AN EXAMINATION OF THE RELIABILITY AND VALIDITY OF THE BRESKIN RIGIDITY SCALE

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Summary.—The present study examined the reliability and validity of the 15-item Breskin Rigidity Scale. Two samples of UK adults \( (n=216; n=277) \) completed the rigidity scale alongside the Wilson-Patterson Attitude Inventory and the trait measure of the Sandler-Hazari Obsessionality Inventory. Satisfactory reliability coefficients were obtained for the rigidity scale in both samples. A principal components analysis of the 15-item rigidity scale showed that 13 items loaded on the first component and 2 on a second component. These items were removed and the reliability and validity estimates were recalculated. Comparisons were drawn between the original and amended versions. The amended 13-item scale shows an improved reliability and higher association with other measures of rigidity and rigid character.

The Breskin Rigidity Scale (2) measure rigidity based on the Laws of Pragnanz. The 15-item test was originally developed within the context of a proposition that ethnocentrism was significantly correlated with a reluctance to break the Gestalt (6). The test is quick to administer and was developed among USA students. Each item is scored by respondents endorsing a preference for one of two shapes. One of the shapes is thought to represent a 'good Gestalt,' whilst the other seeks to break the Gestalt. Respondents displaying a preference for the former shapes are thought to be more rigid. Item content includes an equilateral triangle (good Gestalt) versus an isosceles triangle (broken Gestalt; Item 7) and a full circle (good Gestalt) versus an incomplete circle (broken Gestalt; Item 6).

The test has been described as one of the more ingenious pen-and-paper tests (14) and is still being used to examine psychological theories of perceptual reversal and cognitive style (1, 5, 13). However, at present, there is little available evidence on the psychometric properties of the Breskin Rigidity Scale. Breskin (2) reported a Kuder-Richardson (Formula 20) reliability coefficient of .98 for the scale. Further, no report of the use of the scale has been made outside a USA sample. The aim of this study was to provide some data on the reliability and validity of the Breskin measure of rigidity in the UK.

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Method

Two samples from the UK were tested. First, 216 English adults (99 women, 93 men, 24 persons did not state their sex) aged between 16 and 74 years (M=43 years). Second, 277 Northern Irish adults (187 women, 90 men) aged between 18 and 56 years (M=39 years).

Among a number of other questionnaires respondents were asked to complete were the Breskin Rigidity Test (2), the Wilson-Patterson Attitude Inventory (15), and the obsessional personality trait measure taken from the Sandler-Hazari Obsessionality Inventory (12). The Wilson-Patterson Attitude Inventory measures conservative attitude by way of four subscales, Religious-Puritanism, Anto-Hedonism, Militarism-Punitiveness, and Ethnocentrism. Obsessional personality traits are typified by orderliness, rigidity, and self-control (7).

Results

A Kuder-Richardson (Formula 20) reliability coefficient was computed for the scale in both samples (England, .83; Northern Ireland, .84). To examine further the component structure of the rigidity measure, the items were subjected to a principal components analysis (8) with oblimin rotation of resulting components (9). The number of components was determined by a scree test (3). The first component to emerge for the scale accounted for 34.4% of the variance in the English sample and 32.9% in the Northern Irish sample. Accepting loadings above 0.3 as salient (10), 13 of the 15 items had loadings of between .38 and .76 on this component among both samples.

However, a second component (English sample, 13.3% of the variance; Northern Irish, 15.3% of the variance) emerged that comprised the two remaining items. The first of these items was Item 4 which asks respondents to express a preference between two mathematical equations, '2 + 2=4' versus '1 + 3=4.' The second was Item 14 which consists of a choice between the letter 'H' and the letter 'S.' The correlations between the first and second components were low (England, r = -.17; Northern Ireland, r = -.13). Removal of these two items increased the Kuder-Richardson (Formula 20) reliability coefficient of the scale in both samples (England, .87; Northern Ireland, .86). A Pearson product-moment correlation of .86 was found between the 15-item and the 13-item measures for the English sample. In the Northern Ireland sample the correlation between the two measures was .87.

The construct validity of both the 15-item and 13-item scales was explored. Ethnocentrism was significantly correlated with the 15-item scale (England, r = .19, p < .01; Northern Ireland, r = .21, p < .01); however, a higher association was found between the Ethnocentrism measure and the 13-item scale (England, r = .22, p < .01; Northern Ireland, r = .25, p < .01). Fur-
Further, there was little association of scores on the 13-item scale with those on the other measures of conservatism, Religious-Puritanism (England, $r = .06$, $p > .05$; Northern Ireland, $r = .04$, $p > .05$), Anti-hedonism (England, $r = .01$, $p > .05$; Northern Ireland, $r = .03$, $p > .05$), and Militarism-Punitiveness (England, $r = -.06$, $p > .05$; Northern Ireland, $r = .03$, $p > .05$).

In addition, there was a significant correlation between scores on the 15-item nonverbal rigidity scale and the obsessional personality traits measure (England, $r = .19$, $p < .01$; Northern Ireland, $r = .18$, $p < .01$) but values were larger for the 13-item measure (England, $r = .25$, $p < .01$; Northern Ireland, $r = .23$, $p < .01$).

**DISCUSSION**

Examination of the internal structure of the Breskin Rigidity Scale suggests that two items should be removed (Items 4 and 14). Explanations of why these items do not correlate highly with other items in the scale may be as a consequence of cultural or educational differences between Breskin's original sample of USA university students and the present respondents, UK adults. Therefore, removal of these items from the administration of this scale seems to be prudent when used among UK samples. This amendment to the scale increases the internal inconsistency of the 13-item compared to the 15-item version, despite more items usually contributing to a higher reliability coefficient (11).

Further, the 13-item version of the scale shows a larger association with measures of rigid personality types. Greater support is also found for the prediction that ethnocentrism will be associated with a reluctance to break the Gestalt (6) when the 13-item scale is used. This prediction is also supported by the lack of a significant association between scores on the other measures of conservatism and the 13-item measure of rigidity. This finding suggests that the relationship between the measure of rigidity and ethnocentrism may be separate from a wider construct such as a right-wing personality type.

There is, however, an inconsistency with Breskin's original data. The reliability coefficients reported among UK adults (.86 and .87) are lower than those reported for USA students (.98). Among the present data, the reliability coefficient may be more satisfactory as some authors have suggested that unusually high reliability coefficients may be antonymous to the test (4). Notwithstanding, the improved reliability and concurrent validity are demonstrated for the Breskin measure of rigidity when 13 of its 15 items are used. Therefore, the present findings suggest the use of 13 of the 15 items of the Breskin Rigidity Scale among UK adults.

**REFERENCES**


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