison	
	Pre	Post	Pre	Post
Cognitive Domain	31.48	27.71	33.10	33.23
	(4.62)	(4.68)	(5.40)	(5.55)
Arousal Domain	31.08	26.94	32.55	31.45
	(6.06)	(6.38)	(7.29)	(7.59)
Behavioural Domain	30.66	26.06	31.29	31.45
	(6.30)	(6.57)	(7.48)	(7.30)

Note. Treatment Group N = 62; Comparison Group N = 31.

the domain scores was lower in the Treatment than the Comparison group; Cognitive ($F(1,91) = 25.27, p < .001$), Arousal ($F(1,91) = 9.10, p < .003$), and Behavioural ($F(1,91) = 12.89, p < .001$). Simple main effects for Trial indicated a significant decrease from pretest to posttest for the Treatment group on each domain score; Cognitive ($F(1,91) = 38.02, p < .001$) Arousal ($F(1,91) = 30.99, p < .001$), and Behavioural ($F(1,91) = 33.78, p < .001$). In contrast, the Comparison group did not show significant change from pretest to posttest on any domain measures. These results are consistent with the prediction that groups would be equal at pretest on self-report anger measures and that participation in treatment would result in significant reductions on outcome measures of anger. Simple main effect analyses are summarized in Appendix M.

The Cognitive, Arousal, and Behavioural domains are each comprised of four subscales yielding a total of 12 subscales that measure different dimensions of anger experience. The Group x Trial mixed- MANOVA on these subscales revealed a significant Group x Trial interaction. Hence, follow-up mixed ANOVAs were performed on each measure. All but five of the 12 subscales rendered the anticipated significant Group x Trial interaction. See Appendix N for a summary of this analysis. The means and standard deviations for these interactions are displayed in Table 19.

Table 19

Mean Novaco Reactions to Provocation Scale Scores - Part A by Groups and Trials (Standard Deviations in Parentheses)

PART A				
Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Cognitive Domain				
(a) Attentional Focus	8.65	7.82	8.87	8.74
	(1.37)	(1.45)	(1.36)	(1.18)
(b) Rumination	7.97	6.68	8.69	8.35
	(1.62)	(1.73)	(1.99)	(1.70)
(c) Hostile Attitudes	7.29	6.13	7.61	8.03
	(1.43)	(1.65)	(1.82)	(2.02)
(d) Suspicion	7.58	7.08	7.94	8.10
	(1.41)	(1.09)	(1.61)	(1.58)
Arousal Domain				
(a) Intensity	7.85	6.87	8.00	7.71
	(1.77)	(1.75)	(2.29)	(2.12)
(b) Duration	7.66	6.45	8.00	8.06
	(1.89)	(1.75)	(2.05)	(2.21)
(c) Somatic Activation	7.53	6.73	8.10	7.87
	(1.81)	(1.87)	(1.99)	(2.09)
(d) Irritability	8.03	6.89	8.45	7.81
	(1.51)	(1.68)	(1.91)	(1.99)

Table 19 (continued)

Mean Novaco Reactions to Provocation Scale Scores - Part A by Groups and Trials (Standard Deviations in Parentheses)

Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Behavioural Domain				
(a) Impulsive Reaction	7.52	6.52	7.68	7.84
	(2.23)	(2.12)	(2.51)	(2.18)
(b) Verbal Aggression	8.00	6.76	8.32	8.26
	(1.59)	(1.83)	(1.89)	2.03)
(c) Physical Confrontation	7.60	6.53	7.97	8.03
	(1.91)	(1.75)	(2.18)	(2.07)
(d) Indirect Expression	7.55	6.26	7.32	7.32
	(1.68)	(1.65)	(1.80)	(2.04)

The Group x Trial interactions for two of the Cognitive Domain subscales (i.e., Attentional Focus and Suspicion) and three of the Arousal Domain subscales (i.e., Intensity, Somatic Activation, and Irritability) failed to reach significance. Nonetheless, the significant Group x Trial interaction from the multivariate analysis performed on all 12 subscales, as well as the significant Group x Trial interaction on the three domain scores argued for proceeding with the simple main effects analyses for all of the measures (Keppel, 1982).

Analyses of simple main effects yielded an identical pattern across 11 of the 12 measures (i.e., all but the Irritability subscale from the Arousal domain). See Appendix O for a summary of these simple main effects. The Treatment group but not the Comparison group showed a reduction on all 12 measures from pretest to posttest. Finally, at posttest the Treatment group showed significantly lower self-reported anger on all subscales than the Comparison group. On the Irritability subscale, the Comparison group reported less anger at posttest than at pretest (i.e., a significant effect for Trial, $F(1,91) = 4.47, p < .05$).

Reactions to Provocation Scale- Part B & the Rideau Anger Inventory.

Part B of the RPC scale is comprised of five subscales whereas the Rideau Anger Inventory is comprised of 10 items that are summed to yield a total score. The five subscales from Part B; Disrespectful Treatment, Unfairness/ Injustice, Frustration/Interruption, Annoying Traits, and Irritations as well as, the Rideau Anger Inventory (RAI) all measure degree of anger intensity experienced in a

variety of anger provoking situations. The Group x Trial mixed-MANOVA on these six measures revealed a significant Group x Trial interactions. Hence, separate Group x Trial mixed-ANOVAs were performed on each of these six measures. Results revealed an identical pattern for five of the analyses; Disrespectful Treatment, Unfairness, Frustration, Irritations and the RAI. In each case, a significant Group x Trial interaction emerged (also see Table 20 for a summary of these analyses). The relevant means and standard deviations are presented in Tables 21 and 22 for Part- B subscales and Rideau Anger Inventory, respectively. Examination of the simple main effects for each of these interactions revealed that the groups were equal at pretest on these measures and that only participants who had received treatment showed a significant decrease from pretest to posttest. In each case, participants in the Treatment group reported less anger than those in the Comparison group at posttest. See Appendix P for a summary of the simple main effects.

In contrast, Group x Trial mixed-ANOVA on the remaining subscale Annoying Traits revealed significant main effects for Group and Trial ($F(1,91) = 12.11, p < .001$) and ($F(1,91) = 18.90, p < .001$), respectively. The Treatment group displayed less anger than the Comparison group and self-reported anger was lower at posttest than at pretest. Although no significant Group x Trial interaction was observed on this measure, the significant Group x Trial interaction from the multivariate analysis argued favourably for examining Group and Trial simple

Table 20

Multivariate and Univariate F Values for Novaco Reactions to Provocation Part B Subscales and Rideau Anger Inventory: Group, Trials, and Group x Trials Interaction

A. Multivariate Tests

Variable	F	df	p <
Group	2.73	6,86	.05
Trials	7.23	6,86	.001
Group x Trials	3.71	6,86	.01

B. Univariate Tests - Group Effect

Measure	F	df	p <
Disrespectful Treatment	9.84	1,91	.01
Unfairness/Injustice	7.35	1,91	.01
Frustration	9.33	1,91	.01
Annoying Traits	12.11	1,91	.001
Irritation	6.36	1,91	.05
Rideau Anger Inventory	10.92	1,91	.001

C. Univariate Tests - Trials Effect

Measure	F	df	p <
Disrespectful Treatment	9.11	1,91	.01
Unfairness/Injustice	24.61	1,91	.001
Frustration	19.13	1,91	.001
Annoying Traits	18.91	1,91	.001
Irritation	8.14	1,91	.01

Rideau Anger Inventory	30.76	1.91	.001
------------------------	-------	------	------

Table 20 (continued)

Multivariate and Univariate F Values for Novaco Reactions to Provocation Part B Subscales and Rideau Anger Inventory: Group, Trials, and Group x Trials Interaction

D. Univariate Tests - Group x Trials Interaction

Measure	F	df	p <
Disrespectful Treatment	7.48	1.91	.01
Unfairness/Injustice	6.43	1.91	.05
Frustration	4.17	1.91	.05
Annoying Traits	3.52	1.91	ns
Irritation	7.56	1.91	.01
Rideau Anger Inventory	18.61	1.91	.001

Table 21

Mean Novaco Reactions to Provocation Scale Scores - Part B by Groups and Trials (Standard Deviations in Parentheses)

Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Total	61.84	51.71	67.52	65.06
	(14.09)	(13.32)	(16.69)	(16.47)
(a) Disrespectful Treatment	12.16	10.21	13.23	13.13
	(3.22)	(2.90)	(3.73)	(3.58)
(b) Unfairness/Injustice	13.89	11.69	14.68	13.97
	(2.76)	(2.79)	(3.24)	(2.99)
(c) Frustration/Interruption	12.87	10.74	14.10	13.32
	(2.99)	(2.83)	(3.73)	(3.75)
(d) Irritations	10.94	9.19	11.74	11.71
	(3.19)	(2.91)	(3.77)	(3.81)
(e) Annoying Traits	11.98	9.87	13.77	12.94
	(3.43)	(3.30)	(3.78)	(3.87)

Note. Standard Deviations in parentheses. Treatment Group N = 62; Comparison Group N = 31.

Table 22

Mean Rideau Anger Inventory (RAI) Scores by Groups and Trials (Standard Deviations in Parentheses)

Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Total RAI	28.11	22.18	30.74	30.00
	(6.73)	(6.48)	(9.71)	(9.34)

Note. Standard Deviations in parentheses. Treatment Group N = 62; Comparison Group

N = 31.

main effects on this measure. These analyses revealed that the Comparison group reported more anger than the Treatment group at both pretest ($F(1,91) = 5.25$, $p < .05$) and posttest and ($F(1,91) = 15.84$, $p < .01$) that only the Treatment group showed a reduction in anger as a function of Trial ($F(1,91) = 29.07$, $p < .001$).

Multidimensional Anger Inventory - Siegel (MAI) & subscale. A

significant multivariate Group x Trial interaction emerged for the MAI's five subscales and the Total scale. On follow-up Group x Trial mixed- ANOVAs, significant Group x Trial interactions were observed for four of the five subscales: Anger Arousal, Hostile Outlook, Anger-In, and Anger- Out and the Total (see Table 23 for a summary of these analyses). Although the univariate Group x Trial interaction was not significant for the Range of Anger subscale, because the multivariate Group x Trial interaction was significant, the simple main effects for this measure were also examined. The relevant means and standard deviations for each of these interactions is presented in Table 24.

Except for Anger -out, the analyses of simple main effects revealed a similar pattern of results for each of these interactions. That is, the groups were equal at pretest, only treatment participants reduced anger as a function of trials, and treatment participants reported less anger at posttest than their comparison counterparts. Surprisingly, the participants in the Treatment group showed a significant increase on the Anger-Out measure. The simple main effect analyses are summarized in Appendix Q.

Table 23

Multivariate and Univariate F Values for the Multidimensional Anger Inventory (Siegel):Group, Trials, and Group x Trials Interaction

A. Multivariate Tests

Variable	F	df	p <
Group	2.48	6,86	.05
Trials	4.51	6,86	.001
Group x Trials	3.15	6,86	.01

B. Univariate Tests - Group Effect

Measure	F	df	p <
Anger Arousal	4.87	1,91	.05
Range of Anger	10.73	1,91	.001
Hostile Outlook	6.90	1,91	.01
Anger-In	8.98	1,91	.01
Anger-Out	2.90	1,91	ns
Anger Total	8.31	1,91	.01

Table 23 (continued)

Multivariate and Univariate F Values for the Multidimensional Anger Inventory (Siegel):Group, Trials, and Group x Trials Interaction

C. Univariate Tests - Trials Effect

Measure	F	df	p <
Anger Arousal	7.37	1,91	.01
Range of Anger	22.12	1,91	.001
Hostile Outlook	6.54	1,91	.01
Anger-In	13.03	1,91	.001
Anger-Out	.65	1,91	ns
Anger Total	16.68	1,91	.001

D. Univariate Tests - Group x Trials Interaction

Measure	F	df	p <
Anger Arousal	13.68	1,91	.001
Range of Anger	2.71	1,91	ns
Hostile Outlook	4.49	1,91	.05
Anger-In	7.60	1,91	.01
Anger-Out	4.19	1,91	.05
Anger Total	10.88	1,91	.001

Table 24

Multidimensional Anger Inventory (Siegel) Scores: Means and Standard Deviations by Groups and Trials

Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Total Score	70.52	58.37	75.84	74.55
	(17.73)	(19.27)	(19.50)	(17.55)
(a) Anger-Arousal	20.29	16.08	21.35	22.00
	(8.00)	(7.62)	(8.48)	(6.88)
(b) Range of Anger Situations	30.47	26.18	33.87	31.81
	(6.24)	(7.34)	(7.65)	(6.94)
(c) Hostile Outlook	11.08	9.35	12.16	12.00
	(3.61)	(3.54)	(3.84)	(3.64)
(d) Anger-In	13.79	10.42	15.23	14.77
	(5.19)	(5.31)	(4.72)	(4.22)
(e) Anger-Out	6.73	7.47	6.68	6.35
	(2.02)	(1.64)	(6.68)	(1.87)

Note. Standard Deviations in parentheses. Treatment Group N = 62; Comparison Group

N = 31.

The only measure that failed to show an univariate significant Group X Trial interaction was Range of Anger. However, in light of the significant Group x Trial interaction at the multivariate level, simple main effects were appropriately performed. In contrast with the pattern of differences observed with the other MAI subscale measures, the Treatment group reported significantly less anger than the Comparison group on the Range of Anger measure at pretest ($F(1,91) = 5.28, p < .05$).

Multidimensional Anger Inventory- Revised (MAI-R) & subscales. A

Group x Trial mixed-MANOVA was performed on the MAI-R two subscales and Total scale which were identified in a factor analytic article by Kroner et. al. (1992). Factor 1 represents an anger arousal/ experience dimension while Factor 2 was labelled range of interpersonal anger-eliciting situations. Results of this analysis revealed a significant multivariate Group X Trial interaction. Each of the three follow-up univariate Group X Trial interactions also attained significance (see Appendix R for a summary of these analyses). The relevant means and standard deviations for these interactions are presented in Appendix S.

Simple main effects for Factor 1 revealed that while groups were equivalent on self-reported anger at pretest, participants in the Treatment group reported less anger at posttest than their counterparts in the Comparison group ($F(1,91) = 11.24, p < .001$). Participants in the Treatment ($F(1,91) = 31.67, p < .001$)

but not those in the Comparison group showed significant reductions in self-reported anger from pretest to posttest.

In the case of Factor 2, simple main effects revealed that participants in the Comparison group reported more anger than those in the Treatment group at pretest ($F(1,91)=5.25, p<.024$) and posttest ($F(1,91) = 18.53, p<.001$). Only participants in the Treatment group reduced anger across trials: Treatment ($F(1,91) = 41.42, p<.001$).

Simple main effects on the Total scale revealed that the groups were equivalent in self-reported anger at pretest and that both groups reported significant reductions in anger from pretest to posttest: Treatment ($F(1,91) = 74.78, p<.001$) and Comparison ($F(1,91) = 9.93, p<.003$). However, participants in the Treatment group reported less anger than participants in the Comparison group at posttest ($F(1,91)=13.34, p<.001$).

Although the results observed for Factor 2 and Total scale are not fully supportive of the experimenter's hypotheses (i.e., the presence of pretest differences on Factor 2 and both groups reducing anger on Total), in both instances the Treatment group reported greater reductions in anger than the Comparison group. See Appendix T for a summary of these simple main effect analyses.

Anger & Emotion Questionnaire: Insight into Anger (Insight); Knowledge of Anger Management Skills (Knowledge); & Self-Competence in Anger

Management (Competence). Insight, Knowledge, and Competence measures were subjected to a Group x Trial mixed- MANOVA. A significant multivariate Group x Trial interaction emerged for these measures. Subsequent Group x Trial mixed-ANOVAs were performed on each scale. In each case, a significant Group x Trial was attained. Table 25 displays a summary of these analyses. The relevant means and standard deviations for the interactions observed on these scales are presented in Table 26.

The pattern of results for the simple main effects for Trial and Group were similar across the three scales. Groups were equivalent at pretest on Insight, Knowledge, and Competence. Participants in the Treatment group scored higher than their counterparts in the Comparison group on each measure at posttest: Insight, Knowledge, and Competence. Participants in the Treatment group showed a significant increase from pretest to posttest on each measure; Insight, knowledge, and Competence while participants in the Comparison group did not change as a function of trials on any of these measures. A summary of the simple main effects analyses is presented in Appendix U.

Criminal Sentiments Scales (CSS). The three subscales on the CSS: Identification with Criminal Others (ICO), Attitudes Toward Law, Courts, Police (LCP), and Tolerance for Law Violations (TLV) were subjected to a Group x Trial mixed-MANOVA. A significant Group x Trial multivariate interaction

Table 25

Multivariate and Univariate F Values for the Anger and Emotions Management**Questionnaire: Group, Trials, and Group x Trials Interaction****A. Multivariate Tests**

Variable	F	df	p <
Group	8.34	3,89	.001
Trials	9.10	3,89	.001
Group x Trials	8.12	3,89	.001

B. Univariate Tests - Group Effect

Measure	F	df	p <
Insight	10.47	1,91	.01
Knowledge	8.79	1,91	.01
Competence	20.26	1,91	.001

C. Univariate Tests - Trials Effect

Measure	F	df	p <
Insight	12.35	1,91	.001
Knowledge	7.74	1,91	.01
Competence	21.88	1,91	.001

D. Univariate Tests - Group x Trials Interaction

Measure	F	df	p <
Insight	8.16	1,91	.01
Knowledge	12.09	1,91	.001
Competence	18.94	1,91	.001

Table 26

Mean Anger and Emotion Management Questionnaire Scores by Groups and Trials (Standard Deviations in Parentheses)

Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Insight Into Anger Problem	49.16 (4.37)	52.90 (6.37)	47.61 (4.98)	48.00 (4.68)
Knowledge of Anger Management	13.81 (3.17)	16.13 (3.50)	13.35 (2.67)	13.10 (2.83)
Anger Management Competence	35.90 (6.99)	44.19 (7.68)	33.84 (9.27)	34.13 (6.80)

Note. Standard Deviations in parentheses. Treatment Group N = 62; Comparison Group

N = 31.

Table 27

**Multivariate and Univariate F Values for the Criminal Sentiments Scale: Group, Trials,
and Group x Trials Interaction**

A. Multivariate Tests

Variable	F	df	p <
Group	9.58	3.89	.001
Trials	6.63	3.89	.001
Group x Trials	6.83	3.89	.001

B. Univariate Tests - Group Effect

Measure	F	df	p <
Law, Courts, Police	25.49	1.91	.001
Identification with Criminal Others	18.96	1.91	.001
Tolerance for Law Violations	18.15	1.91	.001

C. Univariate Tests - Trials Effect

Measure	F	df	p <
Law, Courts, Police	6.58	1.91	.05
Identification with Criminal Others	2.58	1.91	ns
Tolerance for Law Violations	19.71	1.91	.001

D. Univariate Tests - Group x Trials Interaction

Measure	F	df	p <
Law, Courts, Police	9.89	1.91	.01
Identification with Criminal Others	14.32	1.91	.001
Tolerance for Law Violations	9.90	1.91	.01

Table 28

Mean Criminal Sentiments Scale Scores by Groups and Trials (Standard Deviations in Parentheses)

Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Attitudes - Law, Courts, Police	90.79 (13.38)	98.11 (13.14)	78.90 (18.16)	78.16 (20.19)
Tolerance for Law Violations	25.18 (5.73)	21.58 (5.54)	29.55 (7.80)	28.94 (8.69)
Identification with Criminal Others	15.32 (3.62)	13.73 (3.48)	17.58 (4.67)	18.23 (3.67)

Note. Standard Deviations in Parentheses. Treatment Group N = 62; Comparison Group

N = 31.

emerged. On follow-up mixed-ANOVAs, each of the Group x Trial interactions also achieved significance (see Table 27 for a summary of these analyses). The relevant means and standard deviations for each of these interactions is presented in Table 28.

Inspection of the Group and Trial simple main effects for each of these interactions yielded a similar pattern of results. In each case, participants in the Comparison group reported more negative attitudes towards the criminal justice system on both trials; ICO, LCP, and TLV. In addition, only participants in the Treatment group demonstrated change in a positive direction from pretest to posttest on each of these measures: ICO, LCP, and TLV. In the case of LCP, higher scores indicate more prosocial attitudes. The simple main effects for Trial in the Comparison group were all nonsignificant. See Appendix V for a summary of these analyses.

Test of the Risk Principle. The means and standard deviations on the LSI-OR subscales and total Risk were previously presented in Table 4. To test the Risk/Need Principle, a median split was performed on the General Risk/Need Factors (Risk) score from the LSI-OR. A new grouping factor was then created by recoding those individuals who placed either below (0 to 23) and above (24 to 43) the median on Risk into two sub-groupings representing Low Risk and High Risk, respectively. The Treatment and Comparison groups are similar to one another and to a normative sample from RCTC on the Risk/ Needs Factors scale.

Change scores on all the self-report measures were then submitted to a Between-subjects ANOVA with two independent variables Group (Treatment/Comparison) and Risk (Low/High). Change scores were computed for all measures in such a way that higher scores indicated greater reductions in anger experience, identification with criminal others and tolerance for law violations and greater enhancements on insight into anger, knowledge of anger management skills, self-competence in anger management skills, positive attitudes towards the law, courts and police, self-deceptive enhancement and impression management. In these analyses it is the Risk x Group interaction that is of interest.

Only one dependent variable achieved significance on the Group x Risk interaction. Rideau Anger Inventory ($F(1,89) = 5.42, p < .022$). See Appendix W for a display of the relevant means and standard deviations for this interaction. Analyses of simple main effects for Risk revealed a significant effect for participants in the Treatment Group ($F(1,91) = 72.92, p < .001$) but not for participants in the Comparison group. That is, Treatment participants in the "High" Risk category showed greater reductions in anger experience than their counterparts in the "Low" Risk category on the Rideau Anger Inventory. Simple main effects for Group were significant at both "Low" and "High" levels of Risk; ($F(1,91) = 21.75, p < .001$) and ($F(1,91) = 23.87, p < .001$), respectively. At each level of Risk, inspection of the means revealed that participants in the Treatment group reduced anger more than those in the Comparison group.

Group effects with controls for pretest differences. Group effects were re-analyzed with statistical controls for all initial group differences. To this end, change scores as calculated above were submitted to a Between-subjects ANCOVA with Group as the independent variable (which is equivalent to the test of the Group x Trial interaction from the mixed- ANOVAs presented in the previous analyses) and all measures on which initial group differences emerged being entered as covariates.

A total of nine variables were identified as appropriate covariates (see Table 29). In terms of the self-report measures, these included Factor 2 on the MAI-R (which reflects range of interpersonal anger-eliciting situations). Range of Anger (eliciting situations) from the original MAI. Annoying Traits from Part-B of Novaco's Anger Inventory, and the three subscales from the CSS (i.e., ICO, LCP, TLV). In each case, the scores on these pretest measures indicated more pronounced problems in the Comparison group (i.e., more anger and more criminal sentiments). In addition, group differences were detected on two of the eight subscales from the LSI; Family/Marital and Substance Abuse. The Treatment group had more pronounced problems on these two subscales. In addition, the participants in the Treatment group were older than those in the Comparison group.

A summary of the results from these ANCOVAs are presented in Appendix X. Controlling for group differences on these nine variables did not

Table 29

Group Differences on Selected Pretest Variables

Variable	Treatment M	Comparison M	t	p <
Age	38.84 (7.88)	27.84 (8.81)	3.33	.001
Family/Marital (LSI-OR)	1.95 (1.09)	1.42 (1.08)	2.22	.05
Substance Abuse (LSI-OR)	5.03 (1.91)	3.94 (2.63)	2.29	.05
MAI-R - Factor 2	35.59 (8.46)	40.09 (9.76)	-2.30	.05
MAI - Range of Anger	30.47 (6.24)	33.87 (7.65)	-2.30	.05
RPC- Part B: AT	11.98 (3.43)	13.77 (3.09)	-2.29	.05
CSS - LCP	90.79 (14.17)	78.90 (18.16)	3.59	.001
CSS - ICG	15.32 (3.62)	17.58 (4.67)	-2.57	.05
CSS - TLV	25.18 (5.73)	29.55 (7.79)	-3.06	.01

Note. Treatment Group N = 62; Comparison Group N = 31. M = Mean (standard deviations in parentheses). MAI-R = Multidimensional Anger Inventory-Revised; MAI = Multidimensional Anger Inventory; RPC = Reactions to Provocation Scale; CSS = Criminal Sentiments Scale; LCP = Law, Courts, Police; ICO = Identification with Criminal Others; TLV = Tolerance for Law Violations.

have a great impact on the superiority demonstrated by participants in the Treatment group over their counterparts in the Comparison group. In fact, inspection of the F statistics revealed that in many cases the ANCOVA enhanced the treatment gains demonstrated by the Treatment group. There was only one instance where an ANCOVA produce a nonsignificant effect for a parallel significant effect from the ANOVAs (i.e., Anger-Out subscale from the MAI). Alternatively, there were four occasions where ANCOVA produced significant results when the ANOVAs were nonsignificant; Suspicion subscale from the Cognitive domain and Intensity subscale from Arousal domain from Part A of Novaco's inventory. Annoying Traits subscale from Part-B of Novaco's inventory. and the Range of Anger subscale from the MAI.

Intervention effects with controls for Impression Management and Self-Deceptive Enhancement. It has been argued that self-report measures with content linked to emotional adjustment (as is the case with anger) should only be corrected for impression management and not self-deceptive enhancement due to the latter dimensions' positive association with emotional adjustment (See Paulhus 1984 & 1991). Consequently, a series of analyses of covariance (ANCOVA) was performed to test the experimenter's hypothesis that controlling for impression management would eliminate some but not all of the observed group differences on change scores. Specifically, change scores were submitted to

Table 30

ANCOVAs Of Change Scores With Pretest and Posttest Impression Management Scores as Covariates: All Measures

A. Novaco Reactions to Provocation Scale

Measure	F (1.89)	p <
Part A		
* Arousal Domain	2.11	ns
Intensity	.67	ns
Duration	4.33	.05
Somatic Activation	1.17	ns
Irritability	.42	ns
Cognitive Domain	7.92	.01
Attentional Focus	1.28	ns
* Rumination	2.96	ns
Hostile Attitude	12.06	.01
Suspicion	3.46	ns
Behavioural Domain	6.26	.05
* Impulsive Reaction	2.74	ns
Verbal Aggression	5.23	.05
Physical Confrontation	3.92	ns
Indirect Expression	6.11	.05
* Part B	3.43	ns
* Disrespectful Treatment	3.53	ns
* Unfairness	3.53	ns
* Frustration	1.18	ns
Annoying Traits	1.07	ns
* Irritations	3.81	ns

Table (continued)

ANCOVAs Of Change Scores With Pretest and Posttest Impression Management Scores as Covariates: All Measures

B. Other Measures

Measure	F (1,89)	p <
Rideau Anger Inventory	13.75	.001
* Multidimensional Anger Inventory	1.62	ns
Anger-Arousal	6.82	.05
Range of Anger	.45	ns
* Anger-In	2.68	ns
* Anger-Out	2.49	ns
* Hostile Outlook	1.62	ns
* Multidimensional Anger Inventory-R	2.38	ns
* Factor 1	3.37	ns
* Factor 2	2.17	ns
Anger and Emotions Questionnaire		
Insight	6.10	.05
Knowledge	6.22	.05
Self Competence	11.75	.001
Criminal Sentiments Scale		
ICO	7.47	.01
LCP	4.59	.05
TLV	7.73	.01

Note. * denotes scores that change from significant to nonsignificant after controls for Impression

Management Scores. ICO = Identification with Criminal Others; LCP = Law, Courts, Police;

TLV = Tolerance for Law Violations.

a between-subjects ANCOVA using Group as the independent variable and IM from pretest to posttest as the covariate. A summary of these analyses are presented in Table 30. An examination of these analyses indicated that 15 of the original 30 significant group main effects were rendered nonsignificant when statistical controls for impression management were used. These 15 measures included: the Arousal Domain; Rumination subscale from the Cognitive Domain; Impulsive Reaction subscale from the Behavioural Domain; the total scale score for Part-B of the Reactions to Provocation scale and four of its five subscales: Disrespectful Treatment, Unfairness, Frustration, and Irritations; the Hostile Outlook, Anger-In, and Anger-out subscales from the MAI; and Factor 1, Factor 2, and the Total scale score from the MAI-R. Despite the fact that approximately fifty percent of the group differences were eliminated after controlling for impression management, it is noteworthy that 16 of the original 30 significant group difference were maintained.

At the level of simple main effects, controlling for impression management had much less of an impact on the overall pattern of results. Specifically, there were only two measures that failed to yield a significant effect for Trial for participants in the Treatment group; the Impulsive Reaction subscale from the Behavioural Domain and the Anger-Out subscale from the MAI. The only other differences that emerged after employing statistical controls for IM

were (a) the groups differed at pretest on two measures; the Rumination subscale from the Cognitive Domain and the Frustration subscales from Part-B of the Reactions to Provocation scale and (b) the groups failed to differ on two measures at posttest; Intensity subscale from the Arousal Domain and the Irritability subscale from the Cognitive Domain. Hence, it is clear that impression management did not have a large impact on the majority of the self-report measures used in this study. That is, although the magnitude of change observed in the Treatment group relative to that observed in the Comparison group on a number of the measures was reduced, analysis of covariance (IM as the covariate) at the level of simple main effects were for the most part unchanged - The Treatment group continued to show the desired gains as a function of exposure to treatment.

For the purpose of comparison, a parallel series of ANCOVAs were performed on change scores using pretest and posttest self-deception scores as covariates. These analyses are presented in Appendix Y. The pattern of results are comparable to those observed when pretest and posttest scores on impression management were used as covairates. Approximately fifty percent of the measures failed to yield the desired significant main effect for Group on change scores. Nonetheless, at the level of simple main effects, controlling for self-deceptive enhancement had little impact on the overall picture.

Discussion

The participants in the Anger Management program in this study were offenders who had serious problems with anger as documented by their criminal histories, self-reports, and a formal psychological assessment that was completed prior to being admitted to the anger management program. The primary purpose of this study was to examine the influence of SDR as measured by Self-Deceptive Enhancement (SDE) and Impression Management (IM) on self-reports of anger within this group both prior to and following participation in treatment. However, for purposes of comparison, the relationships between these measures of SDR and self-reports were also examined with a second group of offenders who were not participating in any sort of correctional program. This permitted an exploration of the possibility that the effects of SDR might be moderated by situation or context. One might expect, for example, that IM would have a different impact on self-report measures in a treatment situation where the individual is sensitized to the importance of one's image or interactional style than in a nonevaluative situation. However, in this and other comparisons of the Treatment and Comparison groups it must be remembered that the two groups were not formed randomly and any contrasts must be regarded with some caution.

The discussion opens with a comparison of the changes observed on the self-report measures of anger and attitudes in the Treatment and Comparison

groups, along with the impact of certain control variables, in particular IM. Following this the nature of the relationship observed between each of the self-report measures on the one hand and impression management and self-deceptive enhancement on the other is discussed. Finally, a discussion on the relationship between impression management, self-deceptive enhancement, and the self-report measures on the one hand and two external sources of information (non-self-report measures); the LSI-OR and instructors' post-program evaluations of the participants is presented.

The Treatment group benefited significantly from the Anger Management program, as evidenced by reductions on self-report measures of anger experience and criminal sentiments from pretest to posttest. Reductions were observed on clinically oriented domains of reactions to anger including cognitive, arousal, and behavioural, as well as on a number of measures that assessed intensity of anger experienced in a variety of anger eliciting situations. In short, treatment participants showed therapeutic gains (as measured by change from pretest to posttest) on all of the anger inventories and their respective subscales.

However, when the reductions in anger for the Treatment group were examined relative to those observed in the Comparison condition, a number of the inventories and subscales failed to yield the desired outcome at the Group X Trial interaction level (although at the level of simple main effect analyses the superiority of the Treatment group relative to the Comparison group was

maintained). These included two subscales from the Cognitive Domain (e.g., Attentional Focus and Suspicion), three subscales from the Arousal Domain (e.g., Intensity, Somatic Activation, and Irritability), the Annoying Traits subscale from Part-B of the Reactions to Provocation Scale, and the Range of Anger subscale from the Multidimensional Anger Inventory. Given the cognitive-behavioural orientation of the Anger Management program under study, the fact that the arousal facets were most resistant to change is not surprising. The Anger Management program does incorporate relaxation counter-conditioning procedures but this training comprises only a small part of the total curriculum.

One unexpected finding was that treatment participants showed an increase from pretest to posttest on the Anger-Out subscale taken from the MAI. This subscale is comprised of two items that reflect the ease with which one can let another know that they are angry with them. Given that a substantial portion of the Anger Management program is directed at teaching assertive communication, the increase observed on Anger-Out may be viewed in a positive light. Specifically, inmates are taught that it is okay to let others know that they are upset provided it is done in an appropriate manner. To this end, inmates are instructed on how to give negative feedback to others in a positive and non-threatening manner. In this light, perhaps it should not be surprising that, following treatment, participants were more inclined to agree with statements such as "When I am angry with someone, I let that person know." Consistent with

this line of reasoning, participants showed a decrease on the Anger-In subscale from the MAI, a measure that taps the extent to which one privately harbors grudges and anger. Furthermore, participants scores on Anger-Out were inversely related to all the other self-report measures of anger experience at posttest. From these analyses, it would appear that the increase from pretest to posttest on Anger-Out reflected a therapeutic effect (i.e., an increase in assertive communication skills).

Further support that participants benefited from treatment comes from improvements observed on measures of insight into anger problems, knowledge of anger management skills, and self-competence in anger management. Gains on these measures suggest that following exposure to treatment, the participants were able to apply more effective coping strategies and skills to deal with anger provoking situations.

Interestingly, therapeutic gains were also observed on three measures of criminal sentiments that were designed to assess the extent to which one (a) identifies with law violators, (b) tolerates law violations, and (c) endorses positive attitudes towards the law, courts, and police. The fact that therapeutic gains were generalized to measures of criminal sentiments speaks to the comprehensiveness of the program and its ability to teach participants how to better manage anger, as well as to change antisocial and procriminal attitudes that have been shown to be linked to involvement with the criminal justice system. Because the Criminal

Sentiment Scales have been shown to be predictive of recidivism (Simourd, 1997), the Treatment participants' reductions on these scales suggest that they may be less likely to recidivate.

In contrast, with two exceptions (i.e., the Irritability subscale from the Arousal Domain and the Total scale from the MAI-R), participants serving in the Comparison group did not show significant reductions on either self-report anger or criminal sentiments scale scores from pretest to posttest. Furthermore, at the level of simple main effect analyses, relative to the Treatment group the Comparison group reported more anger and antisocial attitudes and less skill and self-competence in anger management at posttest.

The decrease from pretest to posttest on the Irritability and Total MAI-R for Comparison participants is consistent with a recent study (Mills, Kroner, & Forth, 1997) which found that scores on a number of anger inventories including the Novaco Anger Inventory decreased as a function of time spent incarcerated. On the basis of findings reported by Zamble & Porporino (1988), these authors contended that the decrease in anger may have been due to a corresponding decrease in offender anxiety level during the course of incarceration, citing also that anxiety has been shown to be positively associated with anger (Spielberger, Jacobs, Russell, & Crane, 1983). To the extent that this argument is tenable, one might expect the arousal facets to be particularly sensitive to decreases in anxiety. This may account for the reduction observed on the Irritability subscale and the

Total scale MAI-R (a large portion of the items on this scale measure anger arousal) in the Comparison group in the present study.

While the evidence supporting the benefits of treatment is ample, it must be interpreted with some caution given the nature of the design. Confidence in the results is strengthened by the fact that the differences between the groups were maintained even when controlling for a number of variables on which the groups differed at pretest. The latter included two measures of range of anger experience (Factor 2 subscale of the MAI-R and the Range of Anger subscale from the original MAI), the three criminal sentiments dimensions (ICO, TLV, and LCP) and two subscales from the LSI-OR (Family and Marital and Substance Abuse), and age. In fact, the application of statistical controls for pretest differences, for the most part enhanced the magnitude of therapeutic gains of the Treatment group relative to the Comparison group in terms of positive change observed from pretest to posttest on the self-report measures.

In addition, the fact that Treatment participants' responses on the anger measures at posttest and on gains scores were also positively associated (in a direction that indicated agreement) with instructor post-program evaluation of the participants provides good evidence for the validity of the former. Agreement between offender responses on the Behavioural, Arousal, and Cognitive Domains of the Reactions to Provocation scale and ratings provided by clinical staff have been reported elsewhere (Mills et. al, 1998).

The posttest responses on two of the three CSS scales were also significantly correlated with instructor evaluations; Identification with Criminal Others ($r = -.38$) and Tolerance For Law Violations ($r = -.28$). The reader will recall that instructors' evaluation was derived from a composite comprised of three items tapping motivation, acquisition of anger management skills, and insight into anger problems. Hence, as expected the instructor evaluation had somewhat lower correlations with the measures of criminal sentiments than self-reports of anger measures since two of the items on the instructor evaluation measure specifically address dimensions of anger (i.e., participant's insight and skills with respect to anger).

The Treatment group in this study was exposed to a highly structured and focused program designed to teach a variety of cognitive-behavioural strategies for understanding and managing negative emotions. The finding of significant gains in the Treatment group across a wide range of anger measures, as well as measures of criminal sentiments is encouraging and supports the results of previous evaluation studies (Hughes, 1993; Hunter, 1993; Kennedy, 1990; Marquis, Bourgon, Armstrong, & Pfaff, 1996; Rokach, 1987; Stermac, 1987). As well, a no treatment comparison group was included in the design. Random assignment of participants to the two groups was not possible, but still the comparisons that were made increase our confidence in the efficacy of the cognitive-behavioural intervention.

It has been argued that response to correctional treatment is most effective when clients and treatment are matched in terms of criminogenic risk factors. Simply stated, this principle holds that offenders with greater risk/needs factors required more intensive treatment than those with less risk factors. That is, optimal therapeutic outcomes are likely to be achieved when the risk level of the offender corresponds with the intensity of the treatment program. Two meta-analytic studies provide strong evidence for this principle (Andrews et. al., 1990; Dowden; 1998). Given that the program under study is of a highly structured and intensive cognitive-behavioural design, it was anticipated that high Risk offenders would be more responsive to treatment than low Risk offenders. The test of the Risk principle was accomplished by dividing both the Treatment and Comparison groups into "High" and "Low" Risk sub-groupings on the basis of a median split. The Group x Risk ANOVAs on the gains scores computed for each dependent variable yielded only one significant interaction effect. Consistent with predictions, in the Treatment group, High Risk offenders exhibited greater reductions in anger as compared to Low Risk offenders on the Rideau Anger Inventory. However, with this one exception, the absence of an effect for Risk in the present study is consistent with three previous studies (Antonowicz & Ross, 1994; Robinson, 1996; Yokoyama, 1997) that applied similar procedures to test the Risk Principle and reported equivalent therapeutic gains for Low and High Risk offenders following participation in correctional programming.

Several factors may account for the null effect that Risk had on participants' responsiveness to treatment. First, using a median split to form subgroupings of Low and High Risk does not yield two extreme groupings of Risk. Instead, both the Low and High Risk subgroups comprise a substantial portion of "moderate" Risk offenders and offenders with moderate risk levels have been shown to be responsive to treatment. In addition, regardless of participant's overall Risk score on the LSI-OR (which on average fell within the low end of the High risk category for provincial offenders), before commencing treatment each participant had been identified as having profound difficulties in the domain of anger management. Hence, with reference to anger all of the participants were deemed as being high need. Taken together these factors may help explain why High and Low Risk offenders were for the most part equally responsive to treatment.

Although the therapeutic gains observed in this study are substantial, it could be argued that the gains could be due in whole or in part to response biases. The self-report measures used in the program do have a high degree of face validity, and, further, the participants in the treatment were being sensitized to the way in which they express anger. Participants may have tailored their responses to the expectations and goals emphasized in the program. As we have seen, a primary goal of this study was to assess the extent to which response biases may have influenced the program effects.

Two measures of SDR were included; Self-Deceptive Enhancement and Impression Management. Self-Deceptive Enhancement (SDE) involves holding an overly positive view of oneself that the subject actually believes to be true.

Although SDE may reflect a lack of insight, it does not appear to be related to purposeful dissimulation. Hence, most researches and clinicians assert that self-reports should not be corrected for SDE when evaluating treatment gains. On the other hand, IM does reflect a conscious attempt on the part of the respondent to present a favourable picture of oneself. It is this type of SDR that is problematic when addressing the validity of self-reports.

In the present study, participants responses at pretest and to a greater degree at posttest, were moderately correlated with both Self-Deceptive Enhancement and Impression Management. In addition, gain scores on the self-report measures of anger and attitudes were positively associated with gain scores on Self-Deceptive Enhancement and Impression Management. These findings support previous empirical literature which examined the relationship between SDR and self-reported anger (Dutton & Hemphill, 1992; Flett et al., 1988; Gudjonsson et. al., 1991; Hall, 1989) and the relationship between SDR and criminal sentiments (Simourd, 1997; Yokoyama, 1997).

However, a number of additional findings in the study suggested that the therapeutic gains observed on the self-report measures were not solely due to mechanism of SDR. First, although improvements were noted on self-report

ratings of anger experience, knowledge of skills, self-competence in anger management and criminal sentiments, participants continued to indicate that they had some difficulties in these areas and did not merely endorse the most prosocial response. Furthermore, although participants in the Treatment group increased in impression management from pretest to posttest, their scores on this measure moved from below the mean (for honest responding) at pretest to just slightly above the mean (for honest responding) at posttest. Even at posttest, participants' degree of impression management still remained substantially below the range that is considered to imply that the individual is playing up his or her good points (Paulhus, 1989; Paulhus et. al., 1995). Together these findings suggests that the participants in this study were not overly invested in creating a favourable impression but rather were responding in a relatively frank and unguarded manner.

Despite these findings, the extent to which SDE and IM were related to the self-report measures tended to suggest that the self-reports were to some extent contaminated by SDR. In the case of SDE, the association with self-reports does not imply that the participants engaged in a purposeful effort to fake good, therefore many argue that it should not be used to correct the self-reports. In contrast, the association between the self-reports and IM is more problematic in that it may indicate a purposeful attempt on the part of the participants to provide an overly positive profile on the self-report measures.

When the gains demonstrated by the Treatment group as compared with those observed in the Comparison group were re-examined via a series of ANCOVAs with pretest and posttest measures of impression management being used as covariates, the number of significant effects observed was dramatically reduced. Fifteen of the 30 originally significant group differences on gains scores failed to achieve significance when statistical controls for IM were applied. Hence, at the Group x Trial interaction level impression management had a substantial impact on the superiority demonstrated by the Treatment group over the Comparison group. However, when controls for impression management were applied at the level of simple main effects, the overall pattern of results was virtually unchanged. Only three subscales failed to detect superior performance for the Treatment group relative to the Comparison group; the Intensity and Irritability subscales from the Arousal Domain and the Impulsive Reaction subscale from the Behavioural Domain. Taken at face value, these results imply that a few of the treatment gains were due to treatment participant's employing a fake good response style (IM). A parallel series of analyses were performed using pretest and posttest self-deceptive enhancement as covariates. The overall pattern of results were similar to those observed for impression management.

Additional analyses were conducted to assess whether SDR scores were related to treatment performance where performance was assessed through an external criterion, instructors' post- program evaluations. SDE and IM posttest

scores were, in fact, significantly correlated with instructors' evaluations.

Similarly, changes in SDR scores were correlated with instructors' evaluations.

The nature of these associations indicated that participants who expressed relatively higher degrees of IM and SDE at posttest and those who showed greater increases on the SDR measures from pretest to posttest were rated more favourably by the program instructor. A plausible interpretation of this relationship is that the two sources (i.e., participant's SDE and IM and instructors' evaluative ratings) share substantive trait variance and that this accounts for the correlation between them.

As noted previously, the instructors' post-program evaluation was formed from a composite which reflected a number of dimensions including participants' improvement on insight into the nature of their anger problems, motivation to work on their anger problem during the course of treatment, and the degree of improvement in their anger management skills. A composite of these ratings was found to be related to the participants' posttest responses and gains scores on the anger and criminal sentiment measures. The nature of these associations indicated that lower self-reports of anger and criminal sentiment at posttest were associated with higher post-program instructors' evaluations. Furthermore, the degree of change (i.e., gains) on these self-report measures from pretest to posttest was positively associated with instructors' post-program ratings. The extent of the

agreement between the instructors' evaluations and the participants' own reports provides evidence for the validity of the latter.

The role of SDR in self-report measures was also approached from another direction, one suggested earlier by McCrae & Costa (1983). These analyses involved using the SDR measures as covariates when examining the relationship between self-reports of anger and attitudes and instructors' evaluations of participant's treatment performance (i.e., an external criterion).

Evidence to support the contention that self-reports in this study reflect more than socially desirable responding (i.e., impression management and self-deception enhancement) or a fake-good response style comes from the reductions observed in the magnitude of the correlations between the self-reported anger experience, knowledge of skills, self-competence in anger management, and criminal sentiments and instructors' post-program evaluations when SDE and IM were partialled out. The extent to which controlling for SDE and IM reduces the magnitude of the association between the self-report measures and instructor evaluation (i.e., an external source of information) suggests that the SDR measures account for some of the shared "substantive" variance between the participants' scores self-report measures and instructors' evaluations. On the other hand, if SDE and IM reflect a fake-good response style, we should expect to see an increase in the correspondence between the participants self-reports and

instructor ratings after controlling for self-deceptive enhancement and impression management. Clearly, this was not the case.

The reduction in the magnitude of the correlations between self-report measures and instructors' evaluations when the SDR measures were used as covariates implies that SDE and IM are correlated with the self-report measures as well as, instructors' evaluations. Consequently, in the present context it appears that SDE and IM may be more accurately construed as measures of a general pattern of dispositions or attitudes. This conceptualization of SDR measures has been put forth by others. For example, although Crowne and Marlowe (1960) devised their scale as a measure of SDR as a contaminant, they gradually accumulated evidence to suggest that socially desirable responding was a wide-ranging, stable personality trait reflecting need for approval. Individuals who behave in a socially desirable fashion, including in response to questionnaires, do so to seek approval and to avoid disapproval (Crowne & Marlowe, 1964). Thus, individual differences in SDR may represent, at least in part, wide-ranging differences in personality and behaviour.

The conception of socially desirable responding as a stable individual difference demands reconsideration of the presumption that a correlation between an inventory and social desirability means that the inventory is contaminated with social desirability (Ganster, Hennessey, & Luthans, 1983) and that control is mandatory (Zerbe & Paulhus, 1987). In the current case, the measures of socially

desirable responding (SDE and IM) may represent content variance because both maybe conceptually related to the constructs of interest, namely anger and criminal sentiments. For example, we might expect that individuals who have a high need for social approval and acceptance would also be less likely to inappropriately express anger and criminal sentiments. If this is the case, the relationship between socially desirable responding either through SDE or IM mechanism and self-reports of anger and criminal sentiments may represent convergent validity and indiscriminate control of IM and SDE would be discounting content variance.

In general, SDR can be considered contamination only when, within a particular theoretical context, the construct that SDR represents is unrelated conceptually to the constructs of interest. Researchers must examine the conceptual role of SDR in the theoretical network surrounding the constructs that are of interest to them and determine whether SDR represents contamination or plays a substantive role. If the latter holds true, predictive validity may be the hapless causality of attempts to control for SDR.

The results from the present study suggest that a substantial portion of IM and SDE are related to pro-social behaviour and emotional adjustment constructs as measured by an external source (instructor evaluations). On the basis of these findings, it would seem imprudent to partial out IM and SDE as they also appear to be related to attributes that the Anger Management program is in effect

designed to instill in the participants. The extent to which this proposition has merit, suggests that the increases observed on SDE and IM from pretest to posttest in the Treatment group, may reflect improvements in their degree of prosocial orientation. Additional analyses were performed to examine the relationship between the measures of SDR and other external criteria.

Given that the pattern of associations between the self-report measures of anger and attitudes and both Self-Deceptive Enhancement and Impression Management were similar for the Treatment and Comparison group at pretest, the two groups were combined to perform some additional analyses. Using the total sample, it was found that self-reports of anger and attitudes at pretest were associated both with Risk and the two SDR measures; SDE and IM. The nature of these associations indicated that self-reports of anger and criminal sentiments were positively associated with Risk while self-report measures of anger management skills and self-competence and prosocial attitudes were negatively associated with Risk. Furthermore, Risk was also negatively associated with both SDE and IM. Because Risk is a measure derived primarily from external sources of information (i.e., documented criminal history, record of education and employment, family history) and has been shown to reflect an individual's criminogenic risk/ need profile (i.e., behavioural, emotional, and social adjustment), its negative association with SDE and IM suggests that those who present with more SDE and IM tendencies are relatively better adjusted and more

prosocial. Several previous studies (Hare, 1982; Harpur, Hare, & Haskins, 1989) have reported similar negative associations between measures of SDR and a measure of psychopathy. In both of these studies, the Lie scale from Eysenck's Personality Inventory was significantly negatively correlated with the total scale score on Hare's Psychopathy Checklist.

An interesting finding in the present study was the dramatic reduction in the association between each of the self-report measures and Risk when SDE and IM were used as covariates. If SDE and IM were clean measures of socially desirable responding (i.e., function only as contaminants), then statistical controls for these variables should increase the magnitude of the association between the self-reports of anger and attitudes and Risk. These findings support what was found when similar procedures were applied in examining the relationships among self-report measures and instructors' evaluations. Again, response style (i.e., SDE and IM) did not appear to operate as a "nuisance factor" but rather functioned as a correlate of anger, criminal sentiments, and Risk. The negative correlation observed between Risk and SDE and IM, replicates past research findings of a negative association between official records of violent behaviour and measures of SDR (Kroner & Weekes; 1996b; Selby, 1984).

The reduction in the predictive validity coefficient for self-reports with either instructors' evaluations or Risk after employing statistical controls for SDE and IM supports previous findings. For example, Kriedt and Dawson (1961)

found that a faking response style on the Gordon Personality Inventory correlated (.47) with supervisory ratings of clerical performance. When socially desirable responding was partialled out, the predictive validity coefficient between self-reports of performance and supervisor ratings fell to a nonsignificant level. Ruch & Ruch (1967) also found that the K factor from the MMPI (a measure of SDR) operated as a suppressor variable in predicting success in selling. Similarly, McCrae & Costa (1983) found that the correlation between self-report measures on personality and spousal ratings of the same decrease in magnitude after controlling for SDR. Hence, it appears that, at least in some instances, predictive validity is reduced not enhanced when SDR response set is controlled.

Conclusions

The present study offers evidence of positive impact on a group of offenders with a history of anger and aggression who completed a cognitive-behavioural anger management program. The program was based on established principles of effective correctional treatment, emphasizing cognitive-behavioural methods of change, self-monitoring, and responsibility for attitudes and behaviour. Changes resulting from the program as measured by self-report immediately after the program are clearly demonstrated. Specifically, participants in the Treatment group unlike those in the Comparison group reduced self-reported anger and criminal sentiments and increased insight into the nature of

anger problems, knowledge of anger management skills, and self-competence using these skills from pretest to posttest.

The fact that participants' self-reports were correlated with SDE and IM may lead some to believe that the self-reports are not entirely trustworthy. A number of additional findings argue against this contention: (a) treatment participants' self-reports at posttest and their gain scores were positively correlated with post-program instructor evaluation of the participants; (b) the association between self-reports and instructors' evaluations of treatment participants were reduced rather than enhanced when statistical controls for SDE and IM were applied suggesting that the measures of SDR were not operating as contaminants and (c) respondents' SDE and IM were related to external sources of information pertaining to their emotional and social adjustment (i.e., instructor evaluation and Risk as measured by the LSI-OR) in a manner that suggested that both SDE and IM share substantive variance with these external measures.

Limitations and Directions for Future Research

Like many quasi-experimental studies done in a real clinical situation with many competing priorities and pressures on the clinicians and researchers, there are a number of methodological short-comings. Although the groups were statistically equated on a number of variables, the fact that random assignment to the Treatment or Comparison condition was not possible places limits on the extent to which strong causal statements can be proffered. Ideally, the design

would include random assignment and/or allow a waiting-list control group to be used. Neither of these options were available in the present study.

Due to efficiency both in terms of time and money, reliance on self-report measures has plagued research in the behavioural and social sciences. However, results from the present study suggest that the overall impact of socially desirable responding on treatment gains assessed by self-report measures was minimal. Although the self-report measures in the present study were correlated with both Self-Deceptive Enhancement (SDE) and Impression Management (IM), similar relationships were established between these measures of SDR and two external criteria (instructor evaluation and Risk). The nature of these relationships suggested that SDE and IM reflect relative emotional adjustment and prosocial orientation. Furthermore, the extent to which self-reports agreed with instructors' evaluations attests to the validity of the former. Nonetheless, where possible treatment evaluation studies should incorporate behavioural measures and clinical staff ratings. Unfortunately, direct behavioural measures are not routinely provided by the treatment staff at R.C.T.C. and thus were not available for use in the present study.

A remaining issue is whether or not the treatment benefits will transfer and generalize over the long term to the community and to post-release criminal behaviours as measured by recidivism rates and recidivism severity. The next

phase of this project is to conduct a post-release follow-up of participants in the anger management program.

References

- Anastasi, A. (1988). Psychological testing (6th Edition). London: MacMillan.
- Andrews, D. A. (1996). Criminal recidivism is predictable and can be influenced: An update. Forum on Corrections Research, 8, 42-44.
- Andrews, D. A., & Bonta, J. (1994). The psychology of criminal conduct. Cincinnati, OH: Anderson Publishing Co.
- Andrews, D. A., & Bonta, J. (1995). The Level of Service Inventory - Revised manual. Toronto, ONT: Multi-Health Systems.
- Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation: Rediscovering psychology. Criminal Justice and Behavior, 17, 19-52.
- Andrews, D. A., Bonta, J., & Wormith, J. S. (1995). Manual for the Level of Service Inventory - Ontario Revision. Toronto, ONT: Ministry of the Solicitor General and Correctional Services.
- Andrews, D. A., Zinger, I., Hoge, R. D., & Bonta, J., Gendreau, P., Cullen, F. T. (1990). Does correction treatment work? A clinically relevant and psychologically informed meta-analysis. Criminology, 28, 369-397.

Antonowicz, D. H. & Ross, R. R. (1994). Essential components of successful rehabilitation programs for offenders. International Journal of Offender Therapy and Comparative Criminology, 38, 97-104.

Arias, I., & Beach, S.R.H. (1987). Validity of self-reports of marital violence. Journal of Family Violence, 2, 139-149.

Armstrong, B. (1992). Manual for the Rideau Anger Inventory.
Merrickville, ONT: Rideau Correctional and Treatment Centre.

Armstrong, B. (1995). The anger management program manual.
Merrickville, ONT: Rideau Correctional and Treatment Centre.

Ballard, R., Crino, M.D., & Rubinfeld, S. (1988). Social desirability response bias and the Marlowe-Crowne Social Desirability Scale. Psychological Reports, 63, 227-237.

Baxter, D. J., Marion, A., & Goguen, B. (1995). Predicting treatment response in correctional settings. Forum on Corrections Research, 7, 38-41.

Bernreuter, R.G. (1933). Validity of the personality inventory. Personality Journal, 11, 383-386.

Biaggio, M.K. (1980). Assessment of anger arousal. Journal of Personality Assessment, 44, 289-298.

Blanchett, K., Robinson, D., Alksnis, C., & Serin, R. (1998). Assessing treatment change among family violent offenders: Reliability and validity of a

family violence treatment assessment battery. Ottawa, ONT: Report 72.

Correctional Service Canada.

Block, J. (1965). The challenge of response sets. New York: Appleton-Century-Crofts.

Bonta, J. (1995). The responsivity principle and offender rehabilitation. Forum on Corrections Research, 7, 34-37.

Bonta, J., & Motiuk, L. L. (1987). The diversion of incarcerated offenders to correctional halfway houses. Journal of Research in Crime and Delinquency, 24, 302-323.

Bonta, J., & Motiuk, L. L. (1990). Classification to halfway houses: A quasi-experimental evaluation. Criminology, 28, 497-506.

Bonta, J., & Motiuk, L. (1992). Inmate classification. Journal of Criminal Justice, 20, 343-353.

Bourgon, G. A.. Unpublished data. Merrickville, ONT: Rideau Correctional and Treatment Centre.

Branthwaite, A., Trueman, M., & Berrisford, T. (1981). Unreliability of marking: Further evidence and a possible explanation. Education Review, 33, 41-46.

Bryne, D. (1961). The repression-sensitization scale: Rationale, reliability, and validity. Journal of Personality, 29, 334-349.

Caldwell-Colbert, A.T., & Robinson, W.L. (1984). Utilization and predicted trends of behavioral inventories. Journal of Behavioral Assessment, 6, 189-196.

Cattell, R.B. (1965). The scientific analysis of personality. Harmondsworth: Penguin.

Cattell, R.B., Horn, J.L., Sweney, A.B., & Radcliffe, J.A. (1964). The Motivation Analysis Test, MAT. Champaign, ILL: Institute of Personality and Ability Testing.

Check, J.V.P. (1985). The hostility toward women scale. Unpublished doctoral dissertation, University of Manitoba. Winnipeg, Manitoba.

Clark, J.P., & Tiff, L.L. (1966). Polygraph and interview validation of self-reported deviant behavior. American Sociological Review, 31, 516-523.

Cofer, C.N., Chance, J., & Judson, A.J. (1949). A study of malingering on the MMPI. Journal of Psychology, 27, 491-499.

Cohen, J., & Lefkowitz, J. (1974). Development of a biographical inventory blank to predict faking in personality tests. Journal of Applied Psychology, 59, 404-405.

Conger, A.J. (1974). A revised definition of suppressor variables: A guide to their identification and interpretation. Educational and Psychological Measurement, 34, 35-46.

Crowne, D.P., & Marlowe, D.A. (1960). A new scale of social desirability independent of psychopathology. Journal of Consulting Psychotherapy, 24, 349-354.

Crowne, D.P. & Marlowe, D. (1964). The approval motive: Studies in evaluative dependence. New York: Wiley.

Damarin, F., & Messick, S. (1965). Response styles as personality variables: A theoretical integration of multivariate research. Research Bulletin 65-10. Princeton, NJ: Educational Testing Service.

Dicken, C. (1963). Good impression, social desirability and acquiescence as suppressor variables. Educational Psychology Measurement, 23, 699-720.

Dombrose, G.A., & Slobin, M.S. (1958). The IES Test. Perceptual and Motor Skills, 8, 347-389.

Dowden, C. (1998). A meta-analytic examination of the risk, need, and responsibility principles and their importance within the rehabilitation debate. Unpublished M.A. thesis, Carleton University.

Dutton, D.G., & Hemphill, K.J. (1992). Patterns of socially desirable responding among perpetrators and victims. Violence and Victims, 7, 29-39.

Dutton, D.G., & Starzomski, A.J. (1994). Psychological differences between court-referred and self-referred wife assaulters. Criminal Justice and Behavior, 21, 203-222.

Edwards, A.L. (1957). The social desirability variables in personality assessment and research. New York: Dryden Press.

Edwards, A.L., Diers, C.J., & Walker, J.K. (1962). Response sets and factor loadings on sixty-one personality scales. Journal of Applied Psychology, 46, 220-225.

Edwards, A.L., & Walsh, J.A. (1964). Response sets in standard and experimental personality scales. American Educational Research Journal, 1, 52-61.

Ellis, A. (1946). The validity of personality questionnaires. Psychological Bulletin, 43, 385-440.

Eysenck, H.J., & Eysenck, S.B.G. (1964). The Manual of Eysenck Personality Inventory. London: University London Press.

Fiske, D.W., & Pearson, P.H. (1970). Theory and technique of personality measurement. Annual Review of Psychology, 21, 49-86.

Fleming, C.C.. (1982). Evaluation of an anger management program with aggressive children in residential treatment. Unpublished doctoral dissertation, Virginia Polytechnic Institute and State University.

Flett, G.L., Blackstein, K.R., Pliner, P., & Bator, C. (1988). Impression management and self-deception components of appraised emotional experiences. British Journal of Social Psychology, 27, 67-77.

Gaertner, G.P. (1983). A component analysis of stress inoculation training for the development of anger management skills in adult male offenders.

Unpublished doctoral dissertation, The Pennsylvania State University.

Gangster, D.C., Hennessey, H.W., & Luthans, F. (1983). Social desirability response effects: Three alternative models. Academy of Management Journal, 26, 321-331.

Gendreau, P., & Andrews, D. A. (1979). Norms and recidivism rates for the MMPI and selected experimental scales on a Canadian delinquent sample. Canadian Journal of Behavioural Science, 11, 21-31.

Gendreau, P., & Goggin, C. (1996). Principles of effective correctional programming. Forum on Corrections Research, 8, 38-41.

Gendreau, P., Irvine, M., & Knights, S. (1973). Evaluating response set styles on the MMPI with prisoners: faking good adjustment and maladjustment. Canadian Journal of Behavioural Science, 5, 183-194.

Gendreau, P., Little, T., & Goggin, C. (1995). A meta-analysis of the predictors of adult offender recidivism: Assessment guidelines for classification and treatment. Ottawa, ONT: Ministry Secretariat, Solicitor General of Canada.

Glick, B., & Goldstein, A.P. (1990). Aggression replacement training. Journal of Counselling and Development, 65, 356-362.

Glick, B., & Goldstein, A.P. (1987). Angry youths. Corrections Today, 49, 38-42.

Gough, H. (1947). Simulated patterns on the MMPI. Journal of Abnormal Social Psychology, 42, 104-118.

Gough, H.G. (1957). California Psychological Inventory Manual. Palo Alto, CA: Consulting Psychologists Press.

Gough, H.G. (1960). Theory and measurement of socialization. Journal of Consulting Psychology, 24, 23-30.

Gudjonsson, G.H. (1990). Self-deception and other-deception in forensic assessment. Personality and Individual Differences, 11, 219-225.

Gudjonsson, G.H., Petursson, H., Sigurdardottir, H., & Skulason, S. (1991). Overcontrolled hostility among prisoners and its relationship with denial and personality scores. Personality and Individual Differences, 12, 17-20.

Gynther, M.D., & Brilliant, P.S. (1968). The MMPI K⁺ profile: A re-examination. Journal of Consulting and Clinical Psychology, 32, 616-617.

Hall, G.C.W. (1989). Self-reported hostility as a function of offence characteristics and response style in a sexual offender population. Journal of Consulting and Clinical Psychology, 57, 306-308.

Hare, R. D. (1982). Psychopathy and personality dimensions of psychoticism, extraversion, and neuroticism. Personality and Individual Differences, 3, 35-42.

Harpur, T. J., Hare, R. D., & Hakstjan, A. R. (1989). Two-factor conceptualization of psychopathy: Construct validity and assessment implications.

Psychological Assessment, 1, 6-17.

Hartshorne, H., & May, M.A. (1928). Studies in deceit. New York: MacMillan.

Hathaway, S.R., & McKinley, J.C. (1943). Manual for the Minnesota Multiphasic Personality Inventory. New York: Psychological Corporation.

Heilbrun, A.B. (1964). Social learning theory, social desirability and the MMPI. Psychological Bulletin, 61, 377-387.

Hogan, R., & Nicholson, R.A. (1988). The meaning of personality test scores. American Psychologist, 43, 621-626.

Hughes, G. V. (1993). Anger management program outcomes. Forum on Corrections Research, 5, 5-9.

Hunter, D. (1993). Anger management in the prison: An evaluation. Forum on Corrections Research, 5, 3-5.

Jackson, D.N., & Messick, S. (1958). Content and style in personality assessment. Psychological Bulletin, 55, 243-252.

Jackson, D.N., & Messick, S. (1962). Response styles on the MMPI: Comparison of clinical and normal samples. Journal of Abnormal and Social Psychology, 65, 285-299.

Jacobson, L. J., Brown, R. F., & Ariza, M. J. (1983). A revised multidimensional social desirability inventory. Bulletin of the Psychonomic Society, 21, 391-392.

Jacobson, L. J., Kellogg, R. W., Cause, A. M., & Slavin, R. S. (1977). A multidimensional social desirability inventory. Bulletin of the Psychonomic Society, 9, 109-110.

Kennedy, S.M., Anger management training with adult prisoners. Unpublished doctoral dissertation, University of Ottawa.

Keppel, G. (1982). Design and analysis: A researcher's handbook. Englewood Cliffs, NJ: Prentice-Hall.

Knudson, P.D., Pope, H., & Irish, D.P. (1967). Response differences to questions on sexual standards. Public Opinion Quarterly, 31, 290-297.

Kriedt, P. H., & Dawson, R. I. (1961). Response set and the prediction of clerical job performance. Journal of Applied Psychology, 45, 175-178.

Kroner, D.G., & Reddon, J.R. (1994). Relationships among clinical and validity scales of the Basic Personality Inventory. Journal of Clinical Psychology, 50, 522-528.

Kroner, D. G., Reddon, J. R., & Serin, R. C. (1992). The multidimensional anger inventory: Reliability and factor structure in an inmate sample. Educational and Psychological Measurement, 52, 687-693.

Kroner, D.G., & Weekes J.R. (1996a). Balanced Inventory of Desirable Responding: Factor structure, reliability, and validity in an offender sample. Personality and Individual Differences, 21, 323-333.

Kroner, D.G., & Weekes J.R. (1996b). Socially desirable responding and offence characteristics among rapist. Violence and Victims, 11, 263-270.

Kusyszyn, I., & Jackson, P.N. (1968). A multimethod factor analytic appraisal of endorsement and judgement methods in personality assessment. Educational and Psychological Measurement, 28, 1047-1061.

Lanyon, R.I., & Lutz, R.W. (1984). MMPI discrimination of defensive and nondefensive felony sex offenders. Journal of Consulting and Clinical Psychology, 52, 841-843.

Liberty, P.G., Lunneborg, C.E., & Atkinson, G.C. (1964). Perceptual defense, dissimulation, and response styles. Journal of Consulting Psychology, 28, 529-537.

Marquis, H.A., Bourgon, G.A., Armstrong, B., & Pfaff, J. (1996). Reducing recidivism through institutional treatment programs. Forum on Corrections Research, 8, 3-5.

McCrae, R.R., & Costa, P.T. (1983). Social desirability scales: More substance than style. Journal of Consulting and Clinical Psychology, 51, 882-888.

McWhinnie, A. J., (1996). Hypermasculinity and the correlates of male criminal behaviour. Unpublished masters thesis, Carleton University.

Meehl, P., & Hathaway, S. (1946). The K factor as a suppressor variable in the MMPI. Journal of Applied Psychology, 30, 525-564.

Megargee, E.L., Cook, P.E., & Mendelson, G.A. (1967). Development and validation of an MMPI scale of assaultive behavior in overcontrolled individuals. Journal of Abnormal Psychology, 72, 519-528.

Meichenbaum, D. (1985). Stress inoculation training. New York: Pergamon.

Michaelis, W., & Eysenck, H.J. (1971). The determination of personality inventory factor patterns and intercorrelations by changes in real-life motivation. Journal of Genetic Psychology, 118, 223-234.

Millham, J. (1974). Two components of need for approval score and their relationship to cheating following success and failure. Journal of Research in Personality, 8, 378-392.

Millham, J., & Kellogg, R.W. (1980). Need for social approval: Impression management or self-deception? Journal of Research in Psychology, 14, 445-457.

Mills, J. F., Kroner, D. G., and Forth, A. E. (1997). Novaco Anger Scale: Reliability and validity within an adult criminal sample. Manuscript submitted for publication.

Motiuk, L., & Smiley, C., & Blanchette, K. (1996). Intensive programming for violent offenders: A comparative investigation. Forum on Corrections Research, 8, 10-12.

Mylonas, A. D. & Reckless, W. C. (1963). Prisoners' attitudes toward law and legal institutions. Journal of Criminal Law, Criminology, and Police Science, 54, 479-484.

Novaco, R.W. (1975). The treatment of anger through cognitive and relaxation controls. Journal of Consulting and Clinical Psychology, 44, 681-685.

Novaco, R.W. (1983). Stress inoculation therapy for anger control. In P.A. Keller & L.G. Ritt (Eds.). Innovations in clinical practice: A sourcebook. Sarasota, FL: Professional Resource Exchange.

Novaco, R. W. (1994). Anger as a risk factor for violence among the mentally disordered. In J. Monahan and H. J. Steadman (Eds.). Violence and mental disorder: Developments in risk assessment (pp. 21-59). Chicago, IL: University of Chicago Press.

Orne, M.T. (1962). On the social psychological experiment: With particular reference to demand characteristics and their implications. American Psychologist, 17, 776-783.

Palmer, W.H. (1970). Actuarial MMPI interpretation: A replication and extension. Unpublished doctoral dissertation, University of Alabama.

Paulhus, D.L. (1982). Individual differences, self-presentation, and cognitive dissonance: Their concurrent operation in forced compliance. Journal of Personality and Social Psychology, 43, 838-852.

Paulhus, D. (1984). Two-component models of socially desirable responding. Journal of Personality and Social Psychology, 46, 598-609.

Paulhus, D.L. (1986). Self-deception and impression management in test responses. In A. Angleitner & J.S. Wiggins (Eds.), Personality assessment via questionnaires (pp. 143-165). New York: Springer-Verlag.

Paulhus, D.L. (1989). Manual for the Balanced Inventory of Desirable Responding: Version 6. Unpublished manual. University of British Columbia.

Paulhus, D.L. (1991). Measurement and control of response bias. In J.P. Robinson, P.R. Shaver, and L.S. Wrightsman (Eds.), Measures of personality and social psychological attitudes (pp. 17-59). San Diego, CA: Academic Press, Inc.

Paulhus, D. L., Bruce, M. N., & Trapnell, P. D. (1995). Effects of self-presentation strategies on personality profiles and their structure. Personality and Social Psychology Bulletin, 21, 100-108.

Paulhus, D., & Levitt, K. (1987). Desirable responding triggered by affect: Automatic egotism? Journal of Personality and Social Psychology, 52, 245-259.

Paulhus, D.L., & Reid, D.P. (1991). Attribution and denial in socially desirable responding. Journal of Personality and Social Psychology, 60, 307-317.

Phillips, P.L., & Clancy, K.J. (1972). Some effects of social desirability in survey studies. American Journal of Sociology, 77, 921-940.

Petrella, R.C. (1978). Anger management with criminal offenders: Self-control, systematic desensitization and self-recordings. Unpublished doctoral dissertation, Washington University.

Reckless, W. C. (1967). The crime problem. New York: Appleton Century Crofts.

Rimm, D.C., & Masters, J.C. (1974). Behavior therapy: Techniques and empirical findings. New York: Academic Press.

Ritter, B.S. (1980). Anger management training. Unpublished doctoral dissertation, Stanford University.

Robinson, D. (1996). Factors influencing the effectiveness of cognitive skills training. Forum on Corrections Research, 8, 6-9.

Robinson, D. (1995). The impact of cognitive skills training on post-release recidivism among Canadian federal offenders. Ottawa, ONT: Correctional Service Canada.

Rokach, A. (1987) Anger and aggression control training: Replacing attack with interaction. Psychotherapy, 24, 353-362.

Ruch, F.L. (1941). A technique for detecting attempts to fake performance on a self-inventory type of personality test. In Q. McNemar and

M.A. Merrill (Eds.), Studies in personality (pp. 229-234). New York: McGraw-Hill.

Ruch, F.L. & Ruch, W.W. (1967). The K factor as a (validity) suppressor variable in predicting success in selling. Journal of Applied Psychology, 51, 201-204.

Sackeim, H.A. (1983). Self-deception, self-esteem, and depression: The adaptive value of lying to oneself. In J. Masling (Ed.), Empirical studies of psychoanalytic theories (pp. 101-157). Hillsdale, NJ: Erlbaum.

Sackeim, H.A., & Gur, R.C. (1978). Self-deception, self-confrontation, and consciousness. In G.E. Schwartz & O. Shapiro (Eds.), Consciousness and self-regulation: Advances in research (Vol. 2, pp.139-197). New York: Plenum.

Sackeim, H.A., & Gur, R.C. (1979). Self-deception, other-deception, and self-reported psychopathology. Journal of Consulting and Clinical Psychology, 47, 213-215.

Saunders, D.G. (1991). Procedures for adjusting self-reports of violence for social desirability bias. Journal of Interpersonal Violence, 6, 336-344.

Schanberger, W.J. (1967). A motivational distortion scale for the Sixteen Personality Factor Questionnaire. Meeting of the Western Psychological Association, San Francisco.

Schlichter, K.J., & Horan, J.J. (1981). Effects of stress inoculation on the anger and aggression management skills of institutionalized juvenile delinquents. Cognitive Therapy and Research, 5, 359-365.

Seigel, J.M. (1986). The Multidimensional Anger Inventory. Journal of Personality and Social Psychology, 51, 191-200.

Selby, M.J. (1984). Assessment of violence potential using measures of anger, hostility and social desirability. Journal of Personality Assessment, 48, 531-544.

Serin, R. (1995). Treatment responsivity in criminal psychopaths. Forum on Corrections Research, 7, 23-26.

Serin, R. (1998). Treatment responsivity, intervention, and recidivism, and reintegration: A conceptual model. Forum on Corrections Research, 10, 29-32.

Serin, R., & Brown, S. (1996). Strategies for enhancing the treatment of violent offenders. Forum on Corrections Research, 8, 45-48.

Sigall, H., & Page, R. (1971). Reducing attenuation in the expression of interpersonal affect via the bogus pipeline. Sociometry, 35, 629-642.

Simourd, D. J., (1997). The Criminal Sentiments Scale- Modified and Pride and Delinquency Scale: Psychometric properties and construct validity of two measures of criminal attitudes. Criminal Justice and Behavior, 24, 52-70.

Spielberger, C.D., Jacobs, G., Russell, S., Crane, R.S. (1983). Assessment of anger: The state-trait anger scale. In J.N. Butcher & C.D. Spielberger (Eds.)

Anger and hostility in cardiovascular and behavioural disorders(pp.5-30). New York: Hemisphere/McGraw-Hill.

Stermac, L.E. (1986). Anger control treatment for forensic patients. Journal of Interpersonal Violence, 1, 446-457.

Steward, L., & Millson, W. A. (1995). Offender motivation for treatment as a responsivity factor. Forum on Corrections Research, 7, 5-7.

Straus, M.A. (1979). Measuring intrafamily conflict and violence: The Conflicts Tactics (CT) Scale. Journal of Marriage and the Family, 41, 75-88.

Snyder, M. (1974). Self-monitoring of expressive behavior. Journal of Personality and Social Psychology, 30, 526-537.

Taylor, J.B., Carithers, M., & Coyne, L. (1976). MMPI performance, response set, and the "self-concept" hypothesis. Journal of Consulting and Clinical Psychology, 44, 351-362.

Taylor, S.E., & Brown, J.P. (1988). Illusion and well-being: A social-psychological perspective on mental health. Psychological Bulletin, 103, 193-210.

Valliant, P. M., Ennis, L. P., & Raven, L. M. (1995). A cognitive-behavior therapy model for anger management with adult offenders. Journal of Offender Rehabilitation, 22, 77-93.

Valliant, P. M., & Raven, L. M. (1994). Management of anger and its effect on incarcerated assaultive and nonassaultive offenders. Psychological reports, 75, 275-278.

Valliant, P. M., Sloss, B. K., & Raven-Brooks, L. (1997). Effects of brief cognitive-behavioral therapy on recidivism among sex and non-sex offenders. Journal of Offender Rehabilitation, 25, 163-174.

Vernon, P.E. (1934). The attitude of the subject in personality testing. Journal of Applied Psychology, 18, 165-177.

Weekes, J. R., Millson, W. A., & Lightfoot, L. O. (1995). Factors influencing the outcome of offender substance abuse treatment. Forum on Corrections Research, 7, 8-11.

Wiggins, J. (1973). Personality and prediction: Principles of personality assessment. Reading, MA: Addison-Wesley.

Wiggins, J.S. (1959). Interrelationships among MMPI measures of dissimulation under standard and social desirability instructions. Journal of Consulting Psychology, 23, 419-427.

Wiggins, N. (1966). Individual viewpoints of social desirability. Psychological Bulletin, 66, 68-77.

Winder, P., O'Dell, J. & Karson, S. (1975). New motivational distortion scales for the 16-PF. Journal of Personality Assessment, 39, 532-537.

Wolfus, B. & Bierman, R. (1996). An evaluation of a group treatment program for incarcerated male batterers. International Journal of Offender Therapy and Comparative Criminology, 40, 318-333.

Wormith, J. S. & Andrews, D. A. (1984). Criminal sentiments and criminal behaviour. Ottawa, ONT: Solicitor General of Canada.

Wormith, J. S., & Andrews, D. A. (1995, June). The development and validation of three measures of criminal sentiment and their role in the assessment of offender attitudes. Paper presented at the Annual Conference of the Canadian Psychological Association, Charlottetown, P.E.I.

Wrightsman, L. (1977). Social psychology. New York: Wadsworth.

Yokoyama, J. (1997). Process evaluation of an attitude - change program in corrections. Unpublished honours thesis, Carleton University.

Zamble, E. & Porporino, F.J.(1988). Coping, behavior, and adaptation in prison inmates. New York: Springer Verlag.

Zerbe, W. J., & Paulhus, D. L. (1987). Socially desirable responding in organizational behavior: A reconception. Academy of Management Review, 12, 250-264.

Appendix A

Recruitment Notice Form

ANGER MANAGEMENT RESEARCH PROJECT ANNOUNCEMENT

Do you frequently lose your temper and get angry? When you are angry do you sometimes do things you later regret? When you are angry do you have trouble expressing yourself? Do you say and do things before you really think about what you are doing? Do you get into fights? Have you ever assaulted someone?

Everyone knows how easy it is to lose one's temper. Some individuals seem to have more difficulty managing their anger than others. There is a research project investigating individual differences in anger. Those who participate in the project will be asked to complete a number of self-report anger questionnaires as well as some questionnaires asking you about some of your behaviours, thoughts and attitudes. If you are interested in obtaining more information about the project and how you can become involved, please leave your name with the classification officer and you will be contacted by the researcher.

Leaving your name is strictly voluntary and in no way obligates you to participate in this project.

Thank you for your cooperation.

Sincerely,

Lynda Robertson

Appendix A-1

Informed Consent Form:

Treatment Group

APPENDIX A-1

Informed Consent Form - Treatment

Project: Social Desirable Responding in the Context of Self-Report Anger and Attitude Measures in a Forensic Setting.

Investigator: Lynda Robertson, Department of Psychology, Carleton University Tel. 613-269-4771 (R.C.T.C.)

The purpose of this informed consent form is to ensure that you understand the purpose of the study and the nature of your involvement. This informed consent must provide you with enough information such that you have the opportunity to determine whether you wish to participate in the study. Please ask the researcher to clarify any concerns you may have.

I hereby consent to participate in a study examining style of presentation on self-report measures that the treatment coordinator will use to evaluate your performance in the Anger Management program. I understand that this study will consist of two sessions which are each approximately two hours in duration. The first set of tests will be administered just before the Anger Management program begins and the second battery will be administered shortly after the Anger Management program ends.

I understand that the study will include eight questionnaires which cover the following areas; anger experience to provocation, insight into anger, knowledge of anger management skills, self-competence in anger management, criminal sentiments, social desirable responding/presentational style, and your evaluation of the program as well as, the treatment coordinators evaluation of your performance. My institutional files including Level of Service Inventory, Attitudes Towards Correctional Treatment Scale, and criminal record will also be examined. The information I give will be used for research purposes only. I understand that I do not have to allow any of my answers to questions that I do not wish to be used in this research project and I have been given the option to withdraw from this study at anytime without penalty.

All information I provide will be strictly confidential. Nothing I say will affect my position at R.C.T.C. in any way. My answers will be coded in such a way that I cannot be identified in any report of the results. Confidentiality will be upheld to the limits of the law. Confidentiality will be broken if specific plans to harm self or others are revealed, or any information concerning child sexual/physical abuse is disclosed.

If I want any more information about this study I can contact the investigator above or call one of the following:

- Chief Psychologist at R.C.T.C. (H. Marquis, 613-269-4771)
- Chair Department of Psychology at Carleton University (K.

Matheson, 613-788-2600, ext. 2648)

- Chair of the Ethic Committee at Carleton University (L. Paquet, 613-788-2600, ext. 7513)
- Supervisor of the Project, Adjunct Professor Psychology Department, Carleton University (D. Robinson, 613-788-2600).

My signature below indicates that I have read the above, and that I agree to take part and give my consent to the researchers having access to my institutional files and criminal record.

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

Appendix A-2

Informed Consent Form:

Comparison Group

APPENDIX A-2

Informed Consent Form - Comparison

Project: Social Desirable Responding in the Context of Self-Report Anger and Attitude Measures in a Forensic Setting.

Investigator: Lynda Robertson, Department of Psychology, Carleton University Tel. 613-269-4771 (R.C.T.C.)

The purpose of this informed consent form is to ensure that you understand the purpose of the study and the nature of your involvement. This informed consent must provide you with enough information such that you have the opportunity to determine whether you wish to participate in the study. Please ask the researcher to clarify any concerns you may have.

I hereby consent to participate in a study examining style of presentation on self-report measures that are used to evaluate performance in the Anger Management program at R.C.T.C. I understand that this study will consist of two sessions which are each approximately two hours in duration. The first set of tests will be administered and the second battery will be administered five weeks later.

I understand that the study will include six questionnaires which cover the following areas; anger experience to provocation, insight into anger, knowledge of anger management skills, self-competence in anger management, criminal sentiments, and social desirable responding/presentational style. My institutional files including Level of Service Inventory, and criminal record will also be examined. The information I give will be used for research purposes only. I understand that I do not have to allow any of my answers to questions that I do not wish to be used in this research project and I have been given the option to withdraw from this study at anytime without penalty.

All information I provide will be strictly confidential. Nothing I say will affect my position at R.C.T.C. in any way. My answers will be coded in such a way that I cannot be identified in any report of the results. Confidentiality will be upheld to the limits of the law. Confidentiality will be broken if specific plans to harm self or others are revealed, or any information concerning child sexual/physical abuse is disclosed.

If I want any more information about this study I can contact the investigator above or call one of the following:

- Chief Psychologist at R.C.T.C. (H. Marquis, 613-269-4771)
- Chair Department of Psychology at Carleton University (K. Matheson, 613-788-2600, ext. 2648)
- Chair of the Ethnic Committee at Carleton University (L. Paquet, 613-788-2600, ext. 7513)

- Supervisor of the Project, Adjunct Professor Psychology
Department, Carleton University (D. Robinson, 613-788-2600).

My signature below indicates that I have read the above, and that
I agree to take part and give my consent to the researchers
having access to my institutional files and criminal record.

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

Appendix B

Balanced Inventory of Desirable Responding

BIDR VERSION 6 - FORM 40A

Name:

Date:

Using the scale below as a guide, write a number beside each statement to indicate how true it is.

+	+	+	+	+	+	+
1	2	3	4	5	6	7
not true		somewhat			very true	

	1. My first impressions of people usually turn out to be right.
	2. It would be hard for me to break any of my bad habits.
	3. I don't care to know what other people really think of me.
	4. I have not always been honest with myself.
	5. I always know why I like things.
	6. When my emotions are aroused, it biases my thinking.
	7. Once I've made up my mind, other people can seldom change my opinion.
	8. I am not a safe driver when I exceed the speed limit.
	9. I am fully in control of my own fate.
	10. It's hard for me to shut off a disturbing thought.
	11. I never regret my decisions.
	12. I sometimes lose out on things because I can't make up my mind soon enough.
	13. The reason I vote is because my vote can make a difference.
	14. My parents were not always fair when they punished me.
	15. I am a completely rational person.
	16. I rarely appreciate criticism.
	17. I am very confident of my judgements.
	18. I have sometimes doubted my ability as a lover.
	19. It's all right with me if some people happen to dislike me.
	20. I don't always know the reasons why I do the things I do.

Using the scale below as a guide, write a number beside each statement to indicate how true it is.

21.	I sometimes tell lies if I have to.
22.	I never cover up my mistakes.
23.	There have been occasions when I have taken advantage of someone.
24.	I never swear.
25.	I sometimes try to get even rather than forgive and forget.
26.	I always obey laws, even if I'm unlikely to get caught.
27.	I have said something bad about a friend behind his/her back.
28.	When I hear people talking privately, I avoid listening.
29.	I have received too much change from a salesperson without telling him or her.
30.	I always declare everything at Customs.
31.	When I was young I sometimes stole things.
32.	I have never dropped litter on the street.
33.	I sometimes drive faster than the speed limit.
34.	I never read sexy books or magazines.
35.	I have done things that I don't tell other people about.
36.	I never take things that don't belong to me.
37.	I have taken sick leave from work or school even though I wasn't really sick.
38.	I have never damaged a library book or store merchandise without reporting it.
39.	I have some pretty awful habits.
40.	I don't gossip about other people's business.

Appendix C

Reactions to Provocation Scale

REACTIONS TO PROVOCATION (NAS)

PART A

The statements below describe things that people think, feel, and do. To what extent are they true for you? For each item indicate whether it is (1) never true, (2) sometimes true, or (3) always true. Use the scale on the right side by putting a circle around the number (1, 2, or 3) that fits your response to the statement.

	Never True	Sometimes True	Always True
1. I notice annoying things right away	1	2	3
2. Once something makes me angry, I keep thinking about it	1	2	3
3. Every week I meet someone I dislike	1	2	3
4. I know that people are talking about me behind my back	1	2	3
5. Some people would say that I am a hothead	1	2	3
6. When I get angry, I stay angry for hours	1	2	3
7. My muscles feel tight and wound-up	1	2	3
8. I walk around in a bad mood	1	2	3
9. My temper is quick and hot	1	2	3
10. When someone yells at me, I yell back at them	1	2	3
11. I have had to be rough with people who bothered me	1	2	3
12. I feel like smashing things	1	2	3
13. When a person says something that offends me, I just stop listening	1	2	3
14. I can't sleep when I have been done wrong	1	2	3
15. If I don't like someone, it doesn't bother me to hurt their feelings.	1	2	3
16. People can be trusted to do what they say	1	2	3
17. When I get angry, I get really angry	1	2	3
18. When I think about something that makes me angry, I get even more angry.	1	2	3
19. I feel agitated and unable to relax	1	2	3
20. I get annoyed when someone interrupts me	1	2	3
21. If someone bothers me, I react first and think later	1	2	3
22. If I don't like somebody, I'll tell them off	1	2	3

	Never True	Sometimes True	Always True
23. When I get mad, I can easily hit someone	1	2	3
24. When I get angry, I throw or slam things	1	2	3
25. If a person does something nasty, it sticks out in my mind	1	2	3
26. When someone makes me angry, I think about getting even	1	2	3
27. If someone cheats me, I'd make them feel sorry	1	2	3
28. People act like they are being honest when they really have something to hide.	1	2	3
29. When I get angry, I feel like smashing things	1	2	3
30. Some people get angry and get over it, but for me it takes a long time.	1	2	3
31. I have trouble sleeping or falling asleep	1	2	3
32. A lot of little things bug me	1	2	3
33. I have a fiery temper that arises in an instant	1	2	3
34. Some people need to be told to "get lost"	1	2	3
35. If someone hits me first, I hit them back	1	2	3
36. When I get angry at someone, I take it out on whomever is around.	1	2	3
37. Once I get angry, I have trouble concentrating	1	2	3
38. I feel like I am getting a raw deal out of life	1	2	3
39. When I don't like somebody, there's no point in being nice to them.	1	2	3
40. When someone does something nice for me, I wonder about the hidden reason.	1	2	3
41. It makes my blood boil to have someone make fun of me	1	2	3
42. When I get mad at someone, I give them the silent treatment	1	2	3
43. My head aches when people annoy me	1	2	3
44. It bothers me when someone does things the wrong way	1	2	3
45. When I get angry, I fly off the handle before I know it	1	2	3
46. When I start to argue with someone, I don't stop until they do	1	2	3
47. Some people need to get knocked around	1	2	3
48. If someone makes me angry, I'll tell other people about them	1	2	3

PART B

The following items describe situations that can make someone angry. The scale on the right side is for the degree or amount of anger. For each of these situations below, please indicate the amount of anger that you would feel if it actually happened to you. Put a circle around the number in the scale on the right side.

	Not at all angry	A little angry	Fairly angry	Very angry
1. Being criticized in front of other people for something that you have done.	1	2	3	4
2. Seeing someone bully another person who is smaller or less powerful.	1	2	3	4
3. You are trying to concentrate, but someone keeps making noise	1	2	3	4
4. People who act like they know it all	1	2	3	4
5. Being slowed down by another person's mistakes	1	2	3	4
6. You are in line to get something, and someone cuts in front of you . . .	1	2	3	4
7. Not being given recognition for doing good work	1	2	3	4
8. You are watching a TV program, when someone comes along and switches the channel.	1	2	3	4
9. People who don't really listen when you talk to them	1	2	3	4
10. Getting cold soup or cold vegetables for dinner	1	2	3	4
11. Having someone look over your shoulder while you are working	1	2	3	4
12. Being overcharged by someone for a repair	1	2	3	4
13. You need to get somewhere in a hurry, but you get stuck in traffic . . .	1	2	3	4
14. People who think that they are better than you are	1	2	3	4
15. You are carrying a cup of coffee, and someone bumps into you	1	2	3	4
16. Someone making fun of the clothes you are wearing	1	2	3	4
17. Being singled out for correction, when someone else doing the same thing is ignored.	1	2	3	4
18. You make arrangements to do something with a person who backs out at the last minute.	1	2	3	4
19. People who think that they are always right	1	2	3	4
20. Just after waking-up in the morning, someone starts giving you a hard time.	1	2	3	4
21. Someone looks through your things without your permission	1	2	3	4
22. Being accused of something that you didn't do	1	2	3	4
23. You lend something to someone, and they fail to return it	1	2	3	4
24. Someone who is always contradicting you	1	2	3	4
25. It's mealtime and you are hungry, and someone plays a practical joke on you.	1	2	3	4

Appendix D

Multidimensional Anger Inventory

MAI

Name _____

The following items describe some different ways in which people deal with anger. You are asked to indicate how descriptive each item is of you. Use the scale below to rate each of the items:

1 2 3 4 5

Not at all
Descriptive

Somewhat
Descriptive

Completely
Descriptive

1. _____ I tend to get angry more frequently than most people.
2. _____ Other people seem to get angrier than I do in similar circumstances.
3. _____ I harbour grudges that I don't tell anyone about.
4. _____ I try to get even when I am angry with someone.
5. _____ I am secretly quite critical of others.
6. _____ It is easy to make me angry.
7. _____ When I am angry with someone, I let that person know.
8. _____ I have met many people who are supposed to be experts who are no better than I.
9. _____ Something makes me angry almost every day.
10. _____ I often feel angrier than I think I should.
11. _____ I feel guilty about expressing my anger.
12. _____ When I am angry with someone I take it out on whoever is around.
13. _____ Some of my friends have habits that annoy me very much.
14. _____ I am surprised at how often I feel angry.

	1	2	3	4	5
	Not at all
Descriptive		Somewhat
Descriptive		Completely
Descriptive
-
- 15. ____ Once I let people know I'm angry, I can put it out of my mind.
 - 16. ____ People talk about me behind my back.
 - 17. ____ At times, I feel angry for no specific reason.
 - 18. ____ I can make myself angry about something in the past just by thinking about it.
 - 19. ____ Even after I have expressed my anger, I have trouble forgetting about it.
 - 20. ____ When I hide my anger from others, I think about it for a long time.
 - 21. ____ People can bother me just by being around.
 - 22. ____ When I get angry, I stay angry for hours.
 - 23. ____ When I hide my anger from others, I forget about it pretty quickly.
 - 24. ____ I try to talk over problems with people without letting them know I'm angry.
 - 25. ____ When I get angry, I calm down faster than most people.
 - 26. ____ I get so angry, I feel like I might lose control.
 - 27. ____ If I let people see the way I feel, I'd be considered a hard person to get along with.
 - 28. ____ I am on my guard with people who are friendlier than I expected.
 - 29. ____ It's difficult for me to let people know I am angry.

1	2	3	4	5
Not at all Descriptive		Somewhat Descriptive		Completely Descriptive

30. _____ I get angry when someone lets me down.
31. _____ I get angry when people are unfair.
32. _____ I get angry when something blocks my plans.
33. _____ I get angry when I am delayed.
34. _____ I get angry when someone embarrasses me.
35. _____ I get angry when I have to take orders from someone less capable than I.
36. _____ I get angry when I have to work with incompetent people.
37. _____ I get angry when I do something stupid.
38. _____ I get angry when I am not given credit for something I have done.

Appendix E

Anger and Emotions Questionnaire

Name:	Date:
-------	-------

The following statements are about anger and other emotions. Please read each of the statements and circle the response that best describes your opinions and beliefs about anger and other emotions. Show your response to the statement by circling one of the numbers from "1" to "4". A response of "1" means that the statement "almost never" describes you and "4" means the statement "almost always" describes you. There are no right or wrong answers. Often the first response that comes into your mind may be the response that best describes your opinion or belief.

1	2	3	4
ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS

1. My anger is caused by what other people do.	1	2	3	4
2. Once I get angry it is impossible for me to control myself.	1	2	3	4
3. I get angry about things that aren't really important.	1	2	3	4
4. Changing my thoughts can give me control over my anger.	1	2	3	4
5. The effects of my anger on myself and others last only a short time.	1	2	3	4
6. Usually I can predict when I am going to lose control over my anger.	1	2	3	4
7. By trying to relax when I feel myself getting uptight, I can avoid losing control over my temper.	1	2	3	4
8. Expressing my anger helps me feel good about myself.	1	2	3	4
9. When I get really angry, thinking about pleasant things can help calm me down.	1	2	3	4
10. I can always see that I am going to lose my temper before it happens.	1	2	3	4
11. When I lose my cool it is because I wrongly interpreted a situation.	1	2	3	4
12. If I get angry too often it could lead to a physical illness.	1	2	3	4
13. By showing my anger I can usually get a problem solved.	1	2	3	4
14. There are always warning signals that tell you when you are about to lose your cool.	1	2	3	4
15. I often get angry because I have "jumped to conclusions".	1	2	3	4
16. People walk all over you when you don't show your anger.	1	2	3	4
17. Every angry situation can be avoided.	1	2	3	4
18. Expressing my anger helps me feel better.	1	2	3	4

1	2	3	4
ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS

19.	Things that I do and think are what cause me to lose my temper.	1	2	3	4
20.	There are no concrete things that can be done to gain control over anger.	1	2	3	4
21.	My anger can really get me into a lot of trouble if I don't watch it.	1	2	3	4
22.	I can't really say what kinds of situations cause me to get the most angry.	1	2	3	4
23.	My loss of control over my anger is usually caused by the way I see the world.	1	2	3	4
24.	By talking myself down, I can get out of my angry mood without getting into trouble.	1	2	3	4
25.	I know what I have to do in order to avoid losing my cool, but it's really hard to put it into practice.	1	2	3	4
26.	I fear that I would not be able to control my anger when I'm faced with a difficult situation.	1	2	3	4
27.	I think that I would be able to stop myself from getting too angry in most situations.	1	2	3	4
28.	I have a good grasp of the techniques I can use to reduce my anger.	1	2	3	4
29.	My problem is that I won't be able to see an anger problem coming until it is right on top of me.	1	2	3	4
30.	Sometimes I worry that I will lose my temper over something that is not important.	1	2	3	4
31.	I am very confident about my ability to control my anger before it gets too late.	1	2	3	4
32.	Controlling my anger is going to be more difficult than I thought.	1	2	3	4
33.	I know enough about myself now to be able to control my temper.	1	2	3	4
34.	There are lots of easy things I can do to make sure my anger doesn't get out of control.	1	2	3	4
35.	I do not feel that I can be very good at controlling my anger.	1	2	3	4
36.	I can do a lot for myself to control or stop my outbursts of anger.	1	2	3	4
37.	I really don't think I have the ability to control myself before I lose my cool.	1	2	3	4

Appendix F

Rideau Anger Inventory

B.A.R.T.

Name:

Date:

Read each question carefully. Imagine yourself in that situation, as if you were really there. Answer each question by saying what you would think, feel, say and do to handle that situation. Be honest with yourself. On a scale of 1 to 5, also rate how angry you would get in that situation.

1	2	3	4	5
NOT ANGRY AT ALL	A LITTLE ANGRY	ANGRY	QUITE ANGRY	VERY, VERY ANGRY

<p>1. You walk into your home one night. You are tired. You have worked all day. The kids are fighting. Your wife starts yelling at you. You ask, "What's wrong?". She turns and leaves the room crying.</p>	<p>1 2 3 4 5</p>
<p>2. Your wife doesn't trust you because you have been a partier and because she has found out about an affair you had. You are going fishing with a buddy you got into trouble with. She's not happy about this and she starts coming on to you about you going out. She wants you to stay home.</p>	<p>1 2 3 4 5</p>
<p>3. A guy who works with your wife seems to pay a lot of attention to her. She seems to like it and you are getting jealous. He just dropped her off from work.</p>	<p>1 2 3 4 5</p>

B.A.R.T. - 2

1	2	3	4	5
NOT ANGRY AT ALL	A LITTLE ANGRY	ANGRY	QUITE ANGRY	VERY, VERY ANGRY

4. You and your wife are separated. She won't let you see the kids.

1 2 3 4 5

5. Your wife will only agree to sex once a week and you think she doesn't really enjoy it.

1 2 3 4 5

6. Your dad/mom is mad at you for not wanting to go home for his/her birthday. He/She starts telling lies about you to your brothers/sisters and they start to turn against you. You know what is being said.

1 2 3 4 5

B.A.R.T. - 3

1	2	3	4	5
NOT ANGRY AT ALL	A LITTLE ANGRY	ANGRY	QUITE ANGRY	VERY, VERY ANGRY

<p>7. Your mother/father has been drinking and comes home with a black eye. She/he says a male friend hit her/him and she/he asks you to go and pay him back. He's out on the porch.</p>	<p>1 2 3 4 5</p>
<hr/>	
<p>8. Your 14-year-old sister tells you that she is pregnant. She hasn't told anyone else.</p>	<p>1 2 3 4 5</p>
<hr/>	
<p>9. You are in the grocery store with your new girlfriend. Your ex-wife comes up and starts to yell at you.</p>	<p>1 2 3 4 5</p>
<hr/>	
<p>10. You have just started a new job. You are making mistakes because you are unsure of how to do some of the work. Your boss puts you down when you make the mistakes. He's acting like he's going to fire you.</p>	<p>1 2 3 4 5</p>
<hr/>	

Appendix G

Criminal Sentiments Scale

CSS OPINION QUESTIONNAIRE

Name:

Date:

We would like you to indicate whether you agree or disagree with some opinions listed on the following pages. Enter 1, 2, 3, 4, or 5 next to each statement using this scale:

1	2	3	4	5
<i>STRONGLY DISAGREE</i>	<i>DISAGREE</i>	<i>UNCERTAIN</i>	<i>AGREE</i>	<i>STRONGLY AGREE</i>

Please give us your own opinions about the statements; there are no right or wrong answers on this questionnaire.

Example:

A.	Laws are made to be broken.
-----------	-----------------------------

If you **strongly disagree** with this statement (you believe it to be completely wrong), you should enter "1". If you **strongly agree** with the statement, enter "5". If you tend to agree or disagree but don't feel quite so certain about your opinion, enter "2" for disagree or "4" for agree. If you are unable to make up your mind about the statement or if you have no opinion about the statement, enter "3".

CSS OPINION QUESTIONNAIRE

Page 2

1	2	3	4	5
STRONGLY DISAGREE	DISAGREE	UNCERTAIN	AGREE	STRONGLY AGREE

	1. Laws are so often made for the benefit of small selfish groups that a person cannot respect the law.
	2. Nearly all laws deserve our respect.
	3. It is our duty to obey all laws.
	4. Laws are usually bad.
	5. The law is rotten to the core.
	6. Almost any jury can be fixed.
	7. You can't get justice in court.
	8. On the whole, lawyers are honest.
	9. Fake witnesses are often produced by the prosecution.
	10. On the whole, the police are honest.
	11. A cop is a friend to people in need.
	12. Life would be better with fewer police.
	13. The police should be paid more for their work.
	14. The police are just as crooked as the people they arrest.
	15. All laws should be strictly obeyed because they are laws.
	16. The law does not benefit the common person.
	17. The law as a whole is sound.
	18. In the long run, law and justice are the same.
	19. The law enslaves the majority of people for the benefit of a few.
	20. On the whole, judges are honest and kind-hearted.
	21. Court decisions are almost always just.
	22. Almost anything can be fixed in the courts if you have enough money.
	23. A judge is a good person.

CSS OPINION QUESTIONNAIRE

Page 3

1	2	3	4	5
<i>STRONGLY DISAGREE</i>	<i>DISAGREE</i>	<i>UNCERTAIN</i>	<i>AGREE</i>	<i>STRONGLY AGREE</i>

	24. Our society would be better off if there were more police.
	25. Police rarely try to help people.
	26. Sometimes a person like myself has to break the law in order to get ahead.
	27. Most successful people used illegal means to become successful.
	28. People who have been in trouble with the law have the same sort of ideas about life that I have.
	29. People should always obey the law no matter how much it interferes with their personal ambition.
	30. I would rather associate with people who obey the law than with those who don't.
	31. It's alright for a person to break the law if he or she doesn't get caught.
	32. I'm more like the people who can make a living outside the law than I am like those who only break the law occasionally.
	33. Most people would commit crimes if they knew they wouldn't get caught.
	34. People who have been in trouble with the law are more like me than people who don't have trouble with the law.
	35. There is never a cause for breaking the law.
	36. I don't have much in common with people who never break the law.
	37. A hungry person has the right to steal.
	38. It's alright to evade the law if you don't actually break it.
	39. No one can violate the law and be my friend.
	40. A person should obey those laws which seem reasonable.
	41. A person is a fool to work for a living if he or she can get by some easier way, even if it means violating the law.

Appendix H

Instructor Post-Program Evaluation Form

PROGRAM CO-ORDINATOR RATINGS

CLIENT'S NAME _____

CO-ORDINATOR'S NAME _____

1. The client gained insight into the nature of his anger problem:

1	2	3	4	5
Not At All		Somewhat		Completely

2. The client was motivated to work on his problems during the course of the program:

1	2	3	4	5
Not At All		Somewhat		Completely

3. The client improved his anger management skills:

1	2	3	4	5
Not At All		Somewhat		Completely

4. How angry is the client?

1	2	3	4	5
Not At All		Somewhat		Completely

Appendix I

Participant Treatment Evaluation Questionnaire

POST-PROGRAM RATINGS

NAME _____

Please indicate how much you agree or disagree with each of the following statements.

1. This program has helped me understand my anger problem:

1	2	3	4	5
Not True		Somewhat True		Very True

2. This program has helped me improve my anger management skills:

1	2	3	4	5
Not True		Somewhat True		Very True

3. I liked the program instructor:

1	2	3	4	5
Not True		Somewhat True		Very True

4. I am happy I took this program:

1	2	3	4	5
Not True		Somewhat True		Very True

5. I would recommend this program to other inmates:

1	2	3	4	5
Not True		Somewhat True		Very True

6. I answered all questions honestly at pretest:

1	2	3	4	5
Not True		Somewhat True		Very True

7. I answered all questions honestly at posttest:

1	2	3	4	5
Not True		Somewhat True		Very True

Appendices J - X

Supplementary Tables

Appendix J: Univariate F-Tests of Significant Differences Between The Nine Anger Management Groups on Change Scores for All Variables

Appendix K: Inter-Correlations of Anger Measures on Posttest for Treatment and Comparison Groups

Appendix L: Balanced Inventory of Desirable Responding: Significance Tests for Simple Main Effects

Appendix M: Novaco Reactions to Provocation Scale Part A Domain Subscales: Significance Tests for Simple Main Effects

Appendix N: Multivariate and Univariate F Values for Novaco Reactions to Provocation Subscale Scores: Group, Trials, and Group X Trials Interactions

Appendix O: Novacao Reactions to Provocation Subscale Scores: Significance Tests for Simple Main Effects

Appendix P: Novaco Reactions to Provocation Sale Part B and Rideau Anger Inventory: Significance Tests for Simple Main Effects

Appendix Q: Multidimensional Anger Inventory - Siegel: Significance Tests for Simple Main Effects

Appendix R: Multivariate and Univariate F Values for the Multidimensional Anger Inventory - Revised: Groups, Trials, and Group X Trials Interactions

Appendix S: Multidimensional Anger Inventory - Revised: Means and Standard Deviations by Groups and Trials

Appendix T: Multidimensional Anger Inventory - Revised: Significance Tests for Simple Main Effects

Appendix U: Anger and Emotions Questionnaire: Significance Tests for Simple Main Effects

Appendix V: Criminal Sentiments Scale: Significance Tests for Simple Main Effects

Appendix W: Rideau Anger Inventory Scores by Group and Risk Level

Appendix X: A Comparison of the F Statistic on all Change Scores Before (ANOVA) and After (ANCOVA) Controls for Group Difference Variables

Appendix Y: ANCOVAS of Change Scores with Pretest and Posttest Self-Deceptive Enhancement Scores as Covariates: All Measures

Appendix J

Univariate F-Tests of Significant Differences Between the Nine Anger Management Groups on Change

Scales for All Dependent Variables Variables

A. Novaco Reactions to Provocation Scale

Measure	F (8,53)	p <
Part A		
Arousal Domain	.55	ns
Intensity	.97	ns
Duration	.69	ns
Somatic Activation	.66	ns
Irritability	.47	ns
Cognitive Domain	.89	ns
Attentional Focus	.84	ns
Rumination	1.88	ns
Hostile Attitude	.61	ns
Suspicion	.67	ns
Behavioural Domain	1.03	ns
Impulsive Reaction	.49	ns
Verbal Aggression	1.89	ns
Physical Confrontation	1.18	ns
Indirect Expression	.71	ns
Part B	.93	ns
Disrespectful Treatment	.39	ns
Unfairness	.98	ns
Frustration	1.56	ns
Annoying Traits	.94	ns

Irritations

.69

ns

Appendix J (Continued)

Univariate F-Tests of Significant Differences Between the Nine Anger Management Groups on Change Scales for All

Dependent Variables

B. Other Measures

Measure	F (8,53)	p <
Rideau Anger Inventory	1.39	ns
Multidimensional Anger Inventory-Siegel	1.23	ns
Anger-Arousal	1.55	ns
Range of Anger	.64	ns
Anger-In	2.10	ns
Anger-Out	.47	ns
Hostile Outlook	.61	ns
Multidimensional Anger Inventory-R	1.85	ns
Factor 1	2.12	ns
Factor 2	.53	ns
Anger and Emotions Questionnaire		
Insight	.77	ns
Knowledge	.93	ns
Self Competence	.97	ns
Criminal Sentiments Scale		
ICO	.69	ns
LCP	.74	ns
TLV	1.49	ns

Note. ICO = Identification with Criminal Others; LCP = Law, Courts, Police; TLV = Tolerance for Law Violations.

Appendix K

Inter-correlations of Anger Measures on Posttest for Treatment and Comparison Groups

Measures	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1.	1.00	.49	.36	-.23	-.21	-.15	-.21	-.13	-.42	-.14	-.09	-.19	-.13
2.	.60	1.00	.68	-.44	-.49	-.44	-.48	-.49	-.43	-.45	-.42	-.42	-.26
3.	.32	.67	1.00	-.66	-.72	-.75	-.75	-.65	-.54	-.75	-.76	-.65	-.49
4.	-.58	-.58	-.52	1.00	.85	.81	.92	.74	.51	.79	.74	.73	.72
5.	-.51	-.64	-.63	.88	1.00	.87	.96	.83	-.53	.84	.83	.72	.61
6.	-.57	-.68	-.63	.85	.94	1.00	.95	.74	.57	.81	.77	.71	.57
7.	-.57	-.66	-.62	.93	.98	.97	1.00	.81	.57	.86	.83	.76	.63
8.	-.44	-.60	-.55	.80	.88	.85	.88	1.00	.60	.81	.73	.79	.71
9.	-.36	-.51	-.35	.67	.61	.55	.63	.69	1.00	.54	.45	.64	.54
10.	-.39	-.67	-.73	.68	.82	.79	.80	.78	.78	1.00	.94	.88	.80
11.	-.29	-.61	-.73	.60	.74	.71	.72	.68	.68	.95	1.00	.70	.63
12.	-.39	-.57	-.54	.67	.75	.72	.74	.76	.76	.91	.77	1.00	.89
13.	-.37	-.56	-.51	.72	.77	.76	.78	.81	.81	.90	.78	.95	1.00

Notes. (a) correlations for Treatment Group above diagonal and for Comparison Group below diagonal.

(b) Anger and Emotions Questionnaire: Insight Into Anger (1), Knowledge of Anger (2), Self-Competency (3); Novaco Reactions to Provocation Scale: Cognitive Domain (4), Arousal Domain (5), Behaviour Domain (6); Total Part A (7), Total Part B (8); Rideau Anger Inventory Total (9); Multidimensional Anger Inventory Total (10); Multidimensional Anger Inventory - Revised: Factor 1 (11), Factor 2 (12), Total (13).

(c) Treatment Group (N = 62) significance ranges: $p < .05$, $r \geq .25$; $p < .01$, $r \geq .32$; Comparison Group (N = 31) significance ranges: $p < .05$, $r \geq .35$; $p < .01$, $r \geq .44$.

Appendix L

Balanced Inventory of Desirable Responding: Significance Tests for Simple Main

Effects

A. Self-Deceptive Enhancement

Scale	F	df	p <
Treatment Group: Trials Effect	12.95	1,91	.001
Comparison Group: Trials Effect	.01	1,91	ns
Pretest Trial: Group Effect	.06	1,91	ns
Posttest Trial: Group Effect	6.36	1,91	.05

B. Impression Managment

Scale	F	df	p <
Treatment Group: Trials Effect	33.04	1,91	.001
Comparison Group: Trials Effect	.23	1,91	ns
Pretest Trial: Group Effect	.84	1,91	ns
Posttest Trial: Group Effect	3.77	1,91	.06

Appendix M

Novaco Reactions to Provocation Scale Part A Domain Subscales: Significance Tests for

Simple Main Effects

A. Cognitive Domain

Scale	F	df	p <
Treatment Group: Trials Effect	38.01	1.91	.001
Comparison Group: Trials Effect	.02	1.91	ns
Pretest Trial: Group Effect	2.25	1.91	ns
Posttest Trial: Group Effect	25.27	1.91	.001

B. Arousal Domain

Scale	F	df	p <
Treatment Group: Trials Effect	30.99	1.91	.001
Comparison Group: Trials Effect	1.08	1.91	ns
Pretest Trial: Group Effect	1.06	1.91	ns
Posttest Trial: Group Effect	9.10	1.91	.01

C. Behavioural Domain

Scale	F	df	p <
Treatment Group: Trials Effect	33.78	1.91	.001
Comparison Group: Trials Effect	.02	1.91	ns
Pretest Trial: Group Effect	.18	1.91	ns
Posttest Trial: Group Effect	12.89	1.91	.01

Appendix N

Multivariate and Univariate F Values for Novaco Reactions to Provocation Subscale

Scores: Group, Trials, and Group x Trials Interaction

A. Multivariate Tests

Variable	F	df	p <
Group	1.97	12.80	.05
Trials	3.41	12.80	.001
Group x Trials	2.76	12.80	.01

B. Univariate Tests - Group Effect

Measure	F	df	p <
Cognitive Domain:			
Attentional Focus	5.54	1.91	.05
Rumination	12.92	1.91	.001
Hostile Attitude	12.19	1.91	.001
Suspicion	7.44	1.91	.01
Arousal Domain:			
Intensity	1.76	1.91	ns
Duration	7.02	1.91	.01
Somatic Activation/Tension	5.18	1.91	.05
Irritability	4.12	1.91	.05
Behavioural Domain:			
Impulsive	2.98	1.91	ns
Verbal Aggression	6.87	1.91	.01
Indirect Aggression	1.60	1.91	ns
Physical Confrontation	6.16	1.91	.05

Appendix N (Continued)

Multivariate and Univariate F Values for Novaco Reactions to Provocation Subscale

Scores: Group, Trials, and Group x Trials Interaction

C. Univariate Tests - Trials Effect

Measure	F	df	p <
Cognitive Domain:			
Attentional Focus	7.20	1,91	.01
Rumination	18.15	1,91	.001
Hostile Attitude	3.92	1,91	.05
Suspicion	.99	1,91	ns
Arousal Domain:			
Intensity	9.93	1,91	.01
Duration	7.38	1,91	.01
Somatic Activation/Tension	7.62	1,91	.01
Irritability	22.94	1,91	.001
Behavioural Domain:			
Impulsive	3.09	1,91	ns
Verbal Aggression	12.01	1,91	.001
Indirect Aggression	10.84	1,91	.001
Physical Confrontation	6.36	1,91	.05

Appendix N (Continued)

Multivariate and Univariate F Values for Novaco Reactions to Provocation Subscale

Scores: Group, Trials, and Group x Trials Interaction

D. Univariate Tests - Group x Trials Interaction

Measure	F	df	p <
Attentional Focus	3.82	1,91	ns
Rumination	6.53	1,91	.05
Hostile Attitude	17.80	1,91	.001
Suspicion	3.78	1,91	ns
Intensity	2.94	1,91	ns
Duration	9.14	1,91	.01
Somatic Activation/Tension	2.41	1,91	ns
Irritability	1.79	1,91	ns
Impulsive	5.92	1,91	.05
Verbal Aggression	9.76	1,91	.01
Indirect Aggression	10.84	1,91	.001
Physical Confrontation	8.11	1,91	.01

Appendix O

Novaco Reactions to Provocation Subscale Scores: Significance Tests for Simple Main Effects

A. Attentional Focus

	F	df	p <
Treatment Group: Trials Effect	16.14	1,91	.001
Comparison Group: Trials Effect	.20	1,91	ns
Pretest Trial: Group Effect	.57	1,91	ns
Posttest Trial: Group Effect	9.30	1,91	.01

B. Rumination

	F	df	p <
Treatment Group: Trials Effect	34.85	1,91	.001
Comparison Group: Trials Effect	1.09	1,91	ns
Pretest Trial: Group Effect	3.40	1,91	ns
Posttest Trial: Group Effect	19.55	1,91	.001

C. Hostile Attitudes

	F	df	p <
Treatment Group: Trials Effect	28.83	1,91	.001
Comparison Group: Trials Effect	1.88	1,91	ns
Pretest Trial: Group Effect	.87	1,91	ns
Posttest Trial: Group Effect	23.50	1,91	.001

Appendix O (Continued)

Novaco Reactions to Provocation Subscale Scores: Significance Tests for Simple Main Effects

D. Suspicion

	F	df	p <
Treatment Group: Trials Effect	6.48	1,91	.05
Comparison Group: Trials Effect	.34	1,91	ns
Pretest Trial: Group Effect	1.19	1,91	ns
Posttest Trial: Group Effect	13.18	1,91	.001

E. Intensity

	F	df	p <
Treatment Group: Trials Effect	17.77	1,91	.001
Comparison Group: Trials Effect	.77	1,91	ns
Pretest Trial: Group Effect	.11	1,91	ns
Posttest Trial: Group Effect	4.12	1,91	.05

F. Duration

	F	df	p <
Treatment Group: Trials Effect	24.71	1,91	.001
Comparison Group: Trials Effect	.04	1,91	ns
Pretest Trial: Group Effect	.63	1,91	ns
Posttest Trial: Group Effect	14.68	1,91	.001

Appendix O (Continued)

Novaco Reactions to Provocation Subscale Scores: Significance Tests for Simple Main Effects

G. Somatic Activational Tension

	F	df	p <
Treatment Group: Trials Effect	13.95	1,91	.001
Comparison Group: Trials Effect	.55	1,91	ns
Pretest Trial: Group Effect	1.88	1,91	ns
Posttest Trial: Group Effect	7.17	1,91	.01

H. Irritability

	F	df	p <
Treatment Group: Trials Effect	28.16	1,91	.001
Comparison Group: Trials Effect	4.47	1,91	.05
Pretest Trial: Group Effect	1.32	1,91	ns
Posttest Trial: Group Effect	5.46	1,91	.05

H. Impulsive

	F	df	p <
Treatment Group: Trials Effect	13.18	1,91	.001
Comparison Group: Trials Effect	.17	1,91	ns
Pretest Trial: Group Effect	.10	1,91	ns
Posttest Trial: Group Effect	7.91	1,91	.01

Appendix O (Continued)

Novaco Reactions to Provocation Subscale Scores: Significance Tests for Simple Main Effects

I. Verbal Aggression

	F	df	p <
Treatment Group: Trials Effect	32.56	1,91	.001
Comparison Group: Trials Effect	.04	1,91	ns
Pretest Trial: Group Effect	.75	1,91	ns
Posttest Trial: Group Effect	12.93	1,91	.001

J. Indirect Aggression

	F	df	p <
Treatment Group: Trials Effect	32.53	1,91	.001
Comparison Group: Trials Effect	.00	1,91	ns
Pretest Trial: Group Effect	.36	1,91	ns
Posttest Trial: Group Effect	7.33	1,91	.01

K. Physical Confrontation

	F	df	p <
Treatment Group: Trials Effect	21.63	1,91	.001
Comparison Group: Trials Effect	.04	1,91	ns
Pretest Trial: Group Effect	.71	1,91	ns
Posttest Trial: Group Effect	13.37	1,91	.001

Appendix P

Novaco Reactions to Provocation Scale Part B and Rideau Anger Inventory: Significance

Tests for Simple Main Effects

A. Disrespectful Treatment

Scale	F	df	p <
Treatment Group: Trials Effect	24.83	1,91	.001
Comparison Group: Trials Effect	.03	1,91	ns
Pretest Trial: Group Effect	2.03	1,91	ns
Posttest Trial: Group Effect	17.85	1,91	.001

B. Unfair/Unjust

Scale	F	df	p <
Treatment Group: Trials Effect	42.15	1,91	.001
Comparison Group: Trials Effect	2.21	1,91	ns
Pretest Trial: Group Effect	1.51	1,91	ns
Posttest Trial: Group Effect	13.07	1,91	.001

C. Frustration

Scale	F	df	p <
Treatment Group: Trials Effect	30.87	1,91	.001
Comparison Group: Trials Effect	2.04	1,91	ns
Pretest Trial: Group Effect	2.93	1,91	ns
Posttest Trial: Group Effect	13.75	1,91	.001

Appendix P (Continued)

Novaco Reactions to Provocation Scale Part B and Rideau Anger Inventory: Significance

Tests for Simple Main Effects

D. Annoying Traits

Scale	F	df	p <
Treatment Group: Trials Effect	29.07	1,91	.001
Comparison Group: Trials Effect	2.29	1,91	ns
Pretest Trial: Group Effect	5.25	1,91	.05
Posttest Trial: Group Effect	15.84	1,91	.001

E. Irritations

Scale	F	df	p <
Treatment Group: Trials Effect	23.55	1,91	.001
Comparison Group: Trials Effect	.02	1,91	ns
Pretest Trial: Group Effect	1.17	1,91	ns
Posttest Trial: Group Effect	12.53	1,91	.001

F. Rideau Anger Inventory

Scale	F	df	p <
Treatment Group: Trials Effect	79.92	1,91	.001
Comparison Group: Trials Effect	.57	1,91	ns
Pretest Trial: Group Effect	2.32	1,91	ns
Posttest Trial: Group Effect	22.22	1,91	.001

Appendix Q

Multidimensional Anger Inventory - Siegel: Significance Tests for Simple Main Effects

A. Anger Arousal

Scale	F	df	p <
Treatment Group: Trials Effect	30.87	1,91	.001
Comparison Group: Trials Effect	.36	1,91	ns
Pretest Trial: Group Effect	.35	1,91	ns
Posttest Trial: Group Effect	13.28	1,91	.001

B. Hostile Outlook

Scale	F	df	p <
Treatment Group: Trials Effect	16.40	1,91	.001
Comparison Group: Trials Effect	.07	1,91	ns
Pretest Trial: Group Effect	1.77	1,91	ns
Posttest Trial: Group Effect	11.30	1,91	.001

C. Anger-In

Scale	F	df	p <
Treatment Group: Trials Effect	30.41	1,91	.001
Comparison Group: Trials Effect	.27	1,91	ns
Pretest Trial: Group Effect	1.68	1,91	ns
Posttest Trial: Group Effect	15.82	1,91	.001

D. Anger-Out

Scale	F	df	p <
Treatment Group: Trials Effect	6.11	1,91	.05
Comparison Group: Trials Effect	.58	1,91	ns
Pretest Trial: Group Effect	.01	1,91	ns
Posttest Trial: Group Effect	8.67	1,91	.01

Appendix Q (Continued)

Multidimensional Anger Inventory - Siegel: Significance Tests for Simple Main Effects

E. Range of Anger

Scale	F	df	p <
Treatment Group: Trials Effect	36.25	1,91	.001
Comparison Group: Trials Effect	3.50	1,91	ns
Pretest Trial: Group Effect	5.28	1,91	.05
Posttest Trial: Group Effect	12.58	1,91	.001

F. Total

Scale	F	df	p <
Treatment Group: Trials Effect	40.88	1,91	.001
Comparison Group: Trials Effect	.23	1,91	ns
Pretest Trial: Group Effect	1.74	1,91	ns
Posttest Trial: Group Effect	15.44	1,91	.001

Appendix R

Multivariate and Univariate F Values the Multidimensional Anger Inventory - Revised:

Group, Trials, and Group x Trials Interaction

A. Multivariate Tests

Variable	F	df	p <
Group	7.51	3.89	.001
Trials	21.23	3.89	.001
Group x Trials	3.11	3.89	.05

B. Univariate Tests - Group Effect

Measure	F	df	p <
Factor 1	5.24	1.91	.05
Factor 2	13.63	1.91	.001
Total	6.76	1.91	.05

C. Univariate Tests - Trials Effect

Measure	F	df	p <
Factor 1	12.34	1.91	.001
Factor 2	24.51	1.91	.001
Total	56.04	1.91	.001

D. Univariate Tests - Group x Trials Interaction

Measure	F	df	p <
Factor 1	8.92	1.91	.01
Factor 2	6.15	1.91	.05
Total	6.24	1.91	.05

Appendix S

Multidimensional Anger Inventory - Revised Scores: Means and Standard Deviations by

Groups and Trials

Measure	Treatment		Comparison	
	PRE	POST	PRE	POST
Total Score	89.76	75.03	97.06	89.71
	(22.15)	(17.52)	(22.46)	(19.70)
(a) Factor 1	43.13	35.16	45.71	37.94
	(13.84)	(14.12)	(13.59)	(11.90)
(b) Factor 2	35.60	29.10	40.10	37.94
	(8.46)	(9.46)	(9.76)	(9.08)

Note. Standard Deviations in parentheses. Treatment Group N = 62; Comparison Group

N = 31.

Appendix T

Multidimensional Anger Inventory - Revised: Significance Tests for Simple Main

Effects

A. Factor 1

Scale	F	df	p <
Treatment Group: Trials Effect	31.67	1,91	.001
Comparison Group: Trials Effect	.10	1,91	ns
Pretest Trial: Group Effect	.73	1,91	ns
Posttest Trial: Group Effect	11.24	1,91	.001

B. Factor 2

Scale	F	df	p <
Treatment Group: Trials Effect	41.42	1,91	.001
Comparison Group: Trials Effect	2.29	1,91	ns
Pretest Trial: Group Effect	5.25	1,91	.05
Posttest Trial: Group Effect	18.53	1,91	.001

C. Total

Scale	F	df	p <
Treatment Group: Trials Effect	74.78	1,91	.001
Comparison Group: Trials Effect	9.33	1,91	.01
Pretest Trial: Group Effect	2.23	1,91	ns
Posttest Trial: Group Effect	13.34	1,91	.001

Appendix U

Anger and Emotions Management Questionnaire: Significance Tests for Simple Main

Effects

A. Insight

Scale	F	df	p <
Treatment Group: Trials Effect	30.44	1.91	.001
Comparison Group: Trials Effect	.16	1.91	ns
Pretest Trial: Group Effect	2.36	1.91	ns
Posttest Trial: Group Effect	14.45	1.91	.001

B. Knowledge

Scale	F	df	p <
Treatment Group: Trials Effect	29.39	1.91	.001
Comparison Group: Trials Effect	.18	1.91	ns
Pretest Trial: Group Effect	.46	1.91	ns
Posttest Trial: Group Effect	17.46	1.91	.001

C. Competence

Scale	F	df	p <
Treatment Group: Trials Effect	66.68	1.91	.001
Comparison Group: Trials Effect	.04	1.91	ns
Pretest Trial: Group Effect	1.44	1.91	ns
Posttest Trial: Group Effect	37.90	1.91	.001

Appendix V

Criminal Sentiments Scale: Significance Tests for Simple Main Effects

A. Law, Courts, Police

Scale	F	df	p <
Treatment Group: Trials Effect	20.17	1,91	.001
Comparison Group: Trials Effect	.12	1,91	ns
Pretest Trial: Group Effect	12.77	1,91	.001
Posttest Trial: Group Effect	32.88	1,91	.001

B. Identification With Criminal Others

Scale	F	df	p <
Treatment Group: Trials Effect	21.80	1,91	.001
Comparison Group: Trials Effect	1.78	1,91	ns
Pretest Trial: Group Effect	6.61	1,91	.05
Posttest Trial: Group Effect	33.30	1,91	.001

C. Tolerance for Law Violations

Scale	F	df	p <
Treatment Group: Trials Effect	43.18	1,91	.001
Comparison Group: Trials Effect	.63	1,91	ns
Pretest Trial: Group Effect	9.38	1,91	.01
Posttest Trial: Group Effect	24.58	1,91	.001

Appendix W

Rideau Anger Inventory Scores by Group and Risk Level

Group	Risk Level	
	Low	High
Treatment	4.93 (5.47)	6.94 (5.94)
Comparison	2.43 (6.10)	-1.07 (1.91)

Note. Standard deviations in parentheses.

Appendix X

A Comparison of the F Statistic on All Change Scores Before (ANOVA) and After (ANCOVA) Controls for Group

Difference Variables

Measures

A. Novaco Reactions to Provocation Scale - Part A

Measure	ANOVA	ANCOVA
Arousal Domain	5.58*	4.74*
Intensity	2.94	5.32*
Duration	9.14**	8.47**
Somatic Activation	2.41	0.40
Irritability	1.79	1.16
Cognitive Domain	13.55***	11.89**
Attentional Focus	3.82	1.36
Rumination	6.53*	9.48**
Hostile Attitude	17.80***	13.29***
Suspicion	3.78	3.96
Behavioural Domain	12.06**	13.36***
Impulsive Reaction	5.92*	9.68**
Verbal Aggression	9.76**	5.85*
Physical Confrontation	8.11**	10.81**
Indirect Expression	10.84**	11.16**

B. Novaco Reactions to Provocation Scale - Part B

Measure	ANOVA	ANCOVA
Disrespectful Treatment	7.48**	10.02**
Unfairness	6.43*	7.84**
Frustration	4.17*	7.33**
Annoying Traits	3.52	8.19**
Irritations	7.56**	14.15***
Total Part B	7.81**	13.15***

Appendix X (Continued)

A Comparison of the F Statistic on All Change Scores Before (ANOVA) and After (ANCOVA) Controls for Group

Difference Variables

C. Rideau Anger Inventory

Measure	ANOVA	ANCOVA
Rideau Anger Inventory	18.61***	16.21***

D. Multidimensional Anger Inventory - Siegel

Measure	ANOVA	ANCOVA
Total	10.88**	13.29***
Anger-Arousal	13.68***	20.60***
Range of Anger	2.71	4.42*
Anger-In	7.60**	8.57**
Anger-Out	4.19*	2.55
Hostile Outlook	4.19*	1.89

E. Multidimensional Anger Scale - Revised

Measure	ANOVA	ANCOVA
Total Score	6.24*	9.46**
Factor 1	8.92**	11.56**
Factor 2	6.15*	7.11**

F. Anger and Emotions Questionnaire

Measure	ANOVA	ANCOVA
Insight	8.15**	4.11*
Knowledge	12.09***	7.87**
Self Competence	18.94***	18.06***

G. Criminal Sentiments Scale

Measure	ANOVA	ANCOVA
Identification Criminal Other	9.89**	16.81**
Law, Courts, Police	14.3***	12.22**
Tolerance Law Violations	9.90**	7.42**

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Appendix Y

ANCOVAs Of Change Scores With Pretest and Posttest Self-Deceptive Enhancement Scores as Covariates:

All Measures

A. Novaco Reactions to Provocation Scale

Measure	F (1.89)	p <
Part A		
* Arousal Domain	1.97	ns
Intensity	.62	ns
Duration	4.63	.05
Somatic Activation	.90	ns
Irritability	.28	ns
Cognitive Domain	8.79	.01
Attentional Focus	2.22	
* Rumination	3.29	ns
Hostile Attitude	13.73	.001
Suspicion	2.51	ns
Behavioural Domain	6.36	.05
* Impulsive Reaction	2.42	ns
Verbal Aggression	5.47	.05
Physical Confrontation	5.46	.05
Indirect Expression	4.11	.05
Part B	2.70	ns
* Disrespectful Treatment	2.59	ns
* Unfairness	2.81	ns
* Frustration	1.12	ns
Annoying Traits	.64	ns

* Irritations

3.04

ns

Appendix Y (Continued)

ANCOVAs Of Change Scores With Pretest and Posttest Self-Deceptive Enhancement Scores as Covariates: All Measures

B. Other Measures

Measure	F (1,89)	p <
Rideau Anger Inventory	12.61	.001
Multidimensional Anger Inventory	4.76	.05
Anger-Arousal	7.34	.01
Range of Anger	.56	ns
* Anger-In	2.76	ns
* Anger-Out	2.28	ns
* Hostile Outlook	1.37	ns
* Multidimensional Anger Inventory-R	2.98	ns
* Factor 1	3.35	ns
* Factor 2	2.22	ns
Anger and Emotions Questionnaire		
Insight	6.95	ns
Knowledge	6.54	.05
Self Competence	11.66	.001
Criminal Sentiments Scale		
ICO	10.48	.01
LCP	6.88	.05
TLV	6.91	.05

Note. * denotes scores that change from significant to nonsignificant after controls for Impression

Management Scores. ICO = Identification with Criminal Others; LCP = Law, Courts, Police; TLV = Tolerance for Law Violations.