

A RESEARCH SCALE FOR THE ASSESSMENT OF PSYCHOPATHY IN CRIMINAL POPULATIONS*

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Summary—This paper describes an early phase in the development of new research scale for the assessment of psychopathy in criminal populations. The scale is meant to be a sort of operational definition of the procedures that go into making global ratings of psychopathy. While the inter-rater reliability of these ratings is very high (>0.85) they are difficult to make, require a considerable amount of experience, and the procedures involved are not easily communicated to other investigators. Following a series of analyses, 22 items were chosen as representative of the type of information used in making global ratings. Two investigators then used interview and case-history data to complete the 22-item checklist for 143 male prison inmates. The correlation between the two sets of total checklist scores was 0.93 and coefficient alpha was 0.88, indicating a very high degree of scale reliability. The correlation between the total checklist scores and global ratings of psychopathy was 0.83. A series of multivariate analyses explored the factorial structure of the scale and demonstrated its ability to discriminate very accurately between inmates with high and low ratings of psychopathy. Preliminary indications are that the checklist will hold up well to crossvalidation.

This is a brief preliminary report on an attempt to develop a new research scale for the assessment of psychopathy in prison populations. There are several reasons for making the attempt. First, one of the major impediments to systematic theory and research on psychopathy is the absence of a reliable, valid and generally acceptable means of assessing the disorder. Various subject selection procedures have been used—clinical diagnosis, behavior rating scales, self-report inventories—but there is little evidence that they are conceptually and empirically related to one another (see review by Hare and Cox, 1978), with the result that it is difficult to compare research findings reported by different investigators. Second, my own experience over the past 15 years leads me to believe that the differential diagnosis of psychopathy within criminal populations should be based primarily upon extensive analysis of the individual inmate's behavior over a long period of time rather than upon what he chooses to say about himself in interviews or questionnaires. Third, any assessment procedure should be explicitly tied to the clinical conception of psychopathy.

Its reputation notwithstanding, clinical diagnosis can be very reliable under the right conditions (e.g. see Helzer *et al.*, 1977). With respect to psychopathy, my colleagues and I, as well as other investigators who have used similar procedures, have demonstrated repeatedly that differential assessment in criminal populations can be made with a high degree of interrater reliability. Based upon interview and extensive case-history data, we order inmates along a 7-point scale of psychopathy, the conceptual framework for the ratings being typified best by Cleckley's (1976) *The Mask of Sanity*. Global clinical assessments of this sort require a great deal of time to make, but in spite of the apparent subjective nature of the procedure we routinely obtain correlations of over 0.85 between independent sets of ratings (e.g. see Hare, 1979; Hare and Cox, 1978). Our assessments also appear to be valid in that they are associated with the 'appropriate' behavioral and biological correlates.

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However, the fact that we can make reliable and valid assessments of psychopathy in criminal populations may be of limited usefulness to other investigators, since they may be uncertain about precisely how our assessments were made. Obviously, what is needed is some reasonably clear indication of how a diagnosis of psychopathy is actually made. I had hoped that the criteria for Antisocial Personality Disorder listed in draft versions of the American Psychiatric Association's new *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) would improve matters. But it appears that DSM-III will not be very helpful to investigators wishing to make differential diagnoses among criminals. In essence, DSM-III is too liberal with its diagnosis. For example we recently found that 76% of a sample of 146 prison inmates met the October 1978 DSM-III criteria for antisocial personality disorder, while we considered only 33% to be psychopaths in the strict clinical sense of the term (see Hare, 1978, 1980). The advantage of DSM-III is that most of the criteria for diagnosis are reasonably objective, but this doesn't help matters very much when the diagnosis of antisocial personality disorder becomes almost synonymous with criminality. In principle, of course, the criteria could be made more stringent, but so far there is little indication that this will be done.

With these considerations in mind, we decided to see whether we could make explicit the nature of our assessment procedures, and in so doing, to attempt to develop a reliable, reasonably objective method for identifying psychopaths in criminal populations. We began with an analysis of the 16 criteria for psychopathy outlined by Cleckley (1976), since these criteria form the basis for our clinical assessments.

SUBJECTS

The analyses to be described were based upon data obtained from 143 white male prison inmates involved in two recent studies. Each inmate received a global assessment of psychopathy from two experienced raters, the interrater reliability being 0.86 in one study and 0.88 in the other. The ratings were made on a 7-point scale (see Hare and Cox, 1978 for details). In order to increase the reliability of measurement, the two independent ratings for each inmate were averaged. Forty-seven inmates received a mean rating of 6-7, 43 a mean rating of 4-5, and 53 a mean rating of 1-3. The age of the inmates ranged from 18 to 53 ($\bar{X}$ = 26.3, S.D. = 6.9).

ANALYSIS OF THE CLECKLEY CRITERIA

The 16 criteria for psychopathy outlined by Cleckley (1976) are listed in Table 1. Some of these criteria seem rather vague and require a considerable degree of subjective interpretation and difficult clinical inference. Even after a careful reading of Cleckley there can be some confusion about precisely what is meant by each of the criteria. It is also evident that there is overlap between some of the characteristics. As I have already indicated, however, the criteria provide a useful framework for making global assessments of psychopathy that can be surprisingly reliable, given experienced raters, availability of sufficient information, agreement on what psychopathy is, etc. Some investigators have found it more convenient to assign each inmate a score on each of the 16 criteria and to base their diagnoses on the total score. As the first step in analyzing the Cleckley criteria, we did the same thing. That is, interview and case-history data were used to rate each of the 143 inmates on each of the 16 criteria. A 3-point scale was used for this purpose, with 0 indicating that the characteristic involved definitely was not present or did not apply, 1 indicating some uncertainty about whether or not it applied, and 2 indicating that it definitely was present or applied. Total scores could thus range from 0 to 32. Two raters independently filled out each item, and their scores were averaged together to increase the reliability of measurement. The correlation between the total scores on the 16 criteria and global assessments of psychopathy made between 1 and 2 yrs earlier was 0.84.

The 16 Cleckley criteria were then subjected to principal components analysis, using a revised (1977) version of the Alberta General Factor Analysis Program (Hakstian and Bay, 1973). Five factors with eigenvalues greater than one were extracted and a varimax

Table 1. Varimax factor pattern for the 16 Cleckley criteria for psychopathy*

Variable	I	II	Factor III	IV	V
1. Superficial charm and good intelligence	43	-32	08	54	-09
2. Absence of delusions and other signs of irrational thinking	-26	19	-06	71	25
3. Absence of 'nervousness' or psychoneurotic manifestations	10	-04	-12	78	-12
4. Unreliability	31	61	28	03	-18
5. Untruthfulness and insincerity	67	12	27	15	-12
6. Lack of remorse or shame	67	-12	25	13	-31
7. Inadequately motivated antisocial behavior	24	31	65	00	33
8. Poor judgement and failure to learn by experience	03	61	52	-15	04
9. Pathologic egocentricity and incapacity for love	83	23	07	06	21
10. General poverty in major affective reactions	83	26	02	-10	21
11. Specific loss of insight	17	05	83	-11	10
12. Unresponsiveness in general interpersonal relations	71	30	-04	-18	20
13. Fantastic and uninviting behavior with drink and sometimes without	29	10	04	-18	70
14. Suicide rarely carried out	10	-08	16	10	60
15. Sex life impersonal, trivial and poorly integrated	51	-06	23	02	26
16. Failure to follow any life plan	15	81	00	05	08

* Decimal points omitted. $N = 143$.

rotation performed. These five factors accounted for 64% of the total variance. The rotated factors and their loadings are presented in Table 1. To facilitate interpretation, each factor and the variables which load most heavily upon it (in brackets) are presented separately.

Factor 1

- 9. Pathologic egocentricity and incapacity for love (0.83)
- 10. General poverty in major affective reactions (0.83)
- 12. Unresponsiveness in general interpersonal relations (0.71)
- 5. Untruthfulness and insincerity (0.67)
- 6. Lack of remorse or shame (0.67)

This factor accounts for 29.3% of the variance and clearly reflects what most clinicians consider to be at the core of psychopathy, *viz.* an inability to develop warm, genuine relationships with others, a lack of empathy, and a callous disregard for the rights and feelings of others.

Factor 2

- 16. Failure to follow any life plan (0.81)
- 4. Unreliability (0.61)
- 8. Poor judgment and failure to learn by experience (0.61)

This factor accounts for 12.0% of the variance and concerns an unstable, transient life-style, with an absence of long-term plans or commitments.

Factor 3

- 11. Specific loss of insight (0.83)
- 7. Inadequately motivated antisocial behavior (0.65)

About 8.3% of the variance is accounted for by this factor. It seems to be related to a general inability to accept responsibility for persistent antisocial behavior.

Factor 4

- 3. Absence of nervousness or psychoneurotic manifestations (0.78)
- 2. Absence of delusions and other signs of irrational thinking (0.71)
- 1. Superficial charm and good intelligence (0.54)

This factor accounts for 7.1% of the variance and has to do with an absence of clinically significant intellectual and psychiatric problems.

Factor 5

13. Fantastic and uninviting behavior with drink and sometimes without (0.70)

14. Suicide rarely carried out (0.60)

This factor accounts for 6.6% of the variance. Its interpretation is unclear but may reflect the presence of weak or unstable behavioral controls.

On the basis of the preceding analyses it appears that the 16 criteria listed by Cleckley can be adequately represented by several clinically meaningful factors. The next step was to determine the extent to which these factors are related to our global assessments of psychopathy. Accordingly, the regression technique was used to assign each of the 143 inmates a score on each of the five Cleckley factors. A stepwise multiple regression analysis was then computed, with the factor scores as predictor variables and global assessments of psychopathy (previously made on a 7-point scale) as the predicted variable. A multiple correlation of 0.84 ($p < 0.001$) was obtained, with each factor making a significant contribution to the correlation. The beta weights for Factors 1–5 were, respectively, 0.66, 0.21, 0.29, 0.32, and 0.20. The largest contribution to the prediction of ratings of psychopathy was thus made by Factor 1.

Several conclusions are suggested by these findings. First, while the Cleckley criteria are factorially complex, each of the factors (particularly the first three) makes good sense *vis-a-vis* the concept of psychopathy. Second, it is apparent that the major determinant of a diagnosis of psychopathy in a criminal population is evident of a lack of empathy, genuine affection and concern for others.

A CHECKLIST FOR THE ASSESSMENT OF PSYCHOPATHY

Even though clinical assessments of psychopathy can be made with a high degree of reliability there is a great need for procedures that are less subjective and that can readily be communicated to others. For these reasons we have attempted to make reasonably explicit the processes used in arriving at a global clinical assessment of psychopathy.

The first step was to list all of the traits, behaviors, indicants and counterindicants of psychopathy that we felt were explicitly or implicitly used in making an assessment. We ended up with over 100 of these items. A series of statistical analyses was carried out to determine which of these items best discriminated between inmates with low and high ratings of psychopathy. Without going into detail, we found that our clinical judgments of psychopathy could be represented effectively by 22 items or pieces of information. These items are listed in Table 2. Each item was scored on a 3-point scale, with 0 indicating that the item did not apply to the inmate, 1 indicating some uncertainty about whether or not it applied, and 2 indicating that it did apply to him. (A manual containing a complete description of each item and instructions for scoring can be obtained from the author.) It is apparent that some of the items involve complex behaviors and characteristics and that in many cases judgment and clinical inference are required. Nevertheless, most of the items have reasonable interrater agreement. Moreover, there is a very high degree of agreement between raters on the total scores assigned inmates. For instance, the correlation between the two independent sets of total scores was 0.93. Each of these raters was familiar with the concept of psychopathy, but it appears that the checklist can be used reliably by individuals with little experience with the concept or with rating scales. Thus, an undergraduate assistant who had worked for us for only a few weeks was able to use the manual to complete checklists for 71 of the 143 inmates; the correlation between his total scores and those of each of the two more experienced investigators was 0.91 and 0.95 respectively.

The reliability of the checklist was also estimated by computing coefficient alpha, which takes into account the average correlation between the items (the internal consist-

Table 2. The checklist items, their interrater reliability, and their correlations (corrected for overlap) with the total score

Variable	Interrater reliability	Correlation with total score
1. Glibness/superficial charm	0.80	0.42
2. Previous diagnosis as psychopath (or similar)	0.70	0.20
3. Egocentricity/grandiose sense of self-worth	0.68	0.66
4. Proneness to boredom/low frustration tolerance	0.69	0.33
5. Pathological lying and deception	0.57	0.47
6. Conning/lack of sincerity	0.75	0.53
7. Lack of remorse or guilt	0.73	0.68
8. Lack of affect and emotional depth	0.62	0.55
9. Callous/lack of empathy	0.61	0.40
10. Parasitic life-style	0.70	0.56
11. Short-tempered/poor behavioral controls	0.81	0.47
12. Promiscuous sexual relations	0.64	0.61
13. Early behavior problems	0.66	0.66
14. Lack of realistic, long-term plans	0.74	0.61
15. Impulsivity	0.59	0.36
16. Irresponsible behavior as parent	0.74	0.46
17. Frequent marital relationships	0.80	0.46
18. Juvenile delinquency	0.84	0.42
19. Poor probation or parole risk	0.56	0.40
20. Failure to accept responsibility for own actions	0.60	0.52
21. Many types of offense	0.81	0.38
22. Drug or alcohol abuse not direct cause of antisocial behavior	0.66	0.24

N = 143

ency) and the number of items (Nunnally, 1978). A coefficient of 0.88 was obtained, indicating a high degree of checklist reliability.

While in principal the total checklist scores can range from 0 to 44, the actual scores (averaged over two raters) for the sample of 143 inmates ranged from 10 to 41.5. The mean of the distribution was 28.7 and the standard deviation was 7.1.

The 47 inmates with the highest ratings of psychopathy (6–7), referred to as Group P, had a mean checklist score of 34.98 (S.D. = 3.51). Group M, consisting of 43 inmates with intermediate ratings of psychopathy (4–5) had a mean checklist score of 29.83 (S.D. = 4.11), while Group NP, made up of 53 inmates with the lowest ratings of psychopathy (1–3) had a mean checklist score of 22.01 (S.D. = 5.47). Analysis of variance indicated that the overall difference between groups was highly significant ($F = 104.5$, $df = 2/140$, $p < 0.001$), while *post-hoc* comparisons (Scheffé test) revealed that each group differed significantly from the others.

Additional analysis indicated that the relationship between the total checklist scores and ratings of psychopathy was linear and highly significant ($r = 0.83$, $df = 141$, $p < 0.001$). The regression equation for predicting ratings of psychopathy (Y') from checklist scores (X) was computed as $Y' = 0.21 X - 1.77$, with the standard error of estimate being 1.01.

In order to investigate the underlying structure of the checklist, the mean scores assigned by the two experienced raters to each of the 22 items were subjected to principal components analysis. Five factors with eigenvalues greater than one were extracted and a varimax rotation performed. These factors accounted for 61% of the total variance. The rotated factors and their loadings are shown in Table 3. The factors and the variables which load most heavily upon them are as follows.

Factor 1

- 4. Proneness to boredom/low frustration tolerance (0.87)
- 14. Lack of realistic, long-term plans (0.83)
- 10. Parasitic life-style (0.73)
- 15. Impulsivity (0.71)

Table 3. Varimax Factor Pattern for the 22-item Checklist for Psychopathy*

Variable	I	II	Factor III	IV	V
1. Glibness/superficial charm	-25	59	35	07	-13
2. Previous diagnosis as psychopath (or similar)	01	14	-02	77	-01
3. Egocentricity/grandiose sense of self-worth	-22	63	27	31	-21
4. Proneness to boredom/low frustration tolerance	87	10	22	14	07
5. Pathological lying and deception	-20	30	29	-05	50
6. Conning/lack of sincerity	05	67	10	36	14
7. Lack of remorse or guilt	31	76	05	-04	13
8. Lack of affect and emotional depth	34	41	48	20	18
9. Callous/lack of empathy	35	51	10	29	-01
10. Parasitic life-style	73	03	-09	-02	-07
11. Short-tempered/poor behavioral controls	30	27	14	50	07
12. Promiscuous sexual relations	05	31	63	03	29
13. Early behavior problems	37	18	06	55	22
14. Lack of realistic, long-term plans	83	-04	22	17	23
15. Impulsivity	71	07	21	33	15
16. Irresponsible behavior as parent	13	12	81	03	-07
17. Frequent marital relationships	19	-05	82	01	19
18. Juvenile delinquency	33	-05	01	54	37
19. Poor probation or parole risk	11	07	01	02	75
20. Failure to accept responsibility for own actions	24	73	-04	-32	12
21. Many types of offense	16	-04	17	18	75
22. Drug or alcohol abuse not direct cause of antisocial behavior	-10	53	04	24	08

* Decimal points omitted. $N = 143$.

This factor accounts for 27.3% of the variance and, like the Cleckley Factor 2, reflects an impulsive, unstable life-style with no long-term plans or commitments.

Factor 2

- 7. Lack of remorse or guilt (0.76)
- 20. Failure to accept responsibility for own actions (0.73)
- 6. Conning/lack of sincerity (0.67)
- 3. Egocentricity/grandiose sense of self worth (0.63)
- 1. Glibness/superficial charm (0.59)
- 22. Drug or alcohol abuse not direct cause of antisocial behavior (0.53)
- 9. Callous/lack of empathy (0.51)

About 13% of the variance is accounted for by this factor. It has to do with self-centeredness, callousness, and a lack of empathy and concern for others.

Factor 3

- 17. Frequent marital relationships (0.82)
- 16. Irresponsible behavior as parent (0.81)
- 12. Promiscuous sexual relationships (0.63)
- 8. Lack of affect and emotional depth (0.48)

This factor accounts for 8.0% of the variance and reflects superficial relationships with others.

Factor 4

- 2. Previous diagnosis as psychopath or similar disorder (0.77)
- 13. Early behavior problems (0.55)
- 18. Juvenile delinquency (0.53)
- 11. Short-tempered/poor behavioral controls (0.51)

This factor, accounting for 6.9% of the variance, has to do with the early appearance of chronic antisocial behavior.

Factor 5

19. Poor probation or parole risk (0.75)

21. Many types of offense (0.75)

5. Pathological lying and deception (0.50)

About 5.7% of the variance is accounted for by this factor. It is difficult to find an appropriate label for the factor, although it seems to reflect impulsive and inadequately motivated criminal acts.

It is apparent that each of the factors derived from the principal components analysis of the 22-item checklist is meaningful with respect to the concept of psychopathy. Several additional analyses indicate that the checklist and its factors are strongly associated with global assessments of psychopathy. For example, the regression technique was used to assign each of the 143 inmates a score on each of the five factors. A stepwise multiple regression analysis was then computed, with the factor scores as predictor variables and global assessments of psychopathy as the predicted variable. A multiple correlation (R) of 0.86 was obtained ($R^2 = 0.74$). In testing the overall significance of the regression, the degrees of freedom were based upon the total number of items (22) rather than upon the number of factors (see Kukuk and Baty, 1979). The results of this analysis indicated that the association between predictor variables and ratings of psychopathy was highly significant ($F = 15.52$, $df = 22/120$, $p < 0.001$). Each factor made a significant contribution to the association, the beta weights for Factors 1–5 being, respectively, 0.30, 0.59, 0.32, 0.42 and 0.15.

Kukuk and Baty (1979) have argued that there may be theoretical and methodological problems associated with the use of factor scores to predict a criterion variable. They suggest that the criterion variable first should be regressed on factor sets and that the variables that emerge as the best predictors of the criterion should be used as indicators of their factor. Using this procedure 12 items were selected as indicative of the five factors. The multiple correlation between these 12 items and the criterion ratings of psychopathy was 0.88 ($R^2 = 0.77$), the relationship being highly significant ($F = 35.5$, $df = 12/130$, $p < 0.001$). Thus, regression of the ratings on 12 selected variables rather than on factor scores produced a slight increase in the size of the multiple correlation (i.e. from 0.86 to 0.88). Actually, additional analyses indicated that similar values of R could be obtained using as few as five or six items. However, shortening the checklist would result in a decrease in reliability and, for this reason, the assessment of psychopathy is based upon all 22 items.

The ability of the factor scores to discriminate between inmates with high and low global ratings of psychopathy was determined as follows. First, two extreme groups were selected from the pool of 143 inmates. Group P consisted of 47 inmates with high ratings of psychopathy (i.e. between 6 and 7 on the 7-point scale), while Group NP consisted of 53 inmates with low ratings of psychopathy (between 1 and 3). Scores on each of the five factors were subjected to a multivariate analysis of variance. Hotelling's T^2 test indicated that the overall difference between Groups P and NP was highly significant ($F = 59.89$, $df = 5/94$, $p < 0.001$). The largest difference between groups occurred on Factor 2, followed by Factors 4, 3, 1 and 5. A stepwise discriminant analysis indicated that 97 of the 100 inmates were correctly classified; one inmate in Group NP and two in Group P were misclassified. Only Factor 5 failed to enter into the discrimination. The beta weights for Factors 1–4 were, respectively, 0.37, 0.67, 0.40 and 0.50, with the largest contribution being made by Factor 2.

RELATIONSHIP BETWEEN CHECKLIST AND CLECKLEY CRITERIA

The degree of relationship between the sets of factors obtained from principal components analyses of the Cleckley criteria and the checklist items was evaluated with canoni-

cal correlation (Brown, 1977; Harris, 1975). The results indicated that the overall fit between the two sets of factors was extremely good, the first canonical correlation being 0.90 ($\chi^2 = 151$, $df = 16$, $p < 0.001$). All five factors in each set contributed to the correlation. Thus, there is a high degree of agreement between the factors derived from analysis of the 16 Cleckley criteria and those derived from analysis of the 22-item checklist. All of the clinically important information contained in the Cleckley criteria appears to be covered by the checklist.

CROSS-VALIDATION OF CHECKLIST

Preliminary indications are that the checklist will hold up well when used with new samples of inmates. For example, in our most recent study (still in progress) global ratings of psychopathy have been made so far for 62 male prison inmates. The ratings were based upon extensive case-history data and (to a lesser extent) upon inmate responses to a structured interview. This procedure produced extremely reliable assessments of psychopathy, the correlation between independent ratings made by two experienced investigators being 0.92. In order to put the checklist to a reasonably severe test, the case-history and interview protocols were given to two student assistants (one male and one female) with no previous experience with rating scales or with the formal concept of psychopathy. Using the checklist manual they independently completed a checklist for each of the 62 inmates. The correlation between the two sets of checklist scores thus obtained was 0.89, indicating that the checklist has a high degree of interrater reliability even when used by inexperienced personnel. The correlation between the mean global ratings of psychopathy (made by the two experienced investigators) and the checklist scores was 0.81 for the female assistant and 0.82 for the male assistant. When the checklist scores of the two assistants were averaged, the correlation with global ratings increased to 0.84. In a previous section I reported that in the original sample of 143 inmates the multiple correlation between a selected group of 12 checklist items and global ratings of psychopathy was 0.88. The scores of the two student assistants on each of these 12 items were averaged and were then used in a multiple regression analysis to predict global ratings of the 62 inmates in the new sample. A multiple correlation of 0.86 ($R^2 = 0.74$) was obtained between these predicted ratings of psychopathy and the actual ratings, the degree of association being highly significant ($p < 0.001$).

DISCUSSION

Even in its preliminary form the scale described in this paper offers some promise of becoming a useful instrument for the reliable assessment of psychopathy in criminal populations. It is closely tied to the clinical concept of psychopathy and would seem to provide a reasonable alternative to the difficult and subjective diagnostic procedures sometimes used. At this stage I'm not sure how useful the scale will be for assessing psychopathy in noncriminal populations. Although most of the 22 items no doubt apply to psychopaths who manage to remain out of the criminal justice system, it would be difficult to obtain sufficient information to complete them with confidence.

Several multivariate statistical procedures were used to explore the nature of the checklist and to test its predictive power. However, there may be little real advantage in selecting subjects for research on the basis of some complex weighting system. A more practical procedure would be to use total checklist scores and, if discrete groups are required, a system of cutoff points set to obtain the desired separation between groups. Some examples of how this might be done will be provided in the manual being prepared for use with the checklist.

A considerable amount of work still remains to be done before the scale is ready for general use. Nevertheless, the early results are encouraging, in part, I believe, because the clinical concept of psychopathy is far more salient and robust than many investigators imagine it to be.

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