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Richard H. Dana
Portland State University

Jean T. Teter

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A Construct Validation of the Barron Ego Strength Scale

Jean T. Teter and Richard H. Dana¹

West Virginia University

Barron's Ego-Strength (Es) scale has been validated and cross-validated as an instrument to predict response to psychotherapy (Barron, 1953a; Wirt, 1955). The scale was developed to differentiate between improved and unimproved patients prior to therapy. Pre-therapy patients who make a high score are more likely to improve with psychotherapy than are low scoring patients. High scorers were seen as possessing greater resourcefulness, vitality, and self-direction than low scorers (Barron, 1953a). They have been described as effective, independent people, intelligent, stable, somewhat original, with easy command over their own resources (Barron, 1956). These descriptive terms have been taken collectively to mean "ego strength" or personality integration.

Quay (1955) and Taft (1957) found that Es discriminated between patients and normals; Taft (1957) and Gottesman (1959) found that the scale did not discriminate degrees of psychopathology. Tamkin (1957) and Tamkin and Klett (1957), with samples of hospitalized psychiatric patients, reaffirmed Barron's negative relationships between Es scores and psychopathology measures (1953b) and also reported significant relationships with the Wechsler IQ, education, and age. Both Gottesman (1959) and Kleinmuntz (1960) have suggested that the Es scale may reflect defensive attitudes. Crumpton, Canter and Batiste (1960) concluded from factor analysis that Es measured absence of ego weakness rather than the presence of ego strength.

Prior to testing empirical ego strength hypotheses, a specific definition of the term must be established. Korman (1960) defined Es in terms of higher mental processes; King and Schiller (1960) defined Es in terms of employed psychoanalytic defense mechanisms. Tamkin (1957) labeled the major weakness as variability and ambiguousness of definitions, with the result that different components of ego strength are measured by various instruments.

Ego strength has been tied in, either directly or indirectly, with pre-therapy prognosis, length of stay in therapy, and improvement with therapy (Rosenburg, 1954; Barron, 1953b; Gallagher, 1954; Harris & Christiansen, 1946; Sullivan, Miller, & Smelser, 1958; Taulbee, 1958; Sinnett, 1962). The more ego strength attributed to a patient, the greater the likelihood of continuation in therapy and improvement. Consequently, the individual of greater ego strength, must have a certain ability to persist and to tolerate painful struggles concomittant with psychotherapy. He must possess the ability to face and overcome frustrations rather than denying or withdrawing from them; in short, he must possess a relatively high level of frustration tolerance.

These studies may be grouped to represent three major components of a proposed definition of ego strength. (a) personal adaptability and resourcefulness; (b) "good" response to psychotherapy; (c) "good" adjustment. The present study is concerned with the personal resourcefulness and adaptability component.

Barron's Es scale may differentiate between individuals of high and low levels of frustration tolerance. On an abstract level there has been a rather widely accepted definition of "frustration" as a state of psychological stress originating from the blocking of a goal (Rosenzweig, 1938; Rosenzweig, 1944; Dollard and Miller, 1939). Most experimental studies of frustration tolerance have limited their measures to overt behavior, a fact deplored by Lindzey (1950). Many studies are not easily comparable due to differing orientations and methods (Lawson and Marx, 1958; Hybl & Stagner, 1952; Barker, Dembo, and Lewin, 1957; Sherman & Jost, 1942; Thiesen & Meister, 1949). Although frustration tolerance has been defined in a number of ways, definition in terms of a specific operation is rare (McKinney, Hines, Strother, & Allee, 1951; Dolleys & Kregarman, 1959).

For this study behavioral indices of frustration tolerance from Child and Waterhouse's (1953) classification of frustration-induced responses were used; (1) persistence as opposed to withdrawal under stress; (2) the absence of irrelevant responses which interfere with the effort to overcome the frustrating obstacle; (3) an improved quality of performance, assumed to result from increased motivation. The persistence criterion includes the other two conditions. Specifically, when one is persisting, *i.e.*, attending to overcoming an obstacle, he cannot at the same time be involved in making "interfering responses" which take attention away from that obstacle. Persistence also can be seen as a motivational state which may result, when an obstacle is encountered, in increased effort and, hence, improve performance. Behavioral persistence under stress is thus an overt manifestation of frustration tolerance.

Barron's ego strength definitions are abstract in nature and, therefore, not directly testable. Barron described ego strength by correlation of Es scores with other psychological measures and by listing personality attributes of high Es scorers. In this study Es is being related to frustration tolerance as defined by its behavioral aspect, persistence under stress. Since psychotherapy is a stress experience and persistence or continuation has outcome and Es correlates, persistence under stress was used as an experimental analogue. The persistence measures are assumed to have validity, at least face validity. Their relationship to Es scores is hypothesized: Ss with greater Es scale scores will have higher persistence scores.

Method

Tasks. Measures were taken from three levels of behavior: the overt, the conscious, and the preconscious or fantasy level. To measure conscious persistence, a questionnaire of ten items was devised, tested in three preliminary trials, and revised. Each item was a common situation within the subject's experience in which a desired goal was defined, an obstacle presented, and the subject asked how he would react to it. The obstacles were not insurmountable; subjects with sufficient adaptability and tolerance for such frustrations would be expected to find solutions. If he indicated that he would continue his efforts to achieve the goal by trying to overcome the obstacle, he was said to demonstrate persistence. If not, he was said to demonstrate a lack of persistence. Each P (Persistence) response scored 10 points; all other responses scored zero points.

Persistence criteria were listed and the goal and obstacle for each item specified. Each questionnaire was scored both by E and an independent scorer, with 94 per cent scorer agreement.²

For a fantasy (preconscious) measure, each subject was shown Plant #1 of the TAT series and asked to write five brief stories explaining what was happening in the picture and what had happened in the past to lead up to the current situation. Any story with a goal situation could demonstrate persistence. Each of the five TAT stories written by the subject received one of three possible scores: "P" for persistence, rating 20 points; "NP" for non-persistence, 0 points; or "O" for neither "P" nor "NP", also 0 points, each story was scored both by E and an independent scorer, with 95 per cent scorer agreement.

On the overt behavioral level, persistence was operationally defined and measured in terms of the length of time S worked on a difficult task before giving up. A modification of the Stencil Design Test from the Grace Arthur Point Scale of performance was used. Five of the total 20 designs were used: #3, #9, #12, #19, and #20. The length of time spent on each design was recorded and an account of behavior while working was taken down, e.g., verbalisms, fidgeting, etc., in order to indicate the type and number of interfering responses manifested.

Design #20 was the main stress situation. One of the stencils necessary for its successful completion had been removed from the set, making the design unsolvable. The length of time that the subject persisted in his efforts to construct the design constituted the measure of persistence. Interfering responses were those actions of S's which temporarily interfered with efforts to correctly replicate the design, e.g., pausing to talk or to question E, to gaze around the room, etc. The total number of interfering responses made on Design #20 was divided into the length of time spent on this design, to provide a "minutes per interfering response" score. Each subject experienced initial success on at least three design problems. Each subject was highly motivated by the examiner, and believed Design #20 to be solvable.

The experimental hypothesis was that subjects with greater ego strength, as measured by Barron's Es scale, should produce higher persistence scores on the questionnaire and TAT measures, persist longer at the Stencil Design task, and demonstrate fewer interfering responses. It is recognized that there is only presumptive evidence for considering these measures of frustration tolerance to be measures of one component of ego strength.

Subjects. Twenty subjects, drawn from a total of 162 West Virginia University students enrolled in beginning psychology courses, were selected on the basis of their Es scores from previously administered MMPIs. The high Es group consisted of five males and five females whose Es scores ranged from 50 to 57, with a mean of 53. The low Es group of five males and five females had Es scores ranging from 31 to 40 with a mean of 37. These two mean scores, compared by a t-test, differed significantly at well beyond the .01 level for a two-tailed test.

Procedure. Subjects were tested individually in random order. The questionnaire and TAT cards were administered, with examiner absent. The stencil design was administered by E following directions that imaginative abilities had just been sampled and that the next test involved color discrimination and design synthesis.

A few Ss had difficulty with design #19; four gave up on it. When this occurred, E demonstrated the correct construction, and S proceeded to work on #20. After six minutes, the examiner conspicuously opened a folder containing false norms. After consulting this folder, she assured S that #20 was the most difficult on the series, and that it was usually successfully completed by most high school juniors. Ss usually tried varied approaches to design construction. When the S admitted inability to construct design #20, the time was noted, and S was told that the solution to design #20 could not be revealed until all data had been collected. Each S was subsequently sent a letter explaining the actual purpose of the study and describing his relative "persistence level" as average, above, or below average.

Results

For the questionnaire measure, mean persistence scores for high and low Es groups were 61 and 65, respectively. Table 1 presents a breakdown into four groups, differentiated by sex as well as by Es score. A simple analysis of variance on these four group means resulted in insignificance, as did a t-test comparing the two main group means.

Table 1

Persistence Scores for Questionnaire Measure

High Es Males	High Es Females	Low Es Males	Low Es Females	
60	50	50	50	F=.14335
90	70	60	60	df= 3, 16
40	80	90	70	
60	40	60	60	Not sig.
60	60	70	80	
<u>310</u> M=62	<u>300</u> M=60	<u>330</u> M=66	<u>320</u> M=64	

For the TAT measure, the mean persistence score for both the high and low Es groups was 40. A breakdown of the two groups in terms of sex as well as Es scores resulted in a more marked difference between groups means (Table 2). An analysis of variance indicated that these sex differences lacked significance. A t-test comparing the mean scores for males (50) and for females (30) resulted in a t significant at less than the 10% level but at more than the 5% level.

Table 2
Persistence Scores for TAT Measure

<u>High Es Males</u>	<u>High Es Females</u>	<u>Low Es Males</u>	<u>Low Es Females</u>	
20	0	60	20	F=.5925
80	80	100	40	df= 3,16
0	20	60	60	
80	40	20	0	Not sig.
80	0	0	40	
<u>260</u> M=52	<u>140</u> M=28	<u>240</u> M=48	<u>160</u> M=32	

During the stencil design task, the high Es group worked an average of 29 minutes on design #20 before giving up on it, the low Es group, an average of 33 minutes. Both the T-test on these two means and the analysis of variance on the four smaller group means (Table 3) were insignificant.

Table 3
Stencil Design Measure (minutes spent on design #20)

<u>High Es Males</u>	<u>High Es Females</u>	<u>Low Es Males</u>	<u>Low Es Females</u>	
55	22	92	71	F=.2794
58	45	9	37	df= 3, 16
16	24	39	26	
13	9	21	13	Not sig.
33	14	14	11	
<u>175</u> M=35	<u>114</u> M=23	<u>175</u> M=32	<u>158</u> M=32	

Finally, for each subject the average number of minutes spent working on design #20 per interfering response was tallied, i.e., the average length of time that passed before S demonstrated an interfering response. The high Es group worked an average of 5 minutes per interfering response, the low Es group, 4 minutes. Breakdowns into four groups (Table 4) again found these group differences to lack significance.

Table 4

Stencil Design Measure (minutes per interfering response)

<u>High Es Males</u>	<u>High Es Females</u>	<u>Low Es Males</u>	<u>Low Es Females</u>	
14	2	5	5	F=.777
6	9	2	3	df= 3, 16
3	5	2	5	
3	3	2	3	Not sig.
4	5	4	14	
<u>30</u> M=6	<u>24</u> M=5	<u>15</u> M=3	<u>30</u> M=6	

Intra-group rank order correlation coefficients were figures for both the low and the high Es groups (Table 5). Significant correlations ($p < .05$) were found between the questionnaire and low Es scores, and between stencil design and low Es scores. For the high Es group, high positive correlations were found between questionnaire and stencil design scores, questionnaire and interfering response scores, and stencil design and interfering response scores.

Table 5

Intra-Group Rank Order Correlation Coefficients

Low Es Group				
	<u>TAT</u>	<u>S.D.</u>	<u>I.R.</u>	<u>Es</u>
Questionnaire	.15	-.32	.00	.65*
TAT measure		.12	-.05	-.31
Stencil Design			.20	-.66*
Interfering R. Es Score				.09
High Es Group				
	<u>TAT</u>	<u>S.D.</u>	<u>I.R.</u>	<u>Es</u>
Questionnaire	.54	.68*	.71*	.02
TAT measure		.49	.28	.08
Stencil Design			.73*	.49
Interfering R. Es score				.15

* $p < .05$

Discussion

Since none of the results approached significance, the hypothesized relationship between persistent behavior, regardless of level of expression, and Ego-Strength scores was not supported. It has been assumed that behavioral persistence might adequately serve as an operational manifestation of frustration tolerance; however when persistence was related to Es scores, no correlation was found. Measures of persistence per se probably cannot suffice as estimates of frustration tolerance. An adequate measure of the latter must sample other component factors as well. The initial task for future investigators would be to first specify these components.

Males had higher scores, in general, than females. The discrepancy was greatest on the fantasy level measure. A sex difference in the discrepancy between levels of fantasy and reality may be conjectured. Replication with a larger N might clarify these suggested sex differences in persistence.

It is possible that a sex difference in Es scores themselves may exist. In the initial stages of this study, when the population of the 162 MMPI's was first surveyed, it was noted that the mean Es score for males was 48, for females, 44. Ranges were from 35 to 57 and from 31 to 53 respectively; modes, 47 and 41. Getter and Sundland (1962) have since reported that males generally show higher Es scores than do females. According to our experimental hypothesis, males should demonstrate higher persistence scores. A brief check of tables 1-4 will verify that in all three persistence measures, males, on the average, did earn the higher scores regardless of Es scores.

Since the sex variable seems to have effected some influence in this study, the sex of E cannot be overlooked as a factor possibly influencing performance. That E was female may explain the relatively poorer performances of low Es males on the interfering response measure (Table 4). A simple explanation is that high Es males were able to concentrate fairly well on their task, despite the presence of a female E, while low Es males succumbed to whatever added distractions or pressures to female E might induce.

While the obtained intra-correlations are interesting, the small sample size is cautionary. Five of 20 correlations are significant; there is no overlap between high and low Es groups in demonstrated relationships among measures. For the low Es group, Es scores and questionnaires scores are similar measures of paper-and-pencil behavior; Es scores and stencil design performance are distinctly unrelated. For the high Es group, questionnaire persistence is related to other levels, stencil design and interfering responses; stencil design performance and interfering response time are related. This evidence supports the argument that the Es score is a measure of a sample of related behaviors of which persistence is merely one possible component. Es is differentially related to other hypothetically component behaviors as a function of its strength.

It is questionable whether the persistence measures utilized in this study adequately sampled frustration tolerance. Future studies on the relationship of frustration tolerance to Es scores should probably more adequately and comprehensively define the concept in operational terms. If, however, the format of this study were to be repeated the following suggestions might be made for improvement of design: (a) a much larger N would be needed. If as many as 80 to 100 subjects could be found, a correlational study might prove more effective in demonstrating the relationship between experimental measures, (b) a better measure from the conscious level of behavior might be devised. Although the questionnaire used in this study was felt to be adequate, the arbitrary nature of its design and scoring cannot be denied. The fact that it did not discriminate as clearly between experimental groups as did the other measures also throws some doubt on its validity. (c) a better method of recording behavior and computing an "interfering response" score could be arranged by the use of films or by having an observer independently record behavior for subsequent comparisons.

Summary

The construct status of Barron's Es scale was investigated. One of three components of an ego strength definition, personal resourcefulness and adaptability, was examined in terms of frustration tolerance. Measures of conscious, behavior, and fantasy levels were compared with high and low Es scores for males and females (N=20). The hypothesis that ego strength and frustration tolerance were positively related was not supported by simple analyses of variance. Sex differences in fantasy approached significance. Intercorrelations among measures for high and low Es groups were computed. Measures of persistence alone may not be adequate samples of this component of the ego strength definition.

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