The Aggression Questionnaire

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A new questionnaire on aggression was constructed. Replicated factor analyses yielded 4 scales: Physical Aggression, Verbal Aggression, Anger, and Hostility. Correlational analysis revealed that anger is the bridge between both physical and verbal aggression and hostility. The scales showed internal consistency and stability over time. Men scored slightly higher on Verbal Agression and Hostility and much higher on Physical Aggression. There was no sex difference for Anger. The various scales correlated differently with various personality traits. Scale scores correlated with peer nominations of the various kinds of aggression. These findings suggest the need to assess not only overall aggression but also its individual components.

The Hostility inventory developed by Buss and Durkee (1957) remains one of the most frequently used questionnaires on aggression, with 242 citations in the Social Science Citation Index between 1960 and 1989 (Bushman, Cooper, & Lemke, 1991). A major reason for its popularity is the division of the inventory into seven scales: Assault, Indirect Aggression, Irritability, Negativism, Resentment, Suspicion, and Verbal Aggression. Researchers can therefore discover not only how aggressive a person is but also how the aggression is manifested.

Scores on the inventory have been found to correlate with intensity of shock delivered in the aggression machine paradigm (Scheier, Buss, & Buss, 1978). Violent prisoners have higher scores than nonviolent prisoners (Gunn & Gristwood, 1975). Compared with controls, men who have committed domestic violence score higher on Assault, Indirect Aggression, Irritability, Resentment, and Suspicion but not on Negativism or Verbal Aggression (Maiuro, Cahn, Vitaliano, Wagner, & Zegree, 1988). This research is just a brief sample of the studies (too numerous to review here) that contribute to construct validity.

Given this evidence and the popularity of the inventory, is there a need for a new questionnaire on aggression? Yes, for several reasons. The seven scales were established a priori, and there was no factor analysis of items. The original study factor analyzed scales and found two factors (Buss & Durkee, 1957). One, consisting of Assault, Indirect Aggression, Irritability, and Verbal Aggression, is called Aggressiveness. The other, defined by Resentment and Suspicion, is called Hostility. Subsequent factor analyses of items yielded different findings. Bendig (1962) reported a factor called Covert Hostility, consisting mainly of Irritability items, and a factor called Overt Hostility, consisting mainly of Assault and Verbal Aggression items. Edmunds and Kendrick (1980) found two factors, one consisting of Assault and Verbal Aggression items and the other, of Resentment and Suspicion items, but neither factor remained invariant across samples of subjects.

One reason for this inconsistency in the factor analyses may be the stability of the scales over time, for no evidence was presented of test–retest reliability. Another reason may be the true–false format of the Hostility inventory. Correlations among true–false items are only estimates of what the correlations would be if the items were scored quantitatively in a Likert format. Furthermore, respondents often have trouble with true–false items, preferring to say whether an item applies to them more or less rather than yes or no. Accordingly, current psychometric practice favors a Likert format of at least a 5-point scale, say, from least characteristic to most characteristic.

The last problem is with the placement of some of the items. Thus, the Indirect Aggression item "I sometimes spread gossip about people I don't like" fits Verbal Aggression just as well. The Verbal Aggression item "When I get mad, I say nasty things" overlaps the Irritability scale. Items should be assigned to scales empirically rather than by reasonable guesses.

These problems with the Hostility inventory may be explained by the fact that it was constructed 35 years ago, when standards for questionnaires were not what they are today. That explanation, however, should not be an excuse for its continued use. Accordingly, we have constructed a new self-report instrument called the Aggression Questionnaire. It retains the major virtue of the older inventory—analysis of aggression into several components—but the new questionnaire meets current psychometric standards.

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Study 1

Method

Initial selection of items. A major virtue of the original Hostility Inventory was its division into various components of aggression. Accordingly, we selected items tapping these components: Physical Aggression, Verbal Aggression, Anger, Indirect Aggression, Resentment, and Suspicion. Some items were borrowed intact from the earlier Hostility inventory. A number of items from the earlier inventory were not used because, on reflection, they were judged to be ambiguous or troublesome. An indirect aggression item, "Since the age of ten, I have never had a temper tantrum," denies anger and requires that the respondent have an excellent memory. Other items were rewritten in the interest of greater clarity, and many new items were added to form an initial pool of 52 items.

Subjects. The entire set was administered to large groups of college students in introductory psychology classes. Almost all of them were 18 to 20 years of age. There were 612 men and 641 women, a total of 1,253 subjects. This total was made up of three successive samples of 406, 448, and 399 subjects. They were asked to rate each item on a scale of 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*).

Factor analysis. The correlation matrix of the 52 aggression items for the first sample of subjects was subjected to principal-axis factoring. Oblimin rotation was used because the several components of aggression were expected to be correlated. This initial factor analysis was followed by a confirmatory factor analysis on the second sample. Then exploratory factor analyses were done for both the second and the third samples.

Other personality traits. The tendency to aggress was expected to correlate with other personality traits. We selected three groups of traits. One group consisted of *temperaments,* inherited traits that appear early in life: emotionality, activity, sociability, and impulsiveness (Buss & Plomin, 1975). *Emotionality* is a broad disposition that includes anger, *activity* consists of vigor and tempo, and *impulsiveness* involves the tendency to act quickly and without reflection. These three traits were expected to correlate with aggression. *Sociability* was not expected to correlate with aggression but was included because it is a member of the temperament foursome. We also included a pair of traits that might lead to social conflict and therefore would be linked to aggression: *assertiveness* and *competitiveness* (Buss, 1988).

The third group included three self-related traits. *Private self-consciousness* involves a focus on the covert aspects of oneself—feelings, thoughts, and self-memories—and there is evidence that it is a moderator variable (Buss, 1980). Researchers who might use private self-consciousness in conjunction with the Aggression Questionnaire would need to know how they correlate. *Public self-consciousness* deals with awareness of oneself as a social object (Fenigstein, Scheier & Buss, 1975); as such, it was expected to have a modest negative correlation with aggression. The third trait was *self-esteem,* a pervasive disposition that correlates with many personality traits (Cheek & Buss, 1981).

The self-report measures of these traits may be found in the aforementioned references. When items tapping all the personality traits were mixed in with the aggression items, the total was 100 items.

Results

Exploratory factor analyses. The correlation matrix of the 52 aggression items for the first sample of 406 subjects was subjected to principal-axis factoring and oblimin rotation. Four rotated factors proved to be the maximum number interpretable: Physical Aggression, Verbal Aggression, Anger, and Hostility (a combination of Resentment and Suspicion items). The immediate question was whether this factorial structure would replicate. Therefore, the data for the second and third samples were factor analyzed.

We used two criteria to select items and place them on a factor. First, an item had to load at least .35 on its own factor but less than .35 on any other factor. Second, both specifications had to be met for all three samples. Of the original list of 52 items, 23 did not meet these criteria. The remaining 29 items, which met both criteria, constitute the Aggression Questionnaire.[1]

The results for all three samples are presented in Table 1. The factor loadings of items varied from one sample to the next. The greatest variation was a spread of .25 for the third Anger item, and there were several other items with a spread of loadings in the teens. For most items, however, such variation was small. Overall, the variation in factor loadings appears to be within the limit expected from successive samples of subjects.

The crucial issue was whether the factor structure would replicate. The data in Table 1 reveal that the four-factor structure derived from the first sample replicated over the next two samples. For completeness, the factor analysis for the entire subject sample is presented in the Appendix.

These factorial data were for the sexes combined. When the total sample was divided into men's and women's data (not shown), the men's loadings varied from the women's. This variation was similar to the variation, noted earlier, from one sample to the next. Despite this variation, the men's factor structure was replicated by the women's.[2]

We wrote items for six a priori components of aggression, but only four factors emerged. Three of the factors matched our expectations: Physical Aggression, Verbal Aggression, and Anger. The fourth factor, Hostility, combined Resentment and Hostility. This finding confirms the factor analysis of the scales of the earlier Hostility inventory, which yielded a factor that combined the Resentment and Suspicion scales (Buss & Durkee, 1957).

The last a priori component, indirect aggression, did not appear as a separate factor. When an indirect item loaded high enough on a factor in one sample, it was too low in the other two samples. This instability led to the elimination of these items. Several items had low loadings across all four factors. For example, "I have told stories just to get people in trouble," loaded .17 on Physical Aggression, .06 on Verbal Aggression, −.05 on Anger, and .18 on Hostility. These data suggest that indirect aggression overlaps the other components because there are several ways to be indirectly aggressive. Thus, one can use indirect physical aggression (practical jokes) or verbal aggression (tell stories to get people in trouble), or have the victim infer anger or hostility (give the silent treatment).

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[1] No permission is needed if the questionnaire is used for research purposes. Users make up their own mimeographed or printed version by scrambling the items so that items from any one factor do not pile up. Remember to reverse the scoring of the two items worded in the direction opposite to aggression. The score for each scale is the sum of the ratings for its items. The total score for aggression is the sum of these scale scores.

[2] The factor analysis for each sex separately may be obtained from Arnold H. Buss or Mark Perry.

Table 1
Four Aggression Factors

Factor	Factor loadings
Physical Aggression	
1. Once in a while I can't control the urge to strike another person.	.66, .55, .62
2. Given enough provocation, I may hit another person.	.79, .84, .80
3. If somebody hits me, I hit back.	.60, .65, .60
4. I get into fights a little more than the average person.	.44, .52, .58
5. If I have to resort to violence to protect my rights, I will.	.63, .68, .58
6. There are people who pushed me so far that we came to blows.	.60, .62, .65
7. I can think of no good reason for ever hitting a person.[a]	.47, .53, .51
8. I have threatened people I know.	.45, .48, .65
9. I have become so mad that I have broken things.	.47, .57, .47
Verbal Aggression	
1. I tell my friends openly when I disagree with them.	.41, .41, .48
2. I often find myself disagreeing with people.	.38, .49, .35
3. When people annoy me, I may tell them what I think of them.	.45, .45, .40
4. I can't help getting into arguments when people disagree with me.	.38, .41, .36
5. My friends say that I'm somewhat argumentative.	.37, .56, .46
Anger	
1. I flare up quickly but get over it quickly.	.53, .49, .49
2. When frustrated, I let my irritation show.	.47, .45, .37
3. I sometimes feel like a powder keg ready to explode.	.60, .35, .35
4. I am an even-tempered person.[a]	.64, .62, .69
5. Some of my friends think I'm a hothead.	.63, .51, .64
6. Sometimes I fly off the handle for no good reason.	.75, .64, .70
7. I have trouble controlling my temper.	.74, .66, .69
Hostility	
1. I am sometimes eaten up with jealousy.	.41, .43, .49
2. At times I feel I have gotten a raw deal out of life.	.61, .58, .52
3. Other people always seem to get the breaks.	.65, .65, .63
4. I wonder why sometimes I feel so bitter about things.	.48, .45, .59
5. I know that "friends" talk about me behind my back.	.55, .37, .47
6. I am suspicious of overly friendly strangers.	.42, .35, .43
7. I sometimes feel that people are laughing at me behind my back.	.66, .64, .70
8. When people are especially nice, I wonder what they want.	.55, .50, .47

[a] The scoring of these items is reversed.

Confirmatory factor analysis. Recall that the first sample yielded four factors. Three models might account for this pattern of factors. The first model assumes that all items would load on a general aggression factor. The second model, suggested by the results of the first sample, assumes only the four correlated factors already identified. The third model assumes four factors that are sufficiently related to form a general, higher order factor of aggression.

These models were suggested by the results with the first sample of subjects, so we tested the models with different subjects—the second sample. A confirmatory factor analysis was done on these data, using the LISREL VI program (Jöreskog & Sörbom, 1984). Chi-squares were computed to test goodness of fit. When a sample is large, as in the 448-subject sample, the chi-square statistic can be misleading (Loehlin, 1987). Therefore, we followed the procedure suggested by Jöreskog and Sörbom (1979) of dividing the chi-square by the degrees of freedom as a test of goodness of fit. Ratios above 2.0 suggest a poor fit, but ratios below 2.0 suggest a reasonable fit.

The ratio for the first model, all items loading on a single factor, was 2.27 (which is a poor fit). The ratios for the second and third models were 1.94 and 1.95, respectively (which are reasonably good fits). Although there is no statistical basis for choosing between the second and third models, the latter has the advantage of being more inclusive: four factors of aggression, linked by a higher order factor of general aggression.

Correlations among factors. The factors were expected to intercorrelate and they did, all of them beyond chance (see Table 2). Verbal and Physical Aggression, as might be expected, were closely related but only moderately correlated with Hostility. Anger correlated strongly with the other three factors. There was a post hoc interpretation of this pattern of relationships: The moderate correlations between Hostility and both Physical and Verbal Aggression were due mainly to their connection with Anger. If this is so, when Anger is partialed out, the correlations between Hostility and both Physical and Verbal Aggression should be severely attenuated. The partial correlations with Anger controlled were .08 between Hostility and Physical Aggression and .05 between Hostility and Verbal Aggression.

Table 2
Correlations Among the Aggression Scales (N = 1,253)

Scale	Verbal	Anger	Hostility
Physical	.45	.48	.28
Verbal	—	.48	.25
Anger		—	.45

Internal consistency. The internal consistency of the four factors and the total score was evaluated by the alpha coefficient using all 1,253 subjects. The alphas were as follows: Physical Aggression, .85; Verbal Aggression, .72; Anger, .83; and Hostility, .77 (total score = .89). The alpha for the total score indicated considerable internal consistency. The alphas for the individual scales were lower but adequate for scales with fewer than 10 items.

Norms and sex differences. Recall that each item was rated on a 5-point scale, least to most characteristic. The score for each scale is simply the total of these ratings. For the two reversed items, the numbers must be reversed, 1 becoming 5, 4 becoming 2, and so on. The scales varied in the number of items, with the consequence that their means cannot be compared directly. The means and standard deviations are shown in Table 3.

Men had significantly higher scores on Physical Aggression, Verbal Aggression, and Hostility, but not on Anger. Notice, though, that the sex difference was much larger on the Physical Aggression scale than on the other three scales. To derive quantitative estimates of these sex differences, we calculated the standardized mean difference for each scale to determine effect size. They were .89 for Physical Aggression, .44 for Verbal Aggression, .05 for Anger, and .19 for Hostility (total score = .57). We used the criteria suggested by Cohen (1988) in evaluating these effect sizes. Accordingly, the sex difference for Physical Aggression was large, that for Verbal Aggression was moderate, and that for hostility was small. There was, of course, no significant effect for Anger. The effect size for the total score was a medium .57, a combination of the effect sizes for the four scales.

Reliability. One sample of 372 subjects was tested twice, the interval being 9 weeks. The test–retest correlations were as follows: Physical Aggression, .80; Verbal Aggression, .76; Anger, .72; and Hostility, .72 (total score = .80). For scales with a relatively small number of items, these coefficients suggest adequate stability over time.

Relationship to other traits. The correlations of the Aggression scales with various personality traits are shown in Table 4. Whenever we mention differences among correlations, these differences are nonchance. Let us start with the first 4 rows, which involve temperaments. Emotionality was unrelated to the instrumental components of Physical and Verbal Aggression but strongly correlated with the affective component of Anger and the cognitive component of Hostility. The correlation for the total score was intermediate, reflecting both the chance correlations and the strong ones.

Continuing with temperament, we see that activity correlated weakly with Verbal Aggression for both sexes. For men only, activity correlated modestly with Physical Aggression and Anger, and these sex differences contributed to the sex difference in the total score. Impulsiveness was related to all four subtraits, yielding a strong correlation with the total score. The correlation of impulsiveness with Anger was significantly higher than the correlations between impulsiveness and both Physical and Verbal Aggression. Sociability was unrelated to aggression.

The next two correlations deal with social traits involving potential conflict. Assertiveness correlated strongly with Verbal Aggression and Anger but only moderately with Physical Aggression and Hostility; the differences between the two sets of correlations were beyond chance. Competitiveness correlated with all four Aggression scales. It might have been anticipated that the two conflict traits, assertiveness and competitiveness, would be more closely linked to aggression for men than for women, but no sex difference appeared.

The last three correlations involve the self traits, and the pattern was similar for all three, differing only in the size of the correlations. None of these traits correlated with Physical or Verbal Aggressiveness. All three correlated with Hostility: self-esteem strongly and private self-consciousness weakly. For men only, public self-consciousness and self-esteem correlated moderately with Anger. These complex findings for the self traits were not expected, and their explanation awaits further research.

So far, we have examined the rows of correlations in Table 4. Now we examine the columns. Physical and Verbal Aggression correlated only with the temperaments of activity (for Physical Aggression, men only) and impulsiveness and with the social conflict traits of assertiveness and competitiveness; these relationships varied from modest to moderate. Anger correlated with all the traits except sociability and the two self-consciousness traits, and the correlations were higher than those for Physical and Verbal Aggression. Hostility showed the most complex pattern. It strongly correlated with emotionality, not at all with activity and sociability, and moderately with impulsiveness. It barely correlated with assertiveness and moderately correlated with competitiveness. It correlated moderately with the self-consciousness traits and strongly with self-esteem.

The total score correlated with all the traits except sociability, although it correlated with the self traits for women only. The strongest relationships were with impulsiveness, assertiveness, and competitiveness.

As the correlations in Table 4 show, the total score for aggression adequately represented the subtraits for the correlations with impulsiveness and competitiveness. For all the other personality traits, however, the correlation with the total score concealed widely differing relationships. Thus, emotionality was unrelated to Physical and Verbal Aggression but strongly related to Anger and Hostility. This difference and others throughout the table demonstrate the importance of dividing aggression into its components or subtraits.

Table 3
Means and Standard Deviations for the Aggression Questionnaire

	Men (n = 612)		Women (n = 641)	
Scale	*M*	*SD*	*M*	*SD*
Physical	24.3	7.7	17.9	6.6
Verbal	15.2	3.9	13.5	3.9
Anger	17.0	5.6	16.7	5.8
Hostility	21.3	5.5	20.2	6.3
Total score	77.8	16.5	68.2	17.0

Note. For all mean sex differences except for anger, $p < .005$; for anger, $p > .20$.

Table 4
Correlations Between the Aggression Questionnaire and Other Personality Traits (N = 1,253: 612 men and 641 women)

Trait	Physical	Verbal	Anger	Hostility	Total
Emotionality	.04	.09	.43	.52	.35
Activity[a]	.20, .00	.17	.22, .06	.03	.25, .07
Impulsiveness	.28	.31	.42	.37	.46
Sociability	00	−.02	−.08	−.12	−.12
Assertiveness	.28	.49	.40	.18	.43
Competitiveness	.36	.39	.32	.30	.46
Public self-consciousness	.03	00	.16	.32, .49	.20
Private self-consciousness[a]	−.04	.14	−.03, .20	.24	.05, .25
Self-esteem[a]	00	.02	−.14, −.27	−.49	−.14, −.35

[a] Separate correlations are reported for each sex, men's first, followed by women's, only when there is a significant sex difference.

Study 2

The data from the first study were derived exclusively from self-reports. This second study compares scores on the questionnaire with observations from knowledgeable informants. These observations were investigated by means of peer nominations, which have been used frequently in research on personality. One of the early peer nomination studies on aggression was conducted by Eron, Walder, and Lefkowitz (1971) on 8-year-old elementary school children. These children identified other students who they considered the most aggressive children in their classes, and these nominations correlated .33 with self-reports of aggression. The peer nominations at the age of 8 also had modest correlations with criminal justice convictions and spouse abuse 22 years later. A number of these subjects were located at the age of 19, and concurrent peer nominations were compared with a Minnesota Multiphasic Personality Inventory (MMPI) measure of aggressiveness; the correlation was .40 for men and .34 for women (Huesmann, Eron, Lefkowitz, & Walder, 1984).

These correlations suggest that there might be a ceiling on the strength of the relationship between self-reports and peer nominations of aggression. Nevertheless, peer nominations offer information from an outside source that can be compared with self-reports. If we bear in mind the limitations of peer nominations, they can provide evidence of construct validity.

Method

Peer nominations. The subjects were members of four college fraternities of moderate size. The sample sizes for the fraternities were 28, 20, 22, and 28, totaling 98 subjects. They were given four categories of questions, as follows:

1. Who is physically aggressive? Who hits if provoked? Who pushes or hits others even in play? Who fights physically to defend his beliefs?
2. Who is verbally aggressive? Who argues a lot? Who likes to debate every issue? Who uses strong language to cut people down? Who yells in arguments?
3. Who gets angry easily? Who is easily irritated? Who has a low boiling point? Who is easily frustrated? Who gets mad at little things?
4. Who is a trusting person? Who shares personal information easily? Who is an open person? Who allows others to borrow his things?

Some subjects may have been reluctant to nominate their fellows as being aggressive. We dealt with this problem by having them identify both the 5 most aggressive members and the 5 least aggressive members. Getting members to identify their fellows as hostile posed a more serious problem. As can be seen, we opted to ask questions about the opposite of hostility, which consists of trust, openness, and sharing. We reasoned that subjects nominated in the *least* category would tend to be hostile. Subsequently, this least category was labeled *hostility* and treated the same as the *most* categories for the other three components of aggression.

Another tactic designed to attenuate reluctance to nominate was to include peer nominations for the neutral personality trait of extraversion. Thus, there were five categories of peer nomination: the four components of aggression and extraversion. For each category the subjects selected the 5 members who were highest in the trait and the 5 who were lowest. Some members were nominated for both the most aggressive and least aggressive categories. We therefore simply subtracted the frequency of *least* from the frequency of *most*. Thus, if one subject was nominated as most aggressive three times and least aggressive one time, his score was two.

Self-reports. All subjects were administered the Aggression Questionnaire. They were also administered self-report measures of shyness and sociability (Cheek & Buss, 1981). These two traits are known to constitute most of the trait of extraversion, and therefore we correlated these self-reports with the peer nominations for extraversion. These various self-reports were correlated with the peer nominations for aggression.

Results

The correlations between the self-reports and peer nominations are presented in Table 5. All correlations were significant, but they ranged from strong to modest, with the correlation for the total self-report score being a middle .31. The correlation for Physical Aggression was clearly higher than those for the other three components of aggression. This fact is not surprising, for physical aggression is more striking and therefore more salient and observable than the other three kinds. Verbal aggression, which is relatively observable, yielded only a modest correlation between self-reports and peer nominations. We suggest that physically aggressive responses are so blatant that they are easy to categorize. Verbal aggression, however, can be more ambiguous. Was the other person teasing or using irony? Was he merely arguing his case and not being aggressive? If verbal ag-

Table 5
Correlations Between Self-Reports and Peer Nominations (N = 98)

Measure	Score
Scale	
Physical Aggression	.45
Verbal Aggression	.20
Anger	.29
Hostility	.24
Total score	.31
Trait	
Sociability versus extraversion[a]	.42
Shyness versus extraversion[a]	−.38

[a] The peer nomination was for extraversion.

gression is hard to classify, it would account for the lower correlation.

Table 5 also contains correlations between peer nominations for extraversion and the two self-reported personality traits that comprise extraversion: sociability and shyness. These two correlations averaged to .40. Extraversion, a trait that is well-known, is easy to observe. As such, the trait of extraversion represents the best that might be expected of a relationship between self-reports and peer nominations.

Using the average correlation of .40 for extraversion as a benchmark, or ceiling, we evaluated what the correlations for the four components of aggression mean for construct validity. The correlations for Verbal Aggression, Anger, and Hostility, modest though they were, offer some evidence for construct validity. The correlation for Physical Aggression, which was in the same range as that for extraversion, offers strong evidence for construct validity.

General Discussion

Subtraits of Aggression

It is clear from the questionnaire data that the personality trait of aggression consists of four subtraits. Physical and verbal aggression, which involve hurting or harming others, represent the instrumental or motor component of behavior. Anger, which involves physiological arousal and preparation for aggression, represents the emotional or affective component of behavior. Hostility, which consists of feelings of ill will and injustice, represents the cognitive component of behavior. This division of behavior into instrumental, affective, and cognitive domains is nothing new, having been recognized in psychology for roughly a century. What is new are data demonstrating that this tripartite division extends to the personality trait of aggression.

The present results also offer specific information about the relationships among these subtraits. It is not surprising that Physical and Verbal Aggression correlated strongly, for both represent instrumental behavior. It is not surprising that these two subtraits only weakly correlated with the cognitive component, Hostility.

The fact that Anger correlated strongly with the other three subtraits was unexpected. Also, the partial correlations suggest that anger is a kind of psychological bridge between the instrumental components and the cognitive component. In hindsight, this last finding appears to make sense. Anger is often a prelude to aggression, and we need not document here that people are more likely to aggress when angry than when not angry, hence the link between anger and both physical and verbal aggression. Anger, though, is a high-arousal state that diminishes over time. Presumably, after anger has cooled down, there is a cognitive residual of ill will, resentment, and perhaps suspicion of others' motives, hence the link between anger and hostility.

The sex differences in aggression are of some interest. Men are known to be more aggressive than women, and as expected, men had a higher total score than women. The individual scales provide more detailed information. Men were much more physically aggressive than women, somewhat more verbally aggressive, and just a little more hostile. There was no sex difference for anger. One way of integrating these data is to suggest that inhibition may be at work here: Women become just as angry as men but inhibit expression of this anger by means of instrumental aggression.

The individual scales of the questionnaire correlate differently with other personality traits (see Table 4). Thus, assertiveness correlated .28 with Physical Aggression but .49 with Verbal Aggression; college students, at least, assert themselves more verbally than physically. Assertiveness correlated .40 with Anger but only .18 with Hostility. Public self-consciousness correlated in the .30s and .40s with Anger, but weakly or not at all with the other three subtraits. When there were sex differences in the correlations, they mainly involved anger. In brief, these correlations strengthen the case for four subtraits of aggression.

Limitations

The foregoing discussion must be viewed in light of several limitations on the generality of the results. All subjects were college students, which means the findings must be extrapolated to the broader population, which contains people of less education and socioeconomic status. The factor structure probably would not be affected by a different sample but the norms might be affected.

Study 1 used self-reports, and we do not know whether the same subtraits or the relationships with other personality traits would emerge from other methods of data collection. Would these four subtraits emerge from observations of children, for example? Study 2 did use peer nominations, but the subjects were all college men, and we do not know whether the results would hold for college women or for the general population.

The Questionnaire

The reason for constructing a new questionnaire of aggression was the need for an instrument that, like the previous Hostility inventory, assessed various components but still met current psychometric standards. Study 1 yielded four factors that intercorrelated strongly enough to indicate an overall trait of aggression but left enough room for separate factors. These scales (factors) have adequate internal consistency, as reflected in the alphas. Test–retest stability has also established the reli-

ability of the scales and the total score. There were also norms for each sex. Thus, subject to the limitations mentioned earlier, the construction of this questionnaire meets current psychometric standards.

Of what use is the questionnaire? It has led to information about the components of aggression, specifically, where the sex differences are and which components correlate with particular personality traits. There is also the peer nomination study. Recall that there seems to be a ceiling on the correlation that can be obtained between self-reports and peer nominations. There may be three reasons for this ceiling. First, the fraternities that made the peer nominations ranged in size from 20 to 28 members. Some of the members surely were well-known to everyone else, but others were not so well-known. As a result, some of the peer nominations must have been based on scanty observation of others' behavior. Second, these college men were not trained observers, which probably led to some unreliability in their nominations. Third, many of the men were not nominated at all, leading to a large number of zero scores. The consequent reduction in variability undoubtedly attenuated the correlations between nominations and self-reports.

Despite these problems, we and other psychologists still use peer nominations because they offer a rare opportunity to compare self-reports with the observations of others on a fair sample of subjects. We know in advance, though, the limits expected of any correlations obtained. With this caveat in mind, we conclude that there is unequivocal evidence for the construct validity of the Physical Aggression scale and weaker evidence for the construct validity of the other three scales.

These findings and the relationships among the subtraits and various personality traits suggest that the questionnaire is already useful. For example, there is evidence that anger may link the instrumental aspects of aggression to the cognitive aspects. The rest of the answer obviously requires more research—first, to overcome the limitations mentioned earlier and, second, to demonstrate under which conditions and for which subjects the questionnaire is most informative.

The original hostility questionnaire has been used in many ways. For example, it has distinguished between violent and nonviolent men and between delinquent and nondelinquent adolescents. It has been used to divide subjects into high- and low-aggression groups in laboratory research. There is sufficient overlap in items between the previous questionnaire and the present one to suggest that the present one will also prove useful.

There is an obvious need for an instrument that can assess the subtraits of aggression and the patterns of their relationships with other variables. If researchers agree that this questionnaire meets this need, their reports will offer the only acceptable answer to the question about its construct validity: empirical evidence.

References

Bendig, A. W. (1962). Factor analytic scales of covert and overt hostility. *Journal of Consulting Psychology, 26,* 200.

Bushman, B. J., Cooper, H. M., & Lemke, K. M. (1991). Meta-analysis of factor analyses: An illustration using the Buss-Durkee hostility inventory. *Personality and Social Psychology Bulletin, 17,* 344–349.

Buss, A. H. (1980). *Self-consciousness and social anxiety.* San Francisco: Freeman.

Buss, A. H. (1988). *Personality: Evolutionary heritage and human distinctiveness.* Hillsdale, NJ: Erlbaum.

Buss, A. H., & Durkee, A. (1957). An inventory for assessing different kinds of hostility. *Journal of Consulting Psychology, 21,* 343–349.

Buss, A. H., & Plomin, R. (1975). *A temperament theory of personality development.* New York: Wiley-Interscience.

Cheek, J. M., & Buss, A. H. (1981). Shyness and sociability. *Journal of Personality and Social Psychology, 41,* 330–339.

Cohen, J. (1988). *Statistical power analysis in the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Edmunds, G., & Kendrick, D. C. (1980). *The measurement of human aggressiveness.* New York: Wiley.

Eron, L. D., Walder, L. O., & Lefkowitz, M. M. (1971). *Learning of aggression.* Boston: Little, Brown.

Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Private and public self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology, 43,* 522–527.

Gunn, J., & Gristwood, J. (1975). Use of the Buss-Durkee Hostility Inventory among British prisoners. *Journal of Consulting and Clinical Psychology, 43,* 590.

Huesmann, L. R., Eron, L. D., Lefkowitz, M. M., & Walder, L. O. (1984). Stability of aggression over time and generations. *Developmental Psychology, 20,* 1120–1134.

Jöreskog, K. G., & Sörbom, D. (1979). *Advances in factor analysis and structural equation models.* Cambridge, MA: Abt Books.

Jöreskog, K. G., & Sörbom, D. (1984). *LISREL VI: User's guide* (3rd. ed.) Mooreseville, IN: Scientific Software, Inc.

Loehlin, J. C. (1987). *Latent variable models: An introduction to factor, path, and structural analysis.* Hillsdale, NJ: Erlbaum.

Maiuro, R. D., Cahn, T. S., Vitaliano, P. P., Wagner, B. C., & Zegree, J. B. (1988). Anger, hostility, and depression in domestically violent versus generally assaultive men and nonviolent control subjects. *Journal of Consulting and Clinical Psychology, 56,* 17–23.

Scheier, M. F., Buss, A. H., & Buss, D. M. (1978). Self-consciousness, self-report of aggressiveness, and aggression. *Journal of Research in Personality, 12,* 133–140.

Appendix

Factor Analysis for the Entire Sample (N = 1,253)

Item	Aggression factor				Item	Aggression factor			
	Physical	Verbal	Anger	Hostility		Physical	Verbal	Anger	Hostility
Physical					Anger				
1	.61	−.08	.14	−.02	1	.01	.06	.51	.01
2	.84	−.04	−.06	00	2	.07	.19	.44	.12
3	.64	.06	−.06	.02	3	.24	−.05	.43	.19
4	.51	−.10	.16	−.04	4	−.02	−.01	.65	−.07
5	.65	.10	−.12	00	5	.12	.17	.61	−.01
6	.65	−.09	.08	.05	6	.14	−.02	.71	.04
7	.63	.04	−.05	−.02	7	.12	.02	.72	−.06
8	.52	.09	.17	.08	Hostility				
9	.52	.02	.18	.03	1	.06	−.15	.23	.43
Verbal					2	.05	−.21	.04	.55
1	.07	.46	00	−.21	3	.08	−.24	.01	.61
2	−.03	.40	.25	.20	4	−.04	−.09	.29	.50
3	.17	.46	.17	−.05	5	−.03	.04	.02	.48
4	.05	.38	.26	.15	6	00	.10	−.12	.44
5	−.01	.51	.32	.03	7	−.01	−.19	.12	.65
					8	.08	.12	.13	.56

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