

ANGER, HOSTILITY AND AGGRESSION:

THE PSYCHOMETRIC CAPABILITIES OF A REVISED BUSS-DURKEE INVENTORY

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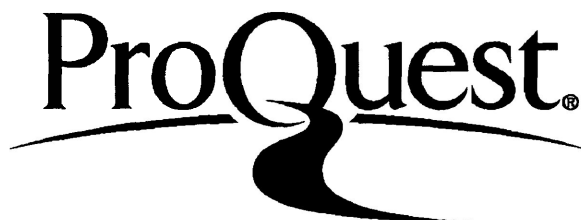
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Abstract

It would appear that the emotion 'anger' together with hostile attitudes and aggressive behaviors is receiving more attention in the clinical literature. Within clinics, themselves, more programs are being developed to deal with anger and its sequelae. This has led to the need for psychometric devices to assess anger, etc., more meaningfully. The Buss-Durkee Hostility Inventory was originally developed to assess certain aspects of anger but proved to be psychometrically questionable. This device does, however, present an item pool that makes intuitive sense. The current project, then, did, in essence: a) rewrite the items such that the behaviors may be ranked on a Likert-type scale (Research work has demonstrated the ambiguity and lack of power of true/false formats), and b) run a preliminary work-up on the revised test using participants from introductory psychology classes. This procedure was conducted in two stages, the first being an item analysis. This was done through a factor analysis; principal component with iteration followed by an oblique rotation. On this basis, factorially pure scales were generated. An analysis of the internal consistency of each new scale was then modified further to assure high homogeneity. Some preliminary validation was then assayed by correlating the scales with a related instrument developed by Novaco. It was expected that 'hostility-related' scales would correlate with this

device. The second stage consisted of the revised scales being administered to a new group for cross-validation (that is, a corroborative factor analysis with oblique rotation was conducted). The internal consistency of the scales was analyzed further and an anova was run using the revised scales against gender and a measure developed by Crowne and Marlowe(1960) designed to detect the influence of item endorsement on the basis of social desirability.

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ANGER, HOSTILITY AND AGGRESSION: THE PSYCHOMETRIC
CAPABILITIES OF A REVISED BUSS-DURKEE INVENTORY

The study of anger, hostility and aggression has received an increase in attention during the last two decades. Researchers have responded to the increase in societal demand for information which may be used to aid in the understanding, prediction and control of these 'all too human' attributes, and the extent to which investigators have focused interest in this area has been profound and incisive. The powerful undercurrent of violence which pervades television, radio, newspapers and movies bears no small testimony to the magnitude of the problems so characteristically inherent in the interpersonal and international experience of day to day living. There is no reason to assume that the stress and pressure of everyday existence will subside. Quite the contrary, contemporary Humankind is being forced to increasingly control and deflect anger, hostility and aggressiveness.

Recent work by Bandura(1973), Novaco(1975), and Frankenhaeuser(1971) point out the importance of accurately describing and effectively coping with feelings, thoughts and behaviors which can lead to destruction on both personal and societal levels. This investment of time and effort by researchers in the development of new treatment programs has paralleled the recent upswing of interest in this field (Novaco, 1975), but this movement has preceded methods by which the treatments may be properly evaluated

(Edmunds & Kendrick, 1980).

One possible reason that methods of recording change during treatment have rarely kept pace with treatment intervention is that anger is itself not a unitary element, but rather a component in a cluster of phenomena (Novaco, 1975 ; Spielberger, 1970; Buss & Durkee, 1957). Anger represents the feelings associated with arousal, whereas hostility is the attitude adopted, with the behaviors being inferred as aggressive (Spielberger, 1970). Though related, these components do not necessarily depend upon each other for the translation to action (Frankenhaeuser, 1971). An individual may be highly aroused without engaging in aggressive behaviors, etc., and vice versa (Funkenstein, 1954; 1956).

Novaco(1975) has contributed a great deal to the delineation of the cognitive correlates of aggression as has Spielberger(1970), who, for his part has focused his attention on devising techniques for describing the affective- physiological correlates of aggression. Strides are being made, and the sophistication that researchers are bringing into the field are helping to guide further investigators (Edmunds & Kendrick, 1980).

Measurement Devices

The psychometric evaluation of feelings of anger, attitudes of hostility and behaviors deemed to be aggressive, is at best a difficult task. Practical and

ethical constraints make it particularly troublesome to develop situations which are able to meaningfully and realistically elicit genuine feelings, attitudes and behaviors from participants. Projective tests, the delivery of electric shock and questionnaires compose the most widely used methods of determining comparative ratings of aggression and hostility. Anger has been defined as an arousal state, and as such, the measurement of this component has relied primarily on physiological recorders such as the polygraph (Lacey, 1967).

The projective techniques that are most widely used for measuring aggressiveness are the Rosenswieg Picture Frustration Test, the Rorschach Inkblot Test and the Thematic Apperception Test. All of these tests have yielded conflicting but largely negative results (Weinberg, 1953; Buss, 1961; Megargee, 1970).

The delivery of electric shock has been the focus of great interest by researchers wishing to measure operationally defined aggressive behaviors, and past research has used duration, intensity, frequency, and the amount of pressure exerted on the shock lever, as indices (Knott & Drost, 1970; Hokanson, 1961; Geen & Berkowitz, 1967). These studies indicate that frequency is the better index (Gentry, 1970), but this group of measures appears to have little construct validity since the components do not correlate strongly with one another (Edmunds & Kendrick, 1980).

Questionnaires, inventories and scales can be very

practical for research purposes. They can be given to large numbers of people at one time period and can be scored with relative ease. The list of questionnaires used for determining the presence of hostility is extensive and although an evaluation of each is well beyond the scope of this paper, some of the more widely used methods for deriving tests will be discussed in brief. Approaches to questionnaire development have usually been divided into four general types: intuitive, empirical, theoretical and internal consistency (Edmunds & Kendrick, 1980). A sample questionnaire will be drawn from each category for illustrative purposes.

Intuitively developed questionnaires derive their items from an a priori sense of what is apparently relevant to aggressiveness. Inclusion in scales is usually the result of inter-rater consensus. Designed by Cook and Medley(1954), the Cook and Medley Hostility Scale consists of fifty items extracted from the MMPI with the intended purpose being to discriminate between degrees of hostility among respondents. Megargee and Mendelsohn(1962) report the results of a research program designed to assess the validity of MMPI-derived hostility/aggressiveness scales. These authors compared the hostility scale scores of four groups of male subjects: extremely assaultive criminals, moderately assaultive criminals, non-assaultive criminals, and non-criminal controls. Among the results of the study they found that the Cook and Medley Scale failed to discriminate significantly between any of the criterion

groups.

Empirically based questionnaires are derived from the ability of items to discriminate between criterion groups. One such device, Schultz's Hostility and Aggression Scales (Schultz, 1954) was derived from psychiatric ratings of patients' overt and covert aggression and control of hostility attributes. One potential pitfall when using this method to develop a measuring instrument is that the use of large item pools and liberal confidence levels increases the risks of committing Type 1 errors. Shipman(1965) found that the three subscales were unrelated to ratings of hostility in psychiatric patients. In another study by Megargee and Mendelsohn(1962), the Hostility Control Scale was able to discriminate criminals from non-criminals, but was unable to separate the assaultive from the non-assaultive groups. Existing evidence indicates that the instrument has little validity (Buss, 1961; Edmunds & Kendrick, 1980).

Scales derived on the basis of internal consistency, such as Bendig's Covert and Overt Hostility Scales (Bendig, 1962), are limited as a function of the population tested. Eysenck and Eysenck(1969, p.326), suggest " The assumption of most factor analysts that factors extracted from one group will apply with equal force to other groups differing along various parameters from the original group is not one which can be accepted without definite proof in each particular case..." A weakness of Bendig's work is that the factors have not been shown to be stable across

different groups of subjects. This argument can be partially diffused if the author does not generalize findings across untested populations. In fact, if a factor structure is shown to be stable within particular populations, this may be a criterion for inclusion into this category of persons.

A theoretical scale is one in which the content is related to a particular theory in psychology. The Buss-Durkee Hostility Inventory (1957) is one such device. Empirically derived tests offer the same reasons to be wary as those of intuitive constructions; truthfulness of responding, the participant's self-knowledge, etc., but the content validity of theoretically based scales is more clearly defined (Jackson, 1970).

One of the most promising instruments is the Buss-Durkee Inventory. Originally created on a theoretical basis, this measure of aggression and hostility appears to have construct validity (Edmunds & Kendrick, 1980, p.52), though attempts designed to evaluate its' empirical validity have yielded (largely) negative results. The Buss-Durkee is going to be the focal point of this research, since, with modification, the instrument could be an extremely useful clinical tool. Though the items seem to make intuitive sense, the factor structure offered by its' authors has been the source of less complimentary findings.

The Buss-Durkee Hostility Inventory

The Buss-Durkee Inventory (BDHI) (Buss & Durkee, 1957) has been the focus of a large number of empirical investigations (Bendig, 1962; Buss, Fischer & Simmons, 1962; Simpson & Craig, 1967) and the instrument has received consistently mixed reviews (Bendig, 1962; Leibowitz, 1968; Geen & George, 1969; Knott, 1970; Edmunds & Kendrick, 1980). The BDHI is composed of seventy-five true-false statements that are organized into eight subscales. The subscales refer to behaviors and attitudes that are often associated with aggressive and hostile activities. The specific meaning of each subscale is listed below.

Assault: Physical violence against human beings, including fighting but excluding the destruction of property.

Indirect aggression: Malicious gossip, practical jokes and temper tantrums.

Irritability: Readiness to anger including quick temper and rudeness.

Negativism: Oppositional behavior including refusal to co-operate, noncompliance and rebellion.

Resentment: Jealousy and hatred of others; a sense of having been dealt with unjustly by the world over real or fancied mistreatment.

Suspicion: Distrust, wariness and projection of hostility onto others; in its extreme form this becomes paranoia.

Verbal aggression: Arguing, shouting, screaming, threatening and cursing.

Guilt: Feelings of being bad, having done wrong, etc.

Each category of aggression is sub-divided into active or passive manipulation; an intuitive, common sense approach with acts as the fundamental building blocks that Buss and Durkee relied upon during the formulation stage of item selection. Preliminary factor analysis by Buss and Durkee (1957) confirmed the above structure. Two centroid factors emerged through an oblique simple structural rotation, and this finding was supported by a subsequent analysis employing a varimax orthogonal rotation of the same data (Buss et al., 1962). These factors were assumed to represent hostility and aggressiveness.

Bendig(1961) attempted to replicate and expand upon Buss and Durkee's original study. He administered the BDHI with the Maudsley Personality Inventory (Eysenck, 1959) which resulted in the emergence of ten centroid factors. The third and fourth factors were interpreted as being Buss and Durkee's hostility and aggressiveness measures. Edmunds and Kendrick(1980, p.61) compared Bendig's factors with those of Buss and Durkee by means of Tucker's co-efficient of congruence (1951) and only a moderate similarity was indicated (.73). Buss and Durkee (1962) revealed in their study that the factors may be unstable. They intercorrelated the subscale scores of a new set of data derived from psychiatric patients and the resulting factor structure was regarded by Buss et al., as being uninterpretable.

Three factor analyses have been reviewed and three

different solutions have appeared. It is, as yet, unclear whether these differences are due to population differences or simply a reflection of the nature of emotion. Buss et al., (1962) derived their data from psychiatric patients while Buss and Durkee(1957) and Bendig(1961) obtained data from college students, and the evidence available suggests that neither the total scores nor the subscale scores have been adequately validated. It is also possible that the scoring method is inappropriate for the purpose of the measure. This consideration has never been raised by the BDHI critics. Sample differences notwithstanding, one must ask if the BDHI can be improved with a modification of the subject-response format.

The Revision

A forced-choice, true-false format has the advantage of promoting a decision on the part of the respondent but may be overshadowed by the limitations of the total and absolute assumption of representativeness inherent in answering a statement by this method (Tzeng, 1983). This may be particularly apt since acknowledgement of a socially undesirable quality or action is itself a potentially difficult activity (Crowne & Marlowe, 1960). Regardless of an item's applicability to everyday life, the rater is always forced to accept completely or deny wholly the characteristic being tested. Also, this type of format cannot detect the relative differentiations between

two rates on the same activity, nor can it register the relative strength of presence of two characteristics for a single ratee (Tzeng, 1983). Better quality discriminations can be made by increasing the range of responses and by adding an escape option (Tzeng, 1983).

We are left, then, with a number of tests that are confused in both the trait/behavior being measured and the supporting psychometric properties. The problem remains, however, to assess and monitor change in anger, hostility and aggression. The focus of the current study was to reconsider the BDHI as the most promising device (certainly with respect to the item pool) for assessing aggression. The following procedures have been performed to aid in the re-evaluation of a new, revised Buss-Durkee Inventory.

- 1) the items were re-written for a Likert-type format;
- 2) an item analysis was conducted;
- 3) a factor analysis was conducted;
- 4) a reliability analysis was conducted as measured by internal consistency;
- 5) convergent and discriminant validity was inferred through the creation of factorially pure scales from the Buss-Durkee Inventory and Novaco's hostility measure;
- 6) A second study was conducted to cross-validate the revised scales.
- 7) Scales were re-checked for internal consistency and homogeneity.
- 8) A measure to record the influence of social desirability response style was administered.

9) Sex differences were investigated to assess the relationship of gender and response style biases.

METHOD

Participants

The participants in this study were 127 males, 233 females and 29 non-self-classified individuals enrolled in introductory psychology courses. Participation was on a voluntary basis. For a demographic description, please see Appendix F.

Materials and Measures

1. The Buss-Durkee Hostility Inventory

This psychometric study employed the original Buss-Durkee Hostility Inventory(1957) after the appropriate modification had been conducted for the inclusion of response categories. The original true-false format was replaced with the following categories designed to offer the respondent more shading in the representativeness of the items: never, rarely, sometimes and usually. The inclusion of an escape response of "don't know" was also added to enhance the potential for truthfulness from a respondent and reduce the pressure to choose in an arbitrary fashion(Tzeng,1983). Sequencing and item content were altered as little as possible for response accomodation. For example, item #2 of the original measure is "I sometimes spread gossip about people I don't like". This was altered to "I....spread gossip about people I

don't like". See Appendix B for the entire revised test.

2. Novaco's Anger Inventory

Novaco's Anger Inventory(1974)was included in this study so that convergent and discriminant validity estimates could be derived from among the concept traits of hostility and aggression. This device consists of 90 items which tap frustrating and aggravating situations, such as, " going for a haircut and getting more cut-off than you wanted", "being called a liar", and "being mocked by a small group of people as you pass them,". The respondent is asked to rate on a 5 point scale the extent to which he or she would (in real life) be angered by these situations. Derived by student consensus in a preliminary study by Novaco, these items were administered to 138 males and 138 female undergraduates. The subsequent item analysis showed the instrument to be internally consistent (Cronbach alpha = .94 for males and .96 for females). See Appendix D.

3. The Crowne and Marlowe Instrument

Crowne and Marlowe's(1960) measure was designed to assess the extent of participant bias in responding in a culturally sanctioned manner to questionnaire items. High scorers on this scale respond in culturally sanctioned ways, thereby alerting testers that these individuals may not necessarily be responding freely with uninhibited honesty. A measure of this response bias was considered imperative for a study of this nature. The relevance is in the attitude of participants to the questionnaire being

investigated and the concept of culturally sanctioned responding. This device consists of 33 items, such as "I always try to practice what I preach", "I never resent being asked to return a favor", and "I have never felt that I was punished without cause". This scale has been shown to correlate moderately ($r=.54$, $p < .01$) with the Lie scale of the MMPI (Crowne & Marlowe, 1960). See Appendix E.

Procedure

STUDY ONE

A. THE BUSS-DURKEE REVISION

The modified Buss-Durkee Hostility Inventory (Appendix B) and the Novaco Measure (Appendix D) were administered to 234 participants (see Appendix F for demographic details).

B. PSYCHOMETRIC PROPERTIES OF THE REVISED BUSS-DURKEE

All statistics were run using SPSS programs (Nie et al., 1975). Reliability statistics were obtained from the "Reliability" package (model=Alpha). Factor Analysis was performed from the "Factor Analysis" package (Oblique/PA2).

1. Revision of the scales.

a) Item analysis of the eight revised scales.

An analysis was conducted to evaluate the corrected item-total correlations on each of the eight revised

scales. This procedure indicates the contribution that each item is making to the scale as a whole. The corrected item-total correlation (corrected for inflation due to the inclusion of the item in the total correlation) gives an indication of the degree to which an item contributes to the total scale score.

b) Internal consistency of the original eight scales.

An analysis of the internal consistency of each scale was conducted to assess scale reliability (i.e., homogeneity). Cronbach's coefficient Alpha was chosen to indicate this estimate.

2. Factor analysis of the revised items.

a) Factor analysis and new scale generation.

Since it was anticipated that emergent factors would be correlated, a factor analysis with iterations was performed followed by an oblique rotation. Six factors were chosen, as on an original analysis, six factors emerged on the basis of Cattell's scree test (Child, 1973). Items were chosen for inclusion in a scale if they (a) had loadings of .3 or more (Child, 1973), and (b) if items loaded significantly on only one factor.

b) Item analysis of the new scales.

The newly generated scales were subjected to the item analysis as above, i.e., a set of corrected item-total correlations were computed.

c) Internal consistency of the new scales.

The coefficient Alpha was again used to assess the reliability of the new scales.

d) A Factor analysis, item analysis and check on internal consistency was conducted on males and females, separately.

C. PRELIMINARY INVESTIGATION OF THE NOVACO ANGER MEASURE

a) Factor analysis and scale generation.

Item extraction was consistent with the method outlined above. In this case, application of the scree test resulted in the calling of four factors.

b) Item analysis of the new scales.

Corrected item-total correlations were computed.

c) Internal consistency of the new scales.

The coefficient Alpha statistic was computed.

D. VALIDATION OF THE BDHI (REVISED)

a) Correlational analysis of all new scales.

The Novaco items were theoretically drawn from an item pool that tapped the concept of hostility. This is a cognitive structure, and as such it would be anticipated that the Novaco scales would correlate more highly with each other than with those scales of the Buss-Durkee domain of aggression, which could be considered more behavioral in nature.

b) A comparative, correlational analysis was conducted on the Novaco total score.

RESULTS

A. PSYCHOMETRIC PROPERTIES OF THE REVISED BUSS-DURKEE

1. Modified original scales.

a) Item analysis of the original eight scales.

Initial item analysis revealed scales that had weak corrected item-total correlations. Many of the items contribute little (and sometimes negatively) to the total scale score. See table 1

Table 1

INITIAL ITEM ANALYSIS OF THE ORIGINAL BDHI (MODIFIED)

Scale 1-
Assault

Mean = 23.11
S.D. = 4.77
ALPHA=.46

Corrected Item-
Total Correlations

Item	r
Q1	.258
Q9	.111
Q17	-.031
Q25	.097
Q33	.058
Q41	.050
Q49	.358
Q57	.479
Q65	.494
Q70	.437

Scale 2-
Indirect

Mean = 21.06
S.D. = 4.55
ALPHA=.50

Corrected Item-
Total Correlations

Item	r
Q2	.153
Q10	.285
Q18	-.154
Q26	.366
Q34	.303
Q42	.330
Q50	.314
Q58	.398
Q75	.387

Scale 3-
Irritability

Mean = 27.19
S.D. = 4.44
ALPHA=.34

Corrected Item-
Total Correlations

Item	r
Q4	-.044
Q12	.195
Q20	.201
Q27	.308
Q35	.149
Q44	.315
Q52	.367
Q60	.279
Q66	-.274
Q71	.293
Q73	.346

Scale 4-
Negativity

Mean =12.92
S.D. = 2.64
ALPHA=.30

Corrected Item-
Total Correlations

Item	r
Q3	.149
Q11	.213
Q19	.267
Q28	.127
Q36	.016

Scale 5-
Resentment

Mean = 20.01
S.D. = 4.05
ALPHA=.51

Corrected Item-
Total Correlations

Item	r
Q5	.236
Q13	.190
Q21	.300
Q29	.166
Q37	.232
Q45	.313
Q53	.191
Q61	.346

Scale 6-
Suspicion

Mean = 24.49
S.D. = 5.19
ALPHA=.59

Corrected Item-
Total Correlations

Item	r
Q6	.205
Q14	.330
Q22	.228
Q30	.305
Q38	.273
Q46	.164
Q54	.361
Q62	.221
Q67	.458
Q72	.402

Scale 7-
Verbal agg.

Scale 8-
Guilt

Mean = 35.38
S.D. = 4.87
ALPHA=.38

Mean = 23.67
S.D. = 3.73
ALPHA=.40

Corrected Item-
Total Correlations

Item	r
Q7	.307
Q15	.071
Q23	.073
Q31	.044
Q39	.127
Q43	.312
Q47	.336
Q51	.245
Q55	.477
Q59	-.201
Q63	.262
Q68	.150
Q74	.108

Corrected Item-
Total Correlations

Item	r
Q8	.019
Q16	.095
Q24	.160
Q32	.143
Q40	.135
Q48	.323
Q56	.200
Q64	.263
Q69	.255

Corrected item-total correlations range from -.274 to .494 suggesting a weakness among the items in relation to the total score.

b) Internal consistency of the modified, original eight scales.

The accompanying coefficient Alpha indicates low reliability. The low reliabilities show great weakness in the scales, with the highest being on the "Suspicion" scale at .59, and the lowest being on the "Negativity" scale at .30. These suggest that the scales as originally conceived may not be homogenous.

2. Factor analysis of the revised items.

a) Factor analysis and new scale generation.

A factor analysis revealed the presence of a multitude of emergent factors. A scree test(Cattell, 1966)

indicated only six of the twenty-one factors with eigenvalues of 1 or more. Table 2a shows the eigenvalues of the six chosen factors and the list showing the entire twenty-one factors. The subsequent factor analysis where only six factors are called for is shown in Table 2b.

EIGENVALUES: BDHI(MOD.)

ACTOR	EIGENVALUE	PCT OF VAR	CUM PCT	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
1	10.55338	50.3	50.3	1	11.16792	16.7	16.7
2	2.95092	14.1	64.4	2	3.59985	5.4	22.0
3	2.51284	12.0	76.4	3	3.16984	4.0	26.8
4	2.01461	9.6	86.0	4	2.70181	3.5	30.3
5	1.60820	7.7	93.6	5	2.31218	3.0	33.3
6	1.33356	6.4	100.0	6	2.03114	2.6	35.9
				7	1.75052	2.5	38.4
				8	1.67798	2.4	40.8
				9	1.57982	2.3	43.1
				10	1.53558	2.1	45.2
				11	1.41096	2.0	47.2
				12	1.34765	2.0	49.2
				13	1.33198	2.0	51.2
				14	1.20560	1.9	53.1
				15	1.26602	1.9	55.0
				16	1.21627	1.8	56.8
				17	1.14251	1.7	58.5
				18	1.09374	1.6	60.2
				19	1.07420	1.6	61.8
				20	1.04992	1.6	63.5
				21	1.00135	1.5	65.2
				22	0.96170	1.4	66.8
				23	0.93798	1.4	68.3
				24	0.88669	1.3	69.7
				25	0.85845	1.3	71.0
				26	0.83932	1.3	72.3
				27	0.81529	1.2	73.5
				28	0.77977	1.1	74.7
				29	0.74825	1.1	75.9
				30	0.72226	1.0	77.0
				31	0.70156	1.0	78.1
				32	0.67556	1.0	79.1
				33	0.65308	0.9	80.1
				34	0.63442	0.9	81.1
				35	0.61912	0.9	82.0
				36	0.60789	0.9	83.0
				37	0.59091	0.8	83.8
				38	0.55955	0.8	84.6
				39	0.54334	0.8	85.4
				40	0.52307	0.8	86.2
				41	0.49835	0.7	87.0
				42	0.48798	0.7	87.7
				43	0.47256	0.7	88.4
				44	0.45618	0.7	89.1
				45	0.44579	0.7	90.0
				46	0.42608	0.7	91.4

Table 26

FACTOR ANALYSIS AND CORRELATIONS: BDHI (MOD.)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
01	0.09094	0.55139	0.08588	0.00287	0.14719	0.07865
02	0.01273	0.11571	0.31294	0.16524	0.01988	0.03586
03	0.01847	0.09678	0.12795	0.08453	0.12221	0.21582
04	0.00332	0.21376	0.01251	0.04914	0.15477	0.03392
05	0.05361	0.02172	0.30124	0.08756	0.07292	0.01587
06	0.09430	0.00909	0.15252	0.01387	0.02037	0.27603
07	0.00272	0.03161	0.13034	0.09205	0.53493	0.00813
08	0.11437	0.18546	0.16234	0.00241	0.05376	0.13849
09	0.02064	0.29923	0.01796	0.01684	0.09738	0.35885
10	0.24178	0.25450	0.37203	0.19641	0.02514	0.05922
11	0.18779	0.22463	0.24356	0.04538	0.16476	0.15736
12	0.07194	0.03020	0.21853	0.03048	0.21413	0.11283
13	0.03245	0.13158	0.10058	0.10897	0.02061	0.40509
14	0.02085	0.11454	0.31526	0.10276	0.15083	0.02881
15	0.03321	0.15247	0.52365	0.04218	0.09485	0.03679
16	0.08540	0.49767	0.15419	0.05314	0.07881	0.00984
17	0.15806	0.00352	0.03659	0.26869	0.09342	0.16534
18	0.27795	0.04760	0.14668	0.09322	0.09773	0.08642
19	0.14386	0.28654	0.18946	0.21873	0.11153	0.17592
20	0.11410	0.08898	0.31805	0.12073	0.02051	0.23206
21	0.07320	0.37596	0.25908	0.13106	0.07740	0.21125
22	0.04284	0.00224	0.01783	0.12797	0.07199	0.39171
23	0.07650	0.01881	0.05359	0.09721	0.48397	0.03844
24	0.06589	0.15545	0.08815	0.05461	0.56423	0.01085
25	0.10360	0.18210	0.00753	0.24659	0.10587	0.00535
26	0.08432	0.57692	0.01542	0.01877	0.06675	0.09905
27	0.22287	0.07876	0.41333	0.23031	0.06464	0.09474
28	0.14852	0.00771	0.24805	0.14663	0.14332	0.08659
29	0.13080	0.06563	0.33669	0.00657	0.19457	0.04983
30	0.05942	0.02356	0.55646	0.00205	0.12447	0.08351
31	0.07365	0.00729	0.02199	0.02880	0.07585	0.43001
32	0.04943	0.07418	0.04791	0.06207	0.44826	0.00197
33	0.00481	0.06991	0.21458	0.24743	0.12991	0.09667
34	0.04871	0.44412	0.01759	0.20663	0.06159	0.28897
35	0.04380	0.16743	0.16123	0.04947	0.21424	0.00463
36	0.00844	0.17980	0.05342	0.27890	0.14211	0.22755
37	0.09140	0.33948	0.21439	0.15536	0.15565	0.21423
38	0.14312	0.24114	0.24985	0.00604	0.08175	0.23609
39	0.05168	0.01263	0.42557	0.14789	0.12259	0.23365
40	0.16369	0.12435	0.16526	0.43731	0.00999	0.02734
41	0.00407	0.16998	0.17481	0.13315	0.08528	0.29485
42	0.09247	0.30053	0.06595	0.04332	0.21879	0.35923
43	0.10476	0.18449	0.00388	0.22576	0.36928	0.03408
44	0.14756	0.14005	0.36285	0.01744	0.05934	0.06537
45	0.07955	0.06677	0.52008	0.01813	0.01485	0.03558
46	0.05354	0.08887	0.25641	0.00562	0.18738	0.05257
47	0.50508	0.13529	0.00426	0.25759	0.112978	0.13383
48	0.47828	0.28209	0.07163	0.18065	0.02276	0.12268

TABLE 40

FACTOR ANALYSIS AND CORRELATIONS: BDHI(MOD.)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
Q49	0.61901	0.23802	0.01462	0.08979	0.01092	-0.02542
Q50	0.59385	0.04118	0.12036	0.07523	0.06641	-0.06197
Q51	0.58834	0.05370	0.04914	0.25725	0.11215	-0.03134
Q52	0.49868	0.02501	0.14998	0.02912	0.04666	-0.23656
Q53	0.36141	0.09273	0.04718	0.01587	-0.09473	-0.16798
Q54	0.25213	0.03850	0.24700	0.28858	0.05757	-0.04861
Q55	0.40281	0.14360	-0.03705	0.11066	0.25020	-0.13186
Q56	0.36121	0.14458	0.08557	0.06115	0.06642	-0.17888
Q57	0.68481	0.24987	-0.16222	0.23926	-0.05891	-0.15879
Q58	0.63588	0.23855	0.11987	0.14025	0.01048	0.06234
Q59	0.51252	0.00346	0.07833	0.02541	0.10562	-0.02509
Q60	0.57712	0.12958	0.09207	0.08634	0.08800	-0.25627
Q61	0.43355	0.11923	0.03737	0.03330	0.08700	-0.03345
Q62	0.02687	0.14041	0.21981	0.25659	0.24320	-0.03441
Q63	0.42010	0.14991	0.21189	0.37502	0.26309	-0.02188
Q64	0.26919	0.27247	0.26204	0.20874	0.32421	0.06425
Q65	0.93908	0.34740	0.06860	0.35336	0.17925	0.07268
Q66	0.37182	0.30771	0.38821	0.09158	0.04184	0.16470
Q67	0.32674	0.02311	0.23083	0.40618	0.17138	-0.15522
Q68	0.54823	0.05202	0.05216	-0.19182	-0.05378	0.05759
Q69	0.33950	0.24298	0.21422	0.12366	0.02464	0.01413
Q70	0.57722	0.20606	0.01267	0.22410	-0.11102	0.09327
Q71	0.48940	0.17774	0.25069	0.00574	-0.04617	0.04411
Q72	0.55415	-0.11313	0.14599	0.25568	-0.03487	-0.14338
Q73	0.52879	0.19848	0.07113	0.06827	0.08246	-0.23295
Q74	0.15439	0.20483	0.08490	0.09477	0.20447	-0.34820
Q75	0.56660	0.22162	-0.02514	0.04917	0.08927	0.10499

FACTOR CORRELATIONS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
FACTOR 1	1.00000	0.08786	0.33070	0.04444	0.14723	-0.17097
FACTOR 2	0.08786	1.00000	0.06354	0.03168	0.07588	-0.05448
FACTOR 3	0.33070	0.06354	1.00000	0.00876	0.13364	-0.25354
FACTOR 4	0.04444	0.03168	0.00876	1.00000	-0.02529	-0.09612
FACTOR 5	0.14723	0.07588	0.13364	-0.02529	1.00000	-0.08583
FACTOR 6	-0.17097	-0.05448	-0.25354	-0.09612	-0.08583	1.00000

Table 2b shows the factor pattern of the items as they load on each of the six factors. Included in this table is the accompanying correlation among the factors. The strongest correlation is among factors one and three. Too few items loaded solely onto factors 4, 5 or 6 to result in these factors becoming meaningful. Items from the first three factors that have met the selection criteria are shown in table 3.

Table 3

PRINCIPLE FACTOR COMPOSITION AND ITEM CORRELATIONS: BDHI (REVISED)

Factor 1

- 57) I....think I get into physical fights more than most people.[r=.68]
- 58) I....break objects during fights.[r=.63]
- 49) When I lose my temper, I....could slap people.[r=.62]
- 50) Since passing ten, I have....had temper tantrums.[r=.59]
- 51) When I get mad, I....say nasty things.[r=.59]
- 70) I have....been made angry enough to fight.[r=.58]
- 60) I am....rude to people I don't like.[r=.58]
- 75) I....hit table tops when I am angry.[r=.57]
- 72) I....feel people are trying to anger or insult me.[.55]
- 68) When arguing, I....shout.[r=.54]
- 73) I am....grouchy.[r=.53]
- 59) I....make threats which I won't carry out.[r=.51]
- 47) When people yell at me, I....yell back.[r=.50]
- 52) I....carry a chip on my shoulder.[r=.50]
- 71) Things....irritate me.[r=.49]
- 48) I....do things which I feel guilty about later.[r=.48]
- 69) I....feel that I have not lived the right kind of life.[r=.44]
- 61) I....get the sharp end of the stick.[r=.43]
- 65) I will....resort to physical violence to defend my rights.[r=.43]
- 55) I....put people in their place.[r=.40]
- 66) I....let it bug me if somebody treats me badly.[r=.37]
- 53) I'd....be considered difficult if people knew what I thought.[r=.36]
- 56) Failure....gives me a feeling of remorse.[r=.36]
- 63) I....let others know of my poor opinion of them.[r=.42]
- 67) I....feel that there are people in my life who wish to harm me.[r=.32]

Factor 2

- 26) If somebody hits me first, I....let him have it.[r=.57]
- 1) I....strike back when hit.[r=.55]
- 16) I can....think of a reason for hitting someone.[r=.50]
- 34) People are....asking for a physical fight when they insult me.[r=.44]
- 21) There are....people that I downright hate.[r=.37]
- 42) People who pester are....asking for a punch in the nose.[r=.30]

Factor 3

- 30) I....feel resentful when I think back to what has happened to me.[r=.55]
- 15) I am....ashamed of my own thoughts.[r=.52]
- 45) I have....been preoccupied with jealousy.[r=.52]
- 44) I....feel like a powder keg, ready to explode.[r=.46]
- 39) I....feel that others are laughing at me.[r=.43]
- 27) When I am mad, I....slam doors.[r=.41]
- 10) I....throw things when I get really angry.[r=.37]
- 29) I....give someone the silent treatment.[r=.33]
- 20) I....get angry more often than people realize.[r=.32]
- 14) When people are unexpectedly friendly, I....get suspicious.[r=.31]
- 2) I....spread gossip about people I don't like.[r=.31]
- 5) I....feel life is fair.[r=.30]

The factors appear to loosely represent;

1) "Aggression" - (phyviol) or the wish to do physical violence to people or objects. An illustrative item might be the first one on the list in the table, i.e., "I think I get into physical fights more than most people".

2) "Retaliation" - (retal) or the wish to get back at people or situations that have contributed to hurt in some manner. An example item is, "If someone hits me first, I let him have it."

3) "Suspicion/resentment" -(sus/res) in the sense that the person is bitter. For example, item 30 is "I feel resentful when I think back to what has happened to me".

b) Item analysis of the new scales.

An item analysis was conducted on each of the newly generated scales.

Table 4

ITEM-TOTAL CORRELATIONS AND COEFFICIENT ALPHA'S:BDHI (REV.)

Scale 1- PHYVIOL		Scale 2- RETAL		Scale 3- SUSRES	
MEAN=58.89		MEAN=14.35		MEAN=27.70	
S.D.=13.06		S.D.=3.90		S.D.=5.93	
ALPHA=.90		ALPHA=.73		ALPHA=.73	
Corrected Item- Total Correlations		Corrected Item- Total Correlations		Corrected Item- Total Correlations	
Item	r	Item	r	Item	r
Q57	.66	Q42	.38	Q30	.47
Q58	.57	Q21	.47	Q15	.37
Q49	.60	Q34	.45	Q45	.50
Q50	.61	Q16	.43	Q44	.47
Q51	.52	Q1	.50	Q39	.35
Q60	.56	Q26	.55	Q27	.46
Q70	.56			Q10	.47
Q75	.52			Q29	.30
Q72	.62			Q20	.36
Q68	.47			Q14	.28
Q73	.56			Q2	.28
Q59	.49			Q5	.24
Q47	.43				
Q52	.61				
Q71	.53				
Q48	.44				
Q69	.49				
Q61	.51				
Q55	.47				
Q53	.37				
Q56	.37				
Q63	.42				
Q67	.45				
Q66	.43				
Q65	.47				

Table 4 shows the corrected item-total correlations of the new factors. Most items weakly correlate with the total scale score. The range for factor one is from .37 to .66. The range for factor two is from .38 to .55, and for factor three, .24 to .50.

b) Internal Consistency of the new scales.

The coefficient Alphas' for each scale indicate a relatively high level of homogeneity. For factor one, .90; two and three, .73 each.

c) Separate analysis: males.

A separate factor analysis was ran using data obtained from the male participants. This analysis appears on table 5.

Table 5

FACTOR ANALYSIS AND CORRELATIONS: MALES ONLY

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
01	0.07643	0.5805	0.39771	0.039771	0.039771	0.039771
02	0.07266	0.27221	0.013337	0.013337	0.013337	0.013337
03	0.09362	0.28767	0.011533	0.011533	0.011533	0.011533
04	0.00148	0.11792	0.014072	0.014072	0.014072	0.014072
05	0.03382	0.05906	0.012972	0.012972	0.012972	0.012972
06	0.07215	0.16162	0.017593	0.017593	0.017593	0.017593
07	0.15769	0.02427	0.03505	0.03505	0.03505	0.03505
08	0.00595	0.35659	0.04752	0.04752	0.04752	0.04752
09	0.02166	0.26959	0.014271	0.014271	0.014271	0.014271
10	0.13069	0.10315	0.02271	0.02271	0.02271	0.02271
11	0.40854	0.08955	0.019355	0.019355	0.019355	0.019355
12	0.11455	0.08157	0.015517	0.015517	0.015517	0.015517
13	0.06564	0.13851	0.016538	0.016538	0.016538	0.016538
14	0.29548	0.26428	0.021972	0.021972	0.021972	0.021972
15	0.16386	0.23658	0.03437	0.03437	0.03437	0.03437
16	0.27717	0.21442	0.04710	0.04710	0.04710	0.04710
17	0.33699	0.28864	0.03017	0.03017	0.03017	0.03017
18	0.26013	0.39819	0.04066	0.04066	0.04066	0.04066
19	0.17277	0.49638	0.00885	0.00885	0.00885	0.00885
20	0.01477	0.34638	0.02395	0.02395	0.02395	0.02395
21	0.41352	0.36243	0.01460	0.01460	0.01460	0.01460
22	0.08019	0.18443	0.02717	0.02717	0.02717	0.02717
23	0.16457	0.17992	0.01271	0.01271	0.01271	0.01271
24	0.05057	0.07730	0.01099	0.01099	0.01099	0.01099
25	0.00317	0.07930	0.01393	0.01393	0.01393	0.01393
26	0.66183	0.20911	0.01393	0.01393	0.01393	0.01393
27	0.26307	0.04104	0.04367	0.04367	0.04367	0.04367
28	0.10859	0.16837	0.00755	0.00755	0.00755	0.00755
29	0.59137	0.19904	0.02134	0.02134	0.02134	0.02134
30	0.02134	0.19904	0.03939	0.03939	0.03939	0.03939
31	0.39399	0.17355	0.02164	0.02164	0.02164	0.02164
32	0.14969	0.19686	0.03245	0.03245	0.03245	0.03245
33	0.10308	0.16863	0.02695	0.02695	0.02695	0.02695
34	0.00088	0.26073	0.01677	0.01677	0.01677	0.01677
35	0.00088	0.15769	0.02050	0.02050	0.02050	0.02050
36	0.11894	0.09247	0.04374	0.04374	0.04374	0.04374
37	0.13069	0.11455	0.01459	0.01459	0.01459	0.01459
38	0.00088	0.14599	0.01567	0.01567	0.01567	0.01567
39	0.00088	0.15964	0.01459	0.01459	0.01459	0.01459
40	0.00088	0.10315	0.01567	0.01567	0.01567	0.01567
41	0.00088	0.14599	0.01459	0.01459	0.01459	0.01459
42	0.00088	0.15964	0.01459	0.01459	0.01459	0.01459
43	0.00088	0.10315	0.01567	0.01567	0.01567	0.01567
44	0.00088	0.14599	0.01459	0.01459	0.01459	0.01459
45	0.00088	0.15964	0.01459	0.01459	0.01459	0.01459
46	0.00088	0.10315	0.01567	0.01567	0.01567	0.01567
47	0.00088	0.14599	0.01459	0.01459	0.01459	0.01459
48	0.00088	0.15964	0.01459	0.01459	0.01459	0.01459
49	0.00088	0.10315	0.01567	0.01567	0.01567	0.01567
50	0.00088	0.14599	0.01459	0.01459	0.01459	0.01459

Table 5

FACTOR ANALYSIS AND CORRELATIONS: MALES ONLY

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
0.53	0.201669	0.153991	0.125119	0.010955	-0.143722	
0.72	0.104659	0.088338	0.071495	0.008534	-0.120084	
0.59	0.046771	0.084771	0.074668	0.034904	0.019088	
0.36	0.137499	0.200677	-0.167794	-0.011702	0.048855	
0.57	0.106781	0.14161	-0.13704	-0.15251	0.020887	
0.19	0.023299	-0.002779	0.00361	0.052515	-0.024388	
0.87	0.285899	0.246822	0.14159	-0.042953	0.025537	
0.52	0.240155	0.12422	0.134277	0.073934	0.114429	
0.20	0.306105	0.152428	-0.117088	0.20804	0.184359	
0.60	0.252051	0.103180	0.112998	0.127599	0.11291	
0.54	0.184077	0.070903	0.161476	0.130397	0.020173	
0.77	0.066437	0.385234	-0.18716	-0.115144	0.011031	
0.55	0.105974	0.033605	-0.08706	0.18994	0.011031	
0.99	0.240155	0.035653	0.11464	-0.008978	0.011031	
0.65	0.298156	0.133022	0.15015	0.05578	0.037176	
0.33	0.27436	0.19032	0.15174	0.01575	0.129235	
0.65	0.16584	0.07094	0.06094	0.17938	0.172294	
0.67	0.102124	-0.28888	0.27468	0.12738	0.106645	
0.68	0.19824	0.07578	0.11035	-0.14400	0.029532	
0.69	0.17814	0.15840	-0.07814	0.24818	0.030023	
0.70	0.107571	0.05458	-0.04841	0.10772	0.130294	
0.45	0.39111	0.05409	0.04053	0.05069	0.142294	
0.51	0.18844	0.05409	0.04053	0.09461	0.042294	
0.63	0.107237	0.11521	-0.25723	0.09727	-0.027161	
0.51	0.15837	0.09809	-0.11740	0.09727	0.027161	
0.78	0.153725	0.277232	-0.35735	-0.102592	0.03551	
0.52	0.12799	-0.17222	0.27195	0.10592	0.03551	

FACTOR CORRELATIONS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
FACTOR 1	1.00000	0.02879	0.23347	0.16928	0.20571	-0.30474
FACTOR 2	0.02879	1.00000	0.04884	-0.02275	0.05957	-0.11961
FACTOR 3	0.23347	0.04884	1.00000	0.05091	0.07600	-0.17901
FACTOR 4	0.16928	-0.02275	0.05091	1.00000	-0.07149	-0.15656
FACTOR 5	0.20571	0.05957	0.07600	-0.07149	1.00000	-0.15982
FACTOR 6	-0.30474	-0.11961	-0.17901	-0.15656	-0.15982	1.00000

The previously employed criteria for scale generation was used to produce two factorially pure scales. These scales are shown below in table 6.

Table 6

FACTORIALLY PURE SCALES FROM THE MODIFIED BDHI: MALES

Factor 1:

- 38) Most weeks I....see someone I dislike.[r=.31]
- 47) When people yell at me, I....yell back.[r=.51]
- 48) I....do things which I feel guilty about later.[r=.57]
- 49) When I lose my temper, I....could slap people.[r=.57]
- 50) Since passing ten, I have....had temper tantrums.[r=.56]
- 51) When I get mad, I....say nasty things.[r=.59]
- 52) I....carry a chip on my shoulder.[r=.36]
- 53) I'd....be considered difficult if people knew what I thought.[r=.30]
- 55) I....put people in their place.[r=.33]
- 58) I....break objects during fights.[r=.62]
- 59) I....make threats which I won't carry out.[r=.63]
- 60) I am....rude to people I don't like.[r=.58]
- 63) I....let others know of my poor opinion of them.[r=.59]
- 65) I will....resort to physical violence to defend my rights.[r=.34]
- 68) When arguing, I....shout.[r=.60]
- 69) I....feel that I have not lived the right kind of life.[r=.63]
- 71) Things....irritate me.[r=.52]
- 72) I....feel people are trying to anger or insult me.[r=.69]
- 73) I am....grouchy.[r=.51]
- 75) I....hit table tops when I am angry.[r=.55]

Factor 2:

- 6) I know that people....talk about me behind my back.[r=.34]
- 9) I can....control my urge to harm others.[r=.55]
- 13) Other people....get the breaks in life.[r=.41]
- 20) I....get angry more often than people realize.[r=.36]
- 21) There are....people that I downright hate.[r=.34]
- 31) People....seem to be jealous of me.[r=.66]
- 34) I feel people are....asking for a physical fight when they insult me.[r=.59]
- 37) I....like to show-up people who are too bossy.[r=.39]
- 39) I....feel that others are laughing at me.[r=.33]
- 42) People who pester are....asking for a punch in the nose.[r=.42]

The corrected item-total correlations and accompanying Alpha's are shown in table 7.

Table 7

CORRECTED ITEM TOTAL-CORRELATIONS AND ALPHA'S: BDHI (MALES)

Factor 1		Factor 2	
MEAN=48.78		MEAN=25.30	
S.D.=11.57		S.D.=5.37	
ALPHA=.91		ALPHA=.74	
Corrected Item-total Correlations		Corrected Item-total Correlations	
Item	r	Item	r
38	.41	6	.36
47	.53	9	.40
48	.55	13	.24
49	.66	20	.40
50	.67	21	.33
51	.57	31	.59
52	.57	34	.49
53	.47	37	.42
55	.51	39	.32
58	.53	42	.42
59	.56		
60	.59		
63	.54		
65	.43		
68	.54		
69	.55		
71	.56		
72	.61		
73	.61		
75	.57		

Although the first scale shows a strong Alpha of .91, the utility of this and the accompanying scale is of little value due to the small number of items which comprise the scales. The separate factor analysis derived from the data collected on only females appears on the following pages.

Table 8

FACTOR ANALYSIS AND CORRELATIONS: FEMALES ONLY

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
049	0.62927	0.06012	0.05758	-0.03798	0.21874	-0.22818
050	0.55232	0.11197	0.02570	0.00129	-0.02033	-0.02700
051	0.55412	0.02345	0.03680	0.00485	0.00170	-0.01203
052	0.47024	0.03214	0.03680	0.00740	0.00213	0.01529
053	0.28049	-0.01327	0.00995	-0.02268	-0.00160	0.06873
054	0.26916	0.02025	0.01761	0.01503	0.03002	0.32665
055	0.41900	0.00158	0.00755	0.03981	0.00333	0.09598
056	0.42745	0.00105	0.05105	-0.00502	0.01514	0.01260
057	0.48220	-0.00242	-0.01934	0.00290	0.00171	0.14371
058	0.72387	0.11474	0.03368	-0.00142	0.00256	0.07254
059	0.47360	0.00552	0.03394	0.00935	0.00209	0.14354
060	0.51354	0.00357	0.11082	0.00293	0.01438	0.08695
061	0.31354	0.03013	0.02764	0.01255	0.01633	0.02376
062	0.38546	-0.00324	0.15743	-0.03057	0.01936	0.02202
063	0.25943	0.03029	0.01982	0.03164	0.02030	0.09476
064	0.51984	0.18246	0.02418	0.03073	0.02533	0.06812
065	0.25743	-0.01265	0.05213	0.00709	0.00434	0.06021
066	0.41737	0.03092	0.02711	-0.00876	0.01513	0.18219
067	0.48390	0.00158	0.03508	0.00197	0.03301	0.01123
068	0.48502	-0.00357	0.02925	-0.00739	0.03522	0.01333
069	0.44764	0.01310	0.07821	0.00433	0.00489	0.01223
070	0.44616	-0.01126	0.03816	0.00914	0.00281	0.01423
071	0.39507	0.01360	0.03123	0.00917	0.00859	0.04281
072	0.11747	-0.01195	0.05123	-0.03454	0.01105	0.03111
073	0.67047	0.01195	-0.01133	-0.00416	0.00000	0.01116

FACTOR CORRELATIONS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
FACTOR 1	1.00000	0.06380	0.23986	0.09242	0.13025	0.09549
FACTOR 2	0.06380	1.00000	0.09637	0.07139	0.10086	-0.03076
FACTOR 3	0.23986	0.09637	1.00000	0.01444	0.08558	0.16631
FACTOR 4	0.09242	0.07139	0.01444	1.00000	-0.02567	0.09586
FACTOR 5	0.13025	0.10086	0.08558	-0.02567	1.00000	0.06595
FACTOR 6	0.09549	-0.03076	0.16631	0.09586	0.06595	1.00000

Table 9 shows the scales that were extracted from the factor analysis.

Table 9

FACTORIALLY PURE SCALES FROM THE MODIFIED BDHI: FEMALES

Factor 1:

- 47) When people yell at me, I....yell back.[r=.48]
- 49) When I lose my temper, I....could slap people.[r=.63]
- 50) Since passing ten, I have....had temper tantrums.[r=.55]
- 51) When I get mad, I....say nasty things.[r=.55]
- 52) I....carry a chip on my shoulder.[r=.47]
- 55) I....put people in their place.[r=.42]
- 56) Failure....gives me a feeling of remorse.[r=.43]
- 57) I....think I get into physical fights more than most people.[r=.85]
- 58) I....break objects during fights.[r=.73]
- 59) I....make threats which I won't carry out.[r=.48]
- 60) I am....rude to people I don't like.[r=.51]
- 65) I will....resort to physical violence to defend my rights.[r=.58]
- 68) When arguing, I....shout.[r=.49]
- 70) I have....been made angry enough to fight.[r=.65]
- 75) I....hit table tops when I am angry.[r=.67]

Factor 2:

- 16) I can....think of a reason for hitting someone.[r=.36]
- 27) When I am mad, I....slam doors.[r=.31]
- 29) I....give someone the silent treatment.[r=.38]
- 35) I....play practical jokes on people.[r=.43]
- 37) I....like to show-up people who are too bossy.[r=.53]
- 40) When I get angry, I....swear.[r=.43]
- 43) People....that annoy me, are....told off.[r=.36]

The following table indicating internal consistency and Alpha estimate reveals the newly generated scales to be quite weak. See table 10

Table 10

CORRECTED ITEM-TOTAL CORRELATIONS AND ALPHA'S: MODIFIED
BDHI (FEMALES)

Factor 1		Factor 2	
MEAN=33.11		MEAN=17.59	
S.D.=8.13		S.D.=3.51	
ALPHA=.88		ALPHA=.62	
Corrected		Corrected	
Item-total		Item-total	
Correlations		Correlations	
Item	r	Item	r
47	.47	16	.34
49	.62	27	.26
50	.57	29	.26
51	.58	35	.40
52	.56	37	.46
55	.44	40	.32
56	.38	43	.35
57	.74		
58	.66		
59	.42		
60	.52		
65	.52		
68	.51		
70	.58		
75	.58		

The small number of items loading onto the factorially pure scales renders them useless.

B. PRELIMINARY INVESTIGATION OF THE NOVACO MEASURE

a) Factor analysis and scale generation.

A factor analysis was conducted on the data derived from the Novaco measure. The subsequent emergence of factors indicated eleven which were above the eigenvalue of one. A scree test (Cattell, 1966) resulted in the acceptance of four factors. The factor analysis, eigenvalues and factor correlations are shown in tables 11a and 11b.

Table 4/a

EIGENVALUES, NOVACO'S MEASURE

FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT	ACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
1	24.96178	74.1	74.1	1	25.57429	28.4	28.4
2	3.52022	10.5	84.6	2	4.10382	4.6	33.0
3	2.05182	8.5	93.0	3	3.45553	3.8	36.8
4	2.24660	7.0	100.0	4	2.93622	3.3	40.1
				5	2.40568	2.7	42.7
				6	2.06208	2.3	45.0
				7	1.77628	2.0	47.1
				8	1.68977	1.9	49.1
				9	1.53646	1.7	51.0
				10	1.48061	1.6	52.7
				11	1.39438	1.5	54.3
				12	1.36175	1.5	55.9
				13	1.30943	1.4	57.4
				14	1.28201	1.4	58.9
				15	1.24550	1.4	60.3
				16	1.19245	1.3	61.7
				17	1.12527	1.3	63.1
				18	1.07345	1.2	64.4
				19	1.06120	1.2	65.6
				20	1.02671	1.1	66.8
				21	0.97365	1.1	68.0
				22	0.93815	1.1	69.3
				23	0.93763	1.0	70.7
				24	0.87750	1.0	72.0
				25	0.87439	1.0	73.3
				26	0.86623	1.0	74.6
				27	0.80665	0.9	75.9
				28	0.79014	0.9	77.2
				29	0.75982	0.8	78.5
				30	0.73661	0.8	79.7
				31	0.71872	0.8	80.9
				32	0.69032	0.8	82.1
				33	0.68121	0.7	83.4
				34	0.64739	0.7	84.7
				35	0.63387	0.7	86.0
				36	0.62233	0.7	87.3
				37	0.59916	0.6	88.4
				38	0.59101	0.6	89.7
				39	0.56368	0.6	90.9
				40	0.55390	0.6	92.1
				41	0.53941	0.6	93.4
				42	0.53158	0.6	94.7
				43	0.51921	0.6	95.9
				44	0.49985	0.6	97.1

Table 1/b
FACTOR ANALYSIS AND CORRELATIONS: NOVACO'S MEASURE

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
01	-0.07699	-0.05415	-0.67019	-0.04884
02	0.22017	0.07667	-0.32831	-0.05535
03	-0.22596	0.14949	-0.50065	0.18897
04	0.12402	-0.04446	-0.43861	0.07048
05	0.09837	0.08389	-0.32200	0.01903
06	0.02672	0.11255	-0.40117	0.12018
07	0.13897	0.04359	-0.32302	-0.07084
08	0.03119	0.02979	-0.01933	0.56639
09	0.11172	0.16868	-0.37609	-0.05220
10	0.14394	0.02569	-0.27614	-0.07006
11	0.14402	0.02569	-0.50099	-0.03049
12	0.23199	-0.03314	-0.46264	-0.07788
13	0.22400	0.12082	-0.47465	-0.10896
14	0.20652	-0.18240	-0.57973	-0.00663
15	0.07828	-0.07343	-0.59419	0.11451
16	0.07463	0.11946	-0.48521	0.36999
17	-0.06141	-0.11624	-0.20989	0.60806
18	0.23188	-0.01694	-0.17045	0.28188
19	0.33109	0.09965	-0.19066	0.08584
20	0.09920	0.28046	-0.42532	0.10971
21	-0.25673	0.27063	-0.64035	0.06418
22	0.30657	-0.05119	-0.43520	-0.00867
23	0.38107	0.11968	-0.24901	0.04870
24	0.27085	0.16300	-0.21533	0.03868
25	0.13011	-0.01087	-0.48852	0.01316
26	0.34427	-0.05808	0.12012	0.45043
27	0.12377	0.24023	-0.33680	0.02487
28	0.45983	0.07414	-0.15280	0.06709
29	0.22374	-0.05757	-0.46402	0.16549
30	0.05388	0.04333	-0.11805	0.62015
31	0.00428	0.24891	-0.30879	0.28623
32	0.37784	0.01417	-0.26061	0.12987
33	0.47914	0.10264	-0.03693	0.03013
34	0.00285	-0.02367	-0.67326	0.13421
35	0.10099	0.07047	-0.47771	0.10345
36	0.09415	0.02636	-0.45521	0.03148
37	0.09183	-0.06559	-0.63395	0.00253
38	0.33533	0.16878	-0.22389	0.04354
39	0.22940	0.09602	-0.38328	0.02391
40	0.10136	0.11499	-0.34200	0.30139

Table 41b

FACTOR ANALYSIS AND CORRELATIONS: NOVACO'S MEASURE

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
Q86	-0.17207	0.62397	-0.20676	0.04155
Q87	-0.12538	0.51850	-0.21200	0.10344
Q88	0.00950	0.56378	-0.15805	-0.02098
Q89	-0.07423	0.58309	-0.08660	0.13222
Q90	-0.15193	0.53310	0.03937	0.27902

FACTOR CORRELATIONS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00000			
FACTOR 2	0.36925	1.00000		
FACTOR 3	-0.48581	-0.39685	1.00000	
FACTOR 4	0.23529	0.28562	-0.25744	1.00000

A process consistent with the previous generation of factorially pure scales resulted in the emergence of three scales. The item composition is shown in table 12.

Table 12

THE NOVACO PRINCIPLE FACTORS AND ITEM CORRELATIONS

Factor 1: Frustration

- 55) Being on the receiving end of a practical joke. [r=.68]
- 53) Being joked about or teased.[r=.62]
- 68) Stepping on a gob of chewing gum.[r=.60]
- 52) Being thrown into a swimming pool with your clothes on.[r=.59]
- 48) Someone who is always trying to get 'one-up' on you.[r=.52]
- 57) You are in a discussion with someone who persists in arguing about a topic he knows very little about.[r=.51]
- 59) Being told to 'go to Hell'. [r=.50]
- 70) You have just cleaned up an area and organized the things in it, but someone comes along and messes it up.[r=.49]
- 62) Being forced to participate in psychological experiments.[r=.48]
- 33) Someone who pretends to be something that he is not.[r=.48]
- 60) Someone making fun of the clothes that you are wearing.[r=.47]
- 49) It's a cold morning and you have an 8'oclock class. Begrudgingly you get there on time, but the prof arrives 15 minutes late and announces that he is cancelling the class.[r=.47]
- 28) People asking personal questions of you just for their own curiosity. [r=.46]
- 58) Losing a game that you wanted to win.[r=.46]
- 41) Someone who tries to make you feel guilty.[r=.45]
- 42) You are trying to concentrate, and a person near you is tapping his foot [r=.44]
- 54) Banging your shins against a piece of furniture.[r=.43]
- 61) Somene sticking their nose into an argument between you and someone else [r=.43]
- 69) Hearing that a very wealthy man has paid zero income tax.[r=.42]
- 50) You are sitting next to someone who is smoking, and he is letting the smoke drift right into your face.[r=.41]
- 56) Being forced to do something that you don't want to do.
- 72) You are involved in watching a TV program, and someone comes along and switches the channel.[r=.38]
- 32) You accidentally make the wrong kind of a turn in a parking lot. As you get out of your car someone yells at you, 'Where did you learn to drive?' [r=.38]
- 23) You are driving along at 45 mph, and the guy behind you is right on your bumper.[r=.38]
- 43) Someone else's dog routinely defecating in your front yard.[r=.37]
- 78) You are in a theatre ticket line, and someone cuts in front of you.[r=.37]
- 45) You lend someone an important book and they fail to return it.[r=.35]
- 38) Being hounded by a salesman from the moment that you walk into a store. [r=.34]
- 26) Newspapers slanting the news against a person in political office to make him or her look bad to the public.[r=.34]
- 19) You have hung up your clothes, but someone knocks them to the floor and fails to pick them up.[r=.33]
- 67) Being talked about behind your back.[r=.33]

- 75) Being mocked by a small group of people as you pass them.[r=.32]
- 74) You are in a ball game, and one of your opponents is unnecessarily rough.
[r=.31]
- 73) Being told by an employer or professor that you have done poor work.
[r=.31]
- 71) Getting hit in the back of the head with a snowball.[r=.31]
- 47) Getting cold soup or vegetables in a restaurant.[r=.30]

Factor 2: Receipt of Violence

- 89) Discovering that you were deliberately sold defective merchandise.[r=.69]
- 86) Getting punched in the mouth.[r=.62]
- 87) Being falsely accused of cheating.[r=.62]
- 80) You use your last 10 cents to make a phone call, and you are disconnected before you finish dialing.[r=.61]
- 81) In a hurry to get somewhere, you tear a good pair of slacks on a sharp object.[r=.59]
- 88) Someone ripping off your automobile antenna.[r=.56]
- 90) People who are cruel to animals.[r=.53]
- 77) Being punished for saying what you really believe.[r=.48]
- 83) You are out on a date with someone who subtly or indirectly conveys to you that you just don't measure up to their standards.[r=.46]
- 65) Someone spits at you.[r=.45]
- 82) Being misled or deceived by a man holding political office.[r=.44]
- 84) You are at a shopping centre, and two evangelistic people stop you and want to convert you to their religious ideas.[r=.42]
- 76) Acts of economic exploitation whereby businessmen take advantage of need and demand an excessive profit.[r=.42]

Factor 3: Response to a Negligent Act (All correlations are negative)

- 34) You walk out to the parking lot, and you discover that your car has been towed away by the campus police.[r=.67]
- 1) On your way to go somewhere, you discover that you have lost the keys to your car.[r=.67]
- 37) You get in your car to drive to work, and the car won't start.[r=.65]
- 21) Someone sneaks into your room and takes your wallet.[r=.64]
- 15) You are typing a term paper, hurrying to make the deadline, and the typewriter jams.[r=.59]
- 14) Getting your car stuck in the mud or snow.[r=.58]
- 11) You unpack an appliance that you have just bought, plug it in, and discover that it doesn't work.[r=.50]
- 3) Being overcharged by a repairman who has you over a barrel.[r=.50]
- 16) Employers who take advantage of their employees' need for work by demanding more than they have a right to.[r=.49]
- 25) Hitting your finger with a hammer.[r=.49]
- 35) Working hard on a project and getting a poor grade.[r=.48]
- 29) Your car is stalled at a traffic light, and the guy behind you keeps blowing his horn.[r=.47]
- 13) Struggling to carry four cups of coffee to your table at a cafeteria, someone bumps into you, spilling the coffee.[r=.47]

- 12) You are waiting to be served at a restaurant. Fifteen minutes have gone and you still haven't even received a glass of water.[r=.46]
- 36) Someone makes a mistake and blames it on you.[r=.46]
- 4) Being singled out for correction, when the actions of others go unnoticed.[r=.44]
- 20) Being stood-up for a date.[r=.43]
- 6) Being called a liar.[r=.40]
- 39) Being given an unnecessarily difficult exam when you need a good grade.[r=.39]
- 9) Someone borrows your car, consumes one-third of a tank of gas, and doesn't replace it or compensate you for it.[r=.37]
- 40) You are deprived of a promotion to which you are entitled because you haven't played up enough to the right people.[r=.34]
- 27) You have made arrangements to go somewhere with a person who backs off at the last minute and leaves you hanging.[r=.34]
- 2) Going for a haircut and getting more cut off than you wanted.[r=.33]
- 7) You are in the midst of a dispute, and the other person calls you a stupid jerk.[r=.32]
- 5) You are walking along, minding your own business, when someone comes rushing past, knocking you out of his way.[r=.32]
- 31) Being pushed or shoved by someone in an argument.[r=.31]

The factors appear to tap the concepts of;

- 1) "Frustration"(FRUST)- as in item 68, "Stepping on a gob of chewing gum";
- 2) Arousal from the "Receipt of Violence" (ROV)- as in item 89, "Discovering that you were deliberately sold defective merchandise."
- 3) Aggravation due to "Negligence" (NEG)- on the part of oneself or others, to oneself. An example is item 9, "Someone borrows your car, consumes one-third of a tank of gas and doesn't replace it or compensate you for it".

b) Item analysis of the new scales.

Table 13 shows the corrected item-total correlations for the principal factors that emerged from the Novaco data. The range of correlations in factor one is from .19 to .69. The lowest correlation in factor two is only .65, with a highest correlation of .90.

Table 13

CORRECTED ITEM-TOTAL CORRELATIONS AND ALPHA'S: NOVACO'S MEASURE

Factor 1 (Frustration)
 MEAN=75.31
 S.D.=16.95
 ALPHA=.92

Factor 2 (Rec. of Violence)
 MEAN=58.89
 S.D.=11.45
 ALPHA=.90

Corrected
 Item-Total
 Correlations

Item	r
55	.54
53	.55
68	.58
52	.51
48	.67
57	.60
59	.59
70	.69
62	.41
33	.52
60	.58
49	.52
28	.57
58	.47
41	.61
42	.55
54	.47
61	.57
69	.53
50	.46
56	.53
72	.59
32	.57
23	.60
43	.47
78	.54
45	.63
38	.55
26	.36
19	.51
67	.57
75	.54
74	.50
73	.51
71	.49
47	.56

Corrected
 Item-Total
 Correlations

Item	r
65	.55
76	.52
77	.48
80	.63
81	.70
82	.55
83	.57
84	.44
86	.62
87	.66
88	.58
89	.70
90	.51

Factor 3 (Negligence) MEAN=102.92
 Corrected S.D.=19.27
 Item-Total ALPHA=.94
 Correlations

Item	r	Item	r
1	.54	25	.53
2	.46	27	.52
3	.48	29	.60
4	.50	31	.51
5	.41	34	.67
6	.51	35	.58
7	.45	36	.60
9	.49	37	.61
11	.57	39	.55
12	.53	40	.53
13	.61		
14	.56		
15	.61		
16	.60		
20	.63		
21	.59		

Factor three's lowest and highest is .41 and .67,

respectively. Again, most of the items are contributing to the total scale.

c) Internal consistency of the new scales.

The Alpha statistic of each new scale is quite high, suggesting high scale reliability. Of the three scales, the lowest Alpha coefficient is .90. This suggests strongly that each scale is homogenous, i.e., measuring only one dimension.

C. VALIDATION OF THE BDHI (REVISED)

a) Correlational analysis of all new scales.

A preliminary attempt to demonstrate the validity of the BDHI(rev.) was done using a modification of Campbell and Fiske's(1959) multitrait-multimethod technique. The three scales of the BDHI(rev.) were correlated with the three Novaco scales. It was anticipated that the BDHI(rev.) behavioral scales (viz., Phyviol and Retal) would correlate less with the three Novaco scales, as the latter are cognitive in nature. The remaining BDHI(rev.) scale, "Sus/res", however, would show the highest correlation as it is, itself, more cognitive in nature. The correlations are shown in Table 14.

Table 14

CORRELATION OF THE BDHI (REV.) AND NOVACO PRINCIPLE FACTORS

	Phyviol	Retal	Susp	Frust	Rov	Neg
Phyviol	1					
Retal	.33	1				
Susp	.48	.34	1			
Frust	.20	.16	.43	1		
Rov	.18	.06	.25	.59	1	
Neg	.16	.10	.33	.75	.60	1

In an effort to obtain a more reliable measure, the revised Buss-Durkee scales were correlated with a total test score from the Novaco instrument. The resulting correlations are shown in table 15.

Table 15

CORRELATION OF THE BDHI (REV.) AND THE UNFACTORED NOVACO INSTRUMENT

	Phyviol	Retal	Susp
Nov(unfactored)	.19	.13	.40

As can be seen, the anticipated result prevails. Inspection of both tables reveal the BDHI(rev.) factors that reflect physical aggression (i.e., the physical

violence or aggression and the retaliation factors) do correlate less strongly with Novaco's three hostility constructs than does the Suspicion/resentment factor, which is in turn, more closely linked with the cognitive domain of all three Novaco factors as well as the combined score. "Phyviol" correlates quite poorly with the Novaco scales, with the largest coefficient being only .20. "Retal" has, as its' largest coefficient with the Novaco scales, a figure of only .16. It is interesting to note, however, that both the "phyviol" and "retal" scales correlate more strongly with "sus/res" than they do with each other (which certainly would not have been anticipated).

D. THE "DON'T KNOW" ESCAPE CATEGORY

For purposes of correctly ranking participant responses, all statistics previously discussed have treated the "don't know " choice as a missing value. In an effort to scan the actual frequency of this response choice, the following table is presented:

Table 16

FREQUENCY OF CHOOSING "DON'T KNOW" CATEGORY (N=234)

Item	No.	Item	No.	Item	No.
1	4	31	16	61	10
2	0	32	1	62	1
3	4	33	7	63	4
4	8	34	5	64	3
5	6	35	0	65	4
6	24	36	4	66	2
7	1	37	3	67	6
8	10	38	3	68	2
9	4	39	8	69	2
10	0	40	0	70	0
11	2	41	5	71	1
12	2	42	9	72	3
13	20	43	3	73	3
14	1	44	4	74	8
15	0	45	2	75	3
16	5	46	22		
17	35	47	1		
18	52	48	1		
19	2	49	2		
20	3	50	2		
21	3	51	2		
22	14	52	5		
23	2	53	18		
24	5	54	2		
25	5	55	1		
26	10	56	9		
27	2	57	3		
28	1	58	4		
29	0	59	7		
30	0	60	2		

Item 17 reads, "When I am angry I....sulk," and item 18 is, "I....pout when I don't get my own way". The words sulk and pout may have caused some problems for the respondents. These words are rarely used and perhaps should not have been included.

DISCUSSION: STUDY ONE

1. The Revised Buss-Durkee Hostility Inventory

The internal consistency and item-total correlations of the original eight scales, even with the revised scoring, confirm earlier studies that question the internal integrity of the scales. The next stage--the factor analysis of the entire item set did indeed appear justified.

On the criteria for item inclusion into scales, three clear scales emerged. Two of these scales are behavioral in nature (viz., physical, and verbal) and the other (sus/res), appears to be related to specific hostile attitudes. Within the domain of anger in general the scales certainly make sense. The item analysis and homogeneity suggest the possible presence of pure measures.

The correlations among the three factors is surprisingly low when one considers the apparent homogenous nature of the domain from which the items were drawn. This is especially true when factors one and two, which are clearly related to behaviors, are considered. The supposition is that being disposed to physical violence does not necessarily mean that one will hit another person.

2. The Novaco Measure

Work on the Novaco was purely to develop some

relatively systematic alternative measure that would tap the area of anger. Three scales that are factorially pure and homogenous emerged (viz., Frust, aggravation due to receipt of violence, and negligence). Unlike the BDHI, these all relate to attitude, i.e., hostility. The intention was not to do an exhaustive study of the Novaco measure but to purely establish worth as a possible validation device.

3. Validation

As an indication that the BDHI is at least operating in the expected direction the preliminary correlation of the three revised BDHI scales with the Novaco total and subscale scores give encouraging results. The correlation of Phyviol and Retal with the cognitive measure are among the lowest in the correlation matrix. It seems then, that the BDHI appears to have some discriminative validity for behavioral measures of anger and convergent validity for the cognitive measure.

Results of this study suggest that the BDHI (rev.) is possibly sound and that while the scales are all pointing in the right direction, the question remains, "Does it work?". What variables, other than aggression, are influencing it? The encouraging results of the first run, then, prompted the further investigation of the BDHI scales.

In an effort to evaluate the integrity and stability of the revised Buss-Durkee scales, and to check on the

possible effects of response style and participant gender, this instrument was administered along with a measure of social desirability to a new group of students (Appendix F).

METHOD: STUDY TWO

Procedure

A different group of participants, drawn from the same subject pool, completed the new BDHI questionnaire (Appendix C), devised from the previous extraction of pure factors, along with the Crowne and Marlowe measure (Appendix E).

A. CROSS-VALIDATION OF THE BUSS-DURKEE SCALES

In order to confirm the consistency of the items and scales of the initial run, a confirmatory study was conducted on a new sample of 155 participants. See Appendix F for a description of the sample.

1. Confirmatory analysis of scales.

a) Factor analysis.

As before, a principal component factor analysis with oblique rotation was conducted for inspection of item loadings. Three factors were called in this case.

b) Item analysis.

Corrected item-total correlations were obtained to check item homogeneity.

c) Internal consistency

The coefficient Alpha was obtained for an estimate of scale reliability.

B. EFFECTS OF GENDER AND SOCIAL DESIRABILITY

a) Sex differences.

The group was divided according to sex (when known), and t-tests were conducted to indicate gender differences among the BDHI(rev.) and Novaco scales.

b) Bias of Social Desirability

A three-way split was conducted on the scores obtained from the measure of social desirability to divide the respondents as a function of high and low response-styles (that is, the upper and lower thirds were used) and then an analysis of variance (with main effect investigation of sex and social desirability response style) was conducted to evaluate the influence of response style and gender on response choice.

Results of Study Two

A. CROSS-VALIDATION OF THE BUSS-DURKEE SCALES

1. Confirmatory analysis of scales.

a) Factor analysis

To investigate the stability of the factor pattern, a principle component factor analysis with oblique rotation was computed. In this case, three factors were called for. These are presented in table 17, below.

Table 47

FACTOR ANALYSIS AND CORRELATIONS : BDHI(REV.)

	FACTOR 1	FACTOR 2	FACTOR 3
21	0.04864	0.26084	0.03850
22	0.07481	0.46432	0.07871
23	0.04476	0.34171	0.39520
24	0.05420	0.13842	0.40412
25	0.01901	0.11101	0.68527
26	0.22152	-0.09498	0.24590
27	0.15182	0.05419	0.61619
28	0.06135	-0.08101	0.34093
29	0.28538	0.01190	0.33001
30	0.28914	-0.03727	0.23404
31	0.51923	0.05781	0.19769
32	0.19959	0.08898	0.25130
33	0.09227	0.10054	0.16277
34	0.35567	-0.24385	0.22315
35	0.03495	0.16374	0.06697
36	0.25824	0.07365	0.10770
37	0.30468	-0.06186	0.19053
38	0.00131	0.49915	-0.09636
39	0.06366	0.46090	0.21457
40	0.01487	0.08598	0.43749
41	0.00339	0.13233	0.32831
42	0.09074	-0.12516	0.47235
43	0.09056	0.24926	0.56966
44	0.36106	0.06567	0.12969
45	0.15275	0.38657	0.07422
46	0.07738	0.44180	0.10242
47	0.12513	0.34617	0.31154
48	0.03650	0.29154	0.16302
49	0.23434	0.55906	-0.07529
50	0.05262	0.86989	-0.16617
51	0.03381	0.77833	-0.03329
52	0.61949	0.11770	0.12449
53	0.72543	-0.01726	-0.21585
54	0.68946	0.00222	-0.11142
55	0.60369	0.15767	-0.03202
56	0.72206	0.09764	-0.13583
57	0.27065	0.12227	0.36597
58	0.22665	0.41674	0.08405
59	0.34500	0.06690	0.21562
60	0.42013	0.18462	0.11780

	FACTOR 1	FACTOR 2	FACTOR 3
Q41	0.60184	0.19619	-0.11562
Q42	0.33007	0.19136	0.14755
Q43	-0.01904	0.09724	-0.22097

FACTOR CORRELATIONS

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	1.00000	0.24972	0.40968
FACTOR 2	0.24972	1.00000	0.22647
FACTOR 3	0.40968	0.22647	1.00000

Factor one of this display corresponds to the previous factor three, with 9 items loading out of the original 12. Items 32,33,34,35,36,39,40,41 and 42 show acceptable loadings. Factor two is the same as the earlier version, with 5 out of the original 6 items loading acceptably. Items 26,28,29,30 and 31 re-load as before. Item 27 was not accepted due to an additional loading above .30 on factor three. Factor three (old factor one) carries only 10 of the original 25 items. Items 4,5,7,8,9,13,20,21,22,23 re-load acceptably.

b) Item analysis.

Table 18 shows the item-total correlations derived from the confirmatory factor analysis and the Alpha estimate for each scale.

Table 18

CROSS-VALIDATION ITEM ANALYSIS:CORRECTED ITEM-TOTAL CORRELATIONS

AND ALPHA'S: BDHI(REV.)

Scale 1- Phyviol		Scale 2- Retal		Scale 3- Sus/res	
sp 2					
MEAN= 56.01		MEAN=13.13		MEAN=28.16	
S.D.=9.4		S.D.=4.5		S.D.=6.94	
ALPHA=.82		ALPHA=.79		ALPHA=.84	
Corrected Item- Total Correlations		Corrected Item- Total Correlations		Corrected Item- Total Correlations	
Item	r	Item	r	Item	r
Q1	.16	Q26	.55	Q32	.62
Q2	.35	Q27	.43	Q33	.53
Q3	.45	Q28	.39	Q34	.59
Q4	.40	Q29	.52	Q35	.56
Q5	.53	Q30	.69	Q36	.61
Q6	.38	Q31	.68	Q37	.52
Q7	.37			Q38	.49
Q8	.29			Q39	.45
Q9	.49			Q40	.56
Q10	.41			Q41	.54
Q11	.48			Q42	.54
Q12	.41			Q43	-.02
Q13	.41				
Q14	.30				
Q15	.24				
Q16	.34				
Q17	.31				
Q18	.15				
Q19	.47				
Q20	.39				
Q21	.30				
Q22	.29				
Q23	.49				
Q24	.33				
Q25	.25				

Table 18 shows the item analysis computed from this administration. Questions 1, 8, 15, 18, 22 and 25 of factor one (Phyvio) do not cross-validate. Factor two (Retal) cross-validates and only item 43 of factor three (Sus/res) does not cross-validate.

c) Internal consistency.

Alpha coefficients appear to be fairly high and indicative of strong internal consistency within the factors. The lowest Alpha coefficient was .79, with the highest, being .84.

B. EFFECTS OF GENDER AND SOCIAL DESIRABILITY

a) Bias of Social desirability

To investigate the role of social desirability as a bias, the Crowne-Marlowe measure was correlated with all three BDHI(rev.) scales. These correlations are all significant and negative.

Table 19

CORRELATION OF THE BDHI (REV.) AND SOCIAL DESIRABILITY

	PHYVIOL	RETALIATION	SUSPICION/RESENTMENT	SD
PHYVIOL	1	.48	.55	-.43
RETALIATION		1	.40	-.28
SUS/RES			1	-.39
SD				1

As would be expected, the greater the defensiveness (indicated by higher SD scores) the less one tended to report aggression or hostile attitudes. This was particularly true for the scale tapping physical violence ($r = -.43$)

b) sex differences

T-tests were conducted to determine whether there were significant differences between males and females on the factorially pure scales developed from the data derived from group 1.

Table 20

GROUP MEANS AND STANDARD DEVIATIONS:

GENDER DIFFERENCES ON THE BDHI(REV.) AND NOVACO'S MEASURE

	MALES (N=94)		FEMALES (N=131)	
	MEANS	S.D.	MEANS	S.D.
PHYVIOL*	2.45	0.56	2.27	0.48
RETAL **	2.64	0.60	2.18	0.59
SUS/RES	2.37	0.53	2.25	0.46
FRUST **	2.85	0.73	3.10	0.58
ROV *	3.56	0.90	3.76	0.52
NEG **	3.29	0.74	3.52	0.53

PROBABILITIES: $P < .01 = **$, $P < .05 = *$

Table 20 shows the means and standard deviations of the male and female participants derived from these tests. Results indicated that for the Buss-Durkee factors "Phyviol" and "Retaliation", a sex effect was present (viz., $t=2.54$, $p < .05$ and $t=5.69$, $p < .01$, respectively) with males scoring more highly than females. The factor "Suspicion/resentment" indicated a trend in the same direction but failed to reach significance ($p < .07$).

For Novaco's measure, all three factors reached significance, but in the opposite direction to that of Buss-Durkee (i.e., females scored more highly than males).

The "Frustration" ($t=-2.79$, $p<.01$), "Receipt of Violence" ($t=2.13$, $p<.05$), and the "Receipt of Negligence" ($t=2.75$, $p<.01$) factors all showed female scores being higher than male scores.

From the data collected from group 2, differences emerged among males and females when their scores on the Crowne and Marlowe measure of social desirability response bias was tested ($t=2.83$, $p<.01$). Females were responding in a more defensive, socially sanctioned way than males. But this sex influence was not strong or robust enough to reach significance for the "Phyviol" or "Sus/res" factors. Only the "Retaliation" factor showed a difference, with males scoring higher than females. Recall that this was the most significant factor to emerge from group 1.

Table 21

ANOVA: SEX BY SD ON BDHI (REV.)

Factor: Aggression/Phyviol

SOURCE OF VARIATION	DF	MEAN SQUARE	F	SIG.
SEX	1	0.223	1.862	0.176
SD	1	1.640	13.709	0.000
SEX AND SD	1	0.013	0.111	0.739
RESIDUAL	96	0.120		

Factor: Retaliation

SOURCE OF VARIATION	DF	MEAN SQUARE	F	SIG.
SEX	1	2.667	5.558	0.020
SD	1	3.295	6.867	0.010
SEX AND SD	1	0.670	1.396	0.240
RESIDUAL	96	0.480		

Factor: Sus/res

SOURCE OF VARIATION	DF	MEAN SQUARE	F	SIG.
SEX	1	0.045	0.119	0.731
SD	1	3.295	8.683	0.004
SEX AND SD	1	0.078	0.205	0.652
RESIDUAL	96	0.379		

computed on the three revised Buss-Durkee factors. All three Buss-Durkee factors showed a main effect for the social desirability measure, with males consistently scoring lower than females. This result indicated that males were being less defensive (and perhaps less inhibited and more honest) in their response to the items from the social desirability instrument than were the female participants. The males also scored higher on the BDHI(rev.), (indicating a reporting of more aggressive behaviors) than the females. There were no interactions among social desirability response bias and participant genre.

DISCUSSION: STUDY TWO

1. BDHI Cross-validation: Scale analysis

The factors contain items which cross-validate. While only 10 of a potential 25 items cross-validate in factor 1, 5 of 6 and 9 of 12 do for factors 2 and 3, respectively. There is a need for further item elimination, but the factors do appear to be stable across similar samples drawn from the same population. In fact, the lowest Alpha coefficient was .79, for the Retaliation scale, with the highest being .84, from the Suspicion/resentment scale. So many items were lost from the revised factors that the meaningfulness of the scales is called into question. This result could be due to an ambiguity in the items and/or an ambiguity in the meaning of the response categories. "Sometimes," and "usually" contain too much overlap and may be too difficult to discriminate between. There was a difference in sex ratio between the first and second study, and this, too, may account for some of the loss of item cross-validation.

2. Non-test effects: Gender and Social Desirability

As is frequently the case when data collection is in self-report form, the investigator must assume a naive posture in allowing for the existence of some deception or self-distortion to enter into response choice decision-making. This difficulty emerges with great salience when data are collected on socially undesirable behaviors. The fact that the scales correlate

significantly with the social desirability measure is particularly destructive to the meaningfulness of the scales. Rather than a measure of aggressiveness and hostility, the scales may be reflecting social desirability.

This consideration becomes even more complex when gender differences emerge as a function of SD scores. The data support the notion that the respondents are being consistent, if not totally honest. Indeed, as the concept domain moves from aggression to hostility (i.e., from being behavioral to being cognitive), there is a corresponding shift in mean gender scores (i.e., from males scoring higher, to females scoring higher). It is conceivable that male aggravation could be more readily expressed in behavioral form, and that female aggravation would be expressed in the cognitive domain of hostility.

The BDHI(rev.) appears not to be ready, at least psychometrically, to offer clinical utility.

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Appendix A

An Inventory for Assessing Different Kinds of Hostility: Buss-Durkee
(The numbers in parentheses indicate the sequence of the inventory)
(an asterisk indicates a "False" item)

Assault:

1. Once in a while I cannot control my urge to harm others. (9)
2. I can think of no good reason for ever hitting anyone. (17*)
3. If somebody hits me first, I let him have it. (25)
4. Whoever insults me or my family is asking for a fight. (33)
5. People who continually pester you are asking for a punch in the nose. (41)
6. I seldom strike back, even if someone hits me first. (1*)
7. When I really lose my temper, I am capable of slapping someone. (49)
8. I get into fights about as often as the next person. (57)
9. If I have to resort to physical violence to defend my rights, I will. (65)
10. I have known people who pushed me so far that we came to blows. (70)

Indirect:

1. I sometimes spread gossip about people I don't like. (2)
2. I never get mad enough to throw things. (10)
3. When I am mad, I sometimes slam doors. (26)
4. I never play practical jokes. (34*)
5. When I am angry, I sometimes sulk. (18)
6. I sometimes pout when I don't get my own way. (42)
7. Since the age of ten, I have never had a temper tantrum. (50*)
8. I can remember being so angry that I picked up the nearest thing and broke it. (58)
9. I sometimes show my anger by banging on the table. (75)

Irritability:

1. I lose my temper easily but get over it quickly. (4)
2. I am always patient with others. (27*)
3. I am irritated a great deal more than people are aware of. (20)
4. It makes my blood boil to have somebody make fun of me.

(35)

5. If someone doesn't treat me right, I don't let it annoy me. (66*)
6. Sometimes people bother me just by being around. (12)
7. I often feel like a powder keg ready to explode. (44)
8. I sometimes carry a chip on my shoulder. (52)
9. I can't help being a little rude to people I don't like. (60)
10. I don't let a lot of unimportant things irritate me. (71*)
11. Lately, I have been kind of grouchy. (73)

Negativism:

1. Unless somebody asks me in a nice way, I won't do what they want. (3)
2. When someone makes a rule I don't like I am tempted to break it. (12)
3. When someone is bossy, I do the opposite of what he asks. (19)
4. When people are bossy, I take my time just to show them. (36)
5. Occasionally when I am mad at someone I will give him the 'silent treatment'. (28)

Resentment:

1. I don't seem to get what's coming to me. (5)
2. Other people always seem to get the breaks. (13)
3. When I look back on what's happened to me, I can't help feeling mildly resentful. (29)
4. Almost every week I see someone I dislike. (37)
5. Although I don't show it, I am sometimes eaten up with jealousy. (45)
6. I don't know any people that I downright hate. (21*)
7. If I let people see the way I feel, I'd be considered a hard person to get along with. (53)
8. At times I feel I get a raw deal out of life. (61)

Suspicion:

1. I know that people tend to talk about me behind my back. (6)
2. I tend to be on my guard with people who are somewhat more friendly than I expected. (14)
3. There are a number of people who seem to dislike me very much. (22)
4. There are a number of people who seem to be jealous of me. (30)
5. I sometimes have the feeling that others are laughing at

me. (38)

6. My motto is 'Never Trust Strangers.' (46)

7. I commonly wonder what hidden reason another person may have for doing something nice for me. (54)

8. I used to think that most people told the truth but now I know otherwise. (62)

9. I have no enemies who really wish to harm me. (67*)

10. I seldom feel that people are trying to anger or insult me. (72*)

Verbal:

1. When I disapprove of my friends' behavior, I let them know it. (7)

2. I often find myself disagreeing with people. (15)

3. I can't help getting into arguments when people disagree with me. (23)

4. I demand that people respect my rights. (31)

5. Even when my anger is aroused, I don't use "strong language." (39*)

6. If somebody annoys me, I am apt to tell him what I think of him. (43)

7. When people yell at me, I yell back. (47)

8. When I get mad, I say nasty things. (51)

9. I could not put someone in his place, even if he needed it. (55*)

10. I often make threats I don't really mean to carry out. (59)

11. When arguing, I tend to raise my voice. (68)

12. I generally cover up my poor opinion of others. (63*)

13. I would rather concede a point than get into an argument about it. (74*)

Guilt:

1. The few times I have cheated, I have suffered unbearable feelings of remorse. (8)

2. I sometimes have bad thoughts which make me feel ashamed of myself. (16)

3. People who shirk on the job must feel very guilty. (24)

4. It depresses me that I did not do more for my parents. (32)

5. I am concerned about being forgiven for my sins. (40)

6. I do many things that make me feel remorseful afterwards. (48)

7. Failure gives me a feeling of remorse. (56)

8. When I do wrong, my conscience punishes me severely. (64)

9. I often feel that I have not lived the right kind of life. (69)

Appendix B

THE FIRST REVISION: BUSS-DURKEE HOSTILITY INVENTORY(MODIFIED)

Race:
Ethnic Origin:
Sex:
Age:

{...1.....2.....3.....4.....5}

{..never.....rarely.....sometimes.....usually.....don't know}

Below is a list of statements about how people think feel and act in all kinds of situations. Look at each of them and, using the categories given at the top of the page, choose the one that describes you normally. Try not to think of very specific things, only how you generally act. For example, you may read a statement that goes: I _____ eat ice-cream.

You would think back to whether you have had ice-cream, and then whether you eat it a lot. If you have eaten it every night for a long time, you might choose either 3 or 4, meaning sometimes or usually. Then place the number which lies above how you have rated yourself for this statement, on the line in the statement, in this case:

I 4 _____ eat ice-cream. Which means that I would say that I usually do eat ice-cream. This statement is generally TRUE for me. Now just go through the list, completing each line putting down what is generally true for you.

- 1)I....strike back when hit.
- 2)I....spread gossip about people I don't like.
- 3)People....have to ask nicely or I won't do what they want.
- 4)I lose my temper easily but....get over it quickly.
- 5)I....feel life is fair.
- 6)I know that people....talk about me behind my back.
- 7)I....let my friends know it when they do things I don't like.
- 8)I....feel guilty when I cheat.
- 9)I can....control my urge to harm others.
- 10)I....throw things when I get really angry.
- 11)I....break rules that I don't like.
- 12)The presence of others....bothers me.
- 13)Other people....get the breaks in life.
- 14)When people are unexpectedly friendly, I....get suspicious.
- 15)I am....ashamed of my own thoughts.

- 16) I can....think of a reason for hitting someone.
- 17) When I am angry, I....sulk.
- 18) I....pout when I don't get my own way.
- 19) When someone is bossy, I....do the opposite of what is asked.
- 20) I....get angry more often than people realize.
- 21) There are....people that I downright hate.
- 22) People have....disliked me.
- 23) I....disagree with people who think they are right.
- 24) When people disagree with me, I....get into arguments.
- 25) I....feel guilty when I don't do a good job.
- 26) If somebody hits me first, I....let him have it.
- 27) When I am mad, I....slam doors.
- 28) I am....patient with others.
- 29) I....give someone the silent treatment.
- 30) I....feel resentful when I think back to what has happened to me.
- 31) People....seem to be jealous of me.
- 32) I....demand that people respect my rights.
- 33) I....get depressed thinking about how little I do for my parents.
- 34) I feel people are....asking for a physical fight when they insult me.
- 35) I....play practical jokes on people.
- 36) I....hate it when people make fun of me.
- 37) I....like to show-up people who are too bossy.
- 38) Most weeks I....see someone I dislike.
- 39) I....feel that others are laughing at me.
- 40) When I'm angry, I....swear.
- 41) I am....concerned about being forgiven for my sins.
- 42) People who pester are....asking for a punch in the nose.
- 43) People that annoy me are....told-off.
- 44) I....feel like a powder keg ready to explode.
- 45) I have....been preoccupied with jealousy.
- 46) I....trust strangers.
- 47) When people yell at me, I....yell back.
- 48) I....do things which I feel guilty about later.
- 49) When I lose my temper, I....could slap people.
- 50) Since passing ten, I have....had temper tantrums.
- 51) When I get mad, I....say nasty things.
- 52) I....carry a chip on my shoulder.
- 53) I'd....be considered difficult if people knew what I thought.
- 54) I....wonder why people do nice things for me.
- 55) I....put people in their place.
- 56) Failure....gives me a feeling of remorse.
- 57) I....think I get into physical fights more than most people.
- 58) I....break objects during fights.
- 59) I....make threats which I won't carry out.
- 60) I am....rude to people I don't like.
- 61) I....get the sharp end of the stick.
- 62) People....tell the truth.
- 63) I....let others know of my poor opinion of them.
- 64) My conscience....punishes me severely.

- 65)I will....resort to physical violence to defend my rights.
- 66)I....let it bug me if somebody treats me badly.
- 67)I....feel that there are people in my life who wish to harm me.
- 68)When arguing, I....shout.
- 69)I....feel that I have not lived the right kind of life.
- 70)I have....been made angry enough to fight.
- 71)Things....irritate me.
- 72)I....feel people are trying to anger or insult me.
- 73)I am....grouchy.
- 74)I would....rather concede a point than argue.
- 75)I....hit table tops when I am angry.

Appendix C

THE SECOND REVISION: BDHI (REVISED)

(the introduction and instructions are the same as those used in the previous revision)

- 1) I....think I get into physical fights more than most people.
- 2) I....break objects during fights.
- 3) When I lose my temper, I....could slap people.
- 4) Since passing ten, I have....had temper tantrums.
- 5) When I get mad, I....say nasty things.
- 6) I....feel people are trying to anger or insult me.
- 7) When arguing, I....shout.
- 8) I....make threats which I won't carry out.
- 9) I....carry a chip on my shoulders.
- 10) I....do things which I feel guilty about later.
- 11) I....feel that I have not lived the right kind of life.
- 12) I....get the sharp end of the stick.
- 13) I'd....be considered difficult if people knew what I thought.
- 14) Failure....gives me a feeling of remorse.
- 15) I....let others know of my poor opinion of them.
- 16) I....feel that there are people in my life who wish to harm me.
- 17) I....let it bug me if somebody treats me badly.
- 18) I will....resort to physical violence to defend my rights.
- 19) I have....been made angry enough to fight.
- 20) I am....rude to people I don't like.
- 21) I....hit table tops when I am angry.
- 22) I am....grouchy.
- 23) When people yell at me, I....yell back.
- 24) Things....irritate me.
- 25) I....put people in their place.
- 26) People who pester are....asking for a punch in the nose.
- 27) There are....people that I downright hate.
- 28) I feel people are....asking for a physical fight when they insult me.
- 29) I can....think of a reason for hitting someone.
- 30) I....strike back when hit.
- 31) If somebody hits me first, I....let him have it.
- 32) I....feel resentful when I think back to what has happened to me.
- 33) I am....ashamed of my own thoughts.
- 34) I have....been preoccupied with jealousy.
- 35) I....feel like a powder keg, ready to explode.
- 36) I....feel that others are laughing at me.
- 37) When I am mad, I....slam doors.
- 38) I....throw things when I get really angry.
- 39) I....give someone the silent treatment.

- 40) I....get angry more often than people realize.
- 41) When people are unexpectedly friendly, I....get suspicious.
- 42) I....spread gossip about people I don't like.
- 43) I....feel life is fair.

Appendix D

NOVACO'S ANGER INVENTORY

For each of the following items, please rate the degree to which the incident described by the item would anger or provoke you by using the following scale:

{.....1.....2.....3.....4.....5}
{not at all....a little...some-not much...much....very much}

Use the same scale for all of the items. Please score your responses to the items on the answer sheet provided. Try to imagine the incident actually happening to you and then indicate the extent to which it would have made you angry by scoring the answer sheet.

1. On your way to go somewhere, you discover that you have lost the keys to your car.
2. Going for a haircut and getting more cut off than you wanted.
3. Being overcharged by a repairman who has you over a barrel.
4. Being singled out for correction, when the actions of others go unnoticed.
5. You are walking along, minding your own business, when someone comes rushing past, knocking you out of his way.
6. Being called a liar.
7. You are in the midst of a dispute, and the other person calls you a "stupid jerk".
8. Hearing that a person has been deprived of his constitutional rights.
9. Someone borrows your car, consumes one-third of a tank of gas, and doesn't replace it or compensate you for it.
10. People who think that they are always right.
11. You unpack an appliance that you have just bought, plug it in, and discover that it doesn't work.
12. You are waiting to be served at a restaurant. Fifteen minutes have gone by, and you still haven't even received a glass of water.
13. Struggling to carry four cups of coffee to your table at a cafeteria, someone bumps into you, spilling the coffee.
14. Getting your car stuck in the mud or snow.
15. You are typing a term paper, hurrying to make the deadline, and the typewriter jams.
16. Employers who take advantage of their employees' need for work by demanding more than they have a right to.
17. Watching someone bully another person who is physically smaller than he is.
18. Professors who refuse to listen to your point of view.
19. You have hung up your clothes, but someone knocks them

to the floor and fails to pick them up.

20. Being stood-up for a date.

21. Someone sneaks into your room and takes your wallet.

22. You are driving to pick up a friend at the airport and are forced to wait for a long freight train.

23. You are driving along at 45mph, and the guy behind you is right on your bumper.

24. You are talking to someone, and he doesn't answer you.

25. Hitting your finger with a hammer.

26. Newspapers slanting the news against a man in political office to make him look bad to the public.

27. You have made arrangements to go somewhere with a person who backs off at the last minute and leaves you hanging.

28. People asking personal questions of you just for their own curiosity.

29. Your car is stalled at a traffic light, and the guy behind you keeps blowing his horn.

30. Watching someone berate another person to excess.

31. Being pushed or shoved by someone in an argument.

32. You accidentally make the wrong kind of a turn in a parking lot. As you get out of your car someone yells at you, "Where did you learn to drive?"

33. Someone who pretends to be something that he is not.

34. You walk out to the parking lot, and you discover that your car has been towed away by the campus police.

35. Working hard on a project and getting a poor grade.

36. Someone makes a mistake and blames it on you.

37. You get in your car to drive to work, and the car won't start.

38. Being hounded by a salesman from the moment that you walk into a store.

39. Being given an unnecessarily difficult exam when you need a good grade.

40. You are deprived of a promotion to which you are entitled because you haven't played up enough to the right people.

41. Someone who tries to make you feel guilty.

42. You are trying to concentrate, and a person near you is tapping his foot.

43. Someone else's dog routinely defecating in your front yard.

44. When you are criticized in front of others for something that you have done.

45. You lend someone an important book and they fail to return it.

46. In the parking lot where you have left your car, the person whose car is next to yours swings open his door, chipping the paint from your car.

47. Getting cold soup or vegetables in a restaurant.

48. Someone who is always trying to get "one-up" on you.

49. It's a cold morning and you have an 8 o'clock class. Begrudgingly, you get there on time, but the prof arrives 15 minutes late and announces that he is cancelling the class.

50. You are sitting next to someone who is smoking, and he

- is letting the smoke drift right into your face.
51. People who constantly brag about themselves.
 52. Being thrown into a swimming pool with your clothes on.
 53. Being joked about or teased.
 54. Banging your shins against a piece of furniture.
 55. Being on the receiving end of a practical joke.
 56. Being forced to do something that you don't want to do.
 57. You are in a discussion with someone who persists in arguing about a topic he knows very little about.
 58. Losing a game that you wanted to win.
 59. Being told to "go to hell."
 60. Someone making fun of the clothes that you are wearing.
 61. Someone sticking their nose into an argument between you and someone else.
 62. Being forced to participate in psychological experiments.
 63. You are walking along on a rainy day, and a car drives past, splashing you with water from the street.
 64. Acts of prejudice against a minority or ethnic group.
 65. Someone spits at you.
 66. You need to get somewhere quickly but the car in front of you is going 25mph in a 40mph zone, and you can't pass.
 67. Being talked about behind your back.
 68. Stepping on a gob of chewing gum.
 69. Hearing that a very wealthy man has paid zero income tax.
 70. You have just cleaned up an area and organized the things in it, but someone comes along and messes it up.
 71. Getting hit in the back of the head with a snowball.
 72. You are involved in watching a TV program, and someone comes along and switches the channel.
 73. Being told by an employer or professor that you have done poor work.
 74. You are in a ball game, and one of your opponents is unnecessarily rough.
 75. Being mocked by a small group of people as you pass them.
 76. Acts of economic exploitation whereby businessmen take advantage of need and demand an excessive profit.
 77. Being punished for saying what you really believe.
 78. You are in a theater ticket line, and someone cuts in front of you.
 79. Being forced to do something in a way that someone else thinks that it should be done.
 80. You use your last 10 cents to make a phone call, and you are disconnected before you finish dialing.
 81. In a hurry to get somewhere, you tear a good pair of slacks on a sharp object.
 82. Being misled or deceived by a man holding political office.
 83. You are out on a date with someone who subtly or indirectly conveys to you that you just don't measure up to their standards.

84. You are at a shopping center, and two evangelistic people stop you and want to convert you to their religious ideas.

85. While washing your favorite cup, you drop it and it breaks.

86. Getting punched in the mouth.

87. Being falsely accused of cheating.

88. Someone ripping off your automobile antenna.

89. Discovering that you were deliberately sold defective merchandise.

90. People who are cruel to animals.

Appendix E

CROWNE AND MARLOWE'S SOCIAL DESIRABILITY MEASURE

(for our purposes, it was presented as the "Personal Reaction Inventory")

1. Before voting, I thoroughly investigate the qualifications of all the candidates. [T]
2. I never hesitate to go out of my way to help someone in trouble. [T]
3. It is sometimes hard for me to go on with my work if I am not encouraged. [F]
4. I have never intensely disliked anyone. [T]
5. On occasion I have had doubts about my ability to succeed in life. [F]
6. I sometimes feel resentful when I don't get my way. [F]
7. I am always careful about my manner of dress. [T]
8. My table manners at home are as good as when I eat out in a restaurant. [T]
9. If I could get into a movie without paying and be sure I was not seen I would probably do it. [F]
10. On a few occasions, I have given up doing something because I thought too little of my ability. [F]
11. I like to gossip at times. [F]
12. There have been times when I felt like rebelling against people in authority even though I knew they were right. [F]
13. No matter who I'm talking to, I'm always a good listener. [T]
14. I can remember 'playing sick' to get out of something. [F]
15. There have been occasions when I took advantage of someone. [F]
16. I'm always willing to admit it when I make a mistake. [T]
17. I always try to practice what I preach. [T]
18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people. [T]
19. I sometimes try to get even rather than forgive and forget. [F]
20. When I don't know something I don't at all mind admitting it. [T]
21. I am always courteous even to people who are disagreeable. [T]
22. At times I have really insisted on having things my own way. [F]
23. There have been occasions when I felt like smashing things. [F]
24. I would never think of letting someone else be punished for my wrongdoings. [T]
25. I never resent being asked to return a favor. [T]
26. I have never been irked when people expressed ideas very

different from my own. [T]

27. I never made a long trip without checking the safety of my car. [T]

28. There have been times when I was quite jealous of the good fortune of others. [F]

29. I have almost never felt the urge to tell someone off. [T]

30. I am sometimes irritated by people who ask favors of me. [F]

31. I have never felt that I was punished without cause. [T]

32. I sometimes think when people have a misfortune they only got what they deserved. [F]

33. I have never deliberately said something that hurt someone's feelings. [T]

Appendix F

PARTICIPANT DEMOGRAPHICS

	Group 1	Group 2
SAMPLE SIZE	234	155
AGE		
(MEAN) males:	21	21
(S.D.)	3.3	2.8
(MEAN) females:	23	21
(S.D.)	7.6	5.4
GENDRE		
males:	94	33
females:	131	102
no data:	9	20
RACE		
Caucasion:	201	121
Occidental:	15	2
Black:	1	4
Native Indian:	2	1
Other:	15	27
ETHNIC HERITAGE		
Chinese:	13	2
Native Indian:	2	0
Canadian:	46	30
Italian:	23	9
English:	45	39
Finnish:	27	7
Northern European:	38	23
Malaysian:	2	0
Irish:	20	19
Other:	18	26