

Tough-Mindedness and the Concerns of Year Twelve Students

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## ABSTRACT

This paper reports data on the relationship between tough-mindedness and the concerns of 752 Year 12 students. As the P scale of the EPQ was used to gain a measure of tough-mindedness, it was necessary to briefly report data regarding the psychometric properties of this scale. As levels of tough-mindedness increased there was considerable evidence of a lack of concern regarding issues considered important for Year 12 students e.g., pollution. Using the extremes of tough-mindedness it was found that subjects high on this attribute were less concerned with such issues as lack of resources, pollution, future employment, and Christian values.

## INTRODUCTION

The Eysenck Personality Questionnaire (Eysenck and Eysenck, 1975) and Psychoticism as a Dimension of Personality (Eysenck and Eysenck, 1976) provide a great deal of information regarding both the developmental process and psychometric properties of the psychoticism or "tough-mindedness" scale. Although there has been criticism of the psychoticism scale (P) (Bishop, 1977 and Block, 1977) it has been used extensively by researchers.

The current study was conducted with a sample (n = 752) of Year 12 students and had as the major objective an exploration of the possible relationships between perceived concerns and the incidence of tough-mindedness. The decision to use the P scale of the EPQ (Eysenck and Eysenck, 1975) as a measure of tough-mindedness arose from the depiction of what a 'typical' high P scorer was like. Such persons were viewed as "cold, unemotional, unhelpful, antisocial, lacking in human feelings, inhumane, generally bloody-minded, lacking in insight, strange, with paranoid ideas that people were against him" (Eysenck and Eysenck, 1976, p. 47). Given this depiction, it is worth speculating on the incidence of such students in Year 12, and their consequent attitudes and behaviour.

Although the EPQ has been used in various research studies we could find no psychometric information regarding the operation of the P scale in Australian settings. The following is a brief summary of such properties.

## PROPERTIES OF THE P SCALE

*Estimates of reliability and item-total correlations*

Estimates of reliability (alphas) were .73 for males (n = 206) and .71 for females (n = 547). Such figures would be considered satisfactory and are very similar to those reported in the EPQ manual (Eysenck and Eysenck, 1975).

Guilford (1973) has suggested that item-total correlations in the range of .20 to .80 are the most acceptable. However, two items of the P scale fell below this suggested lower limit (.20). Given that these two items had item-total correlations of .16 and .18 there appears to be little that should cause concern.

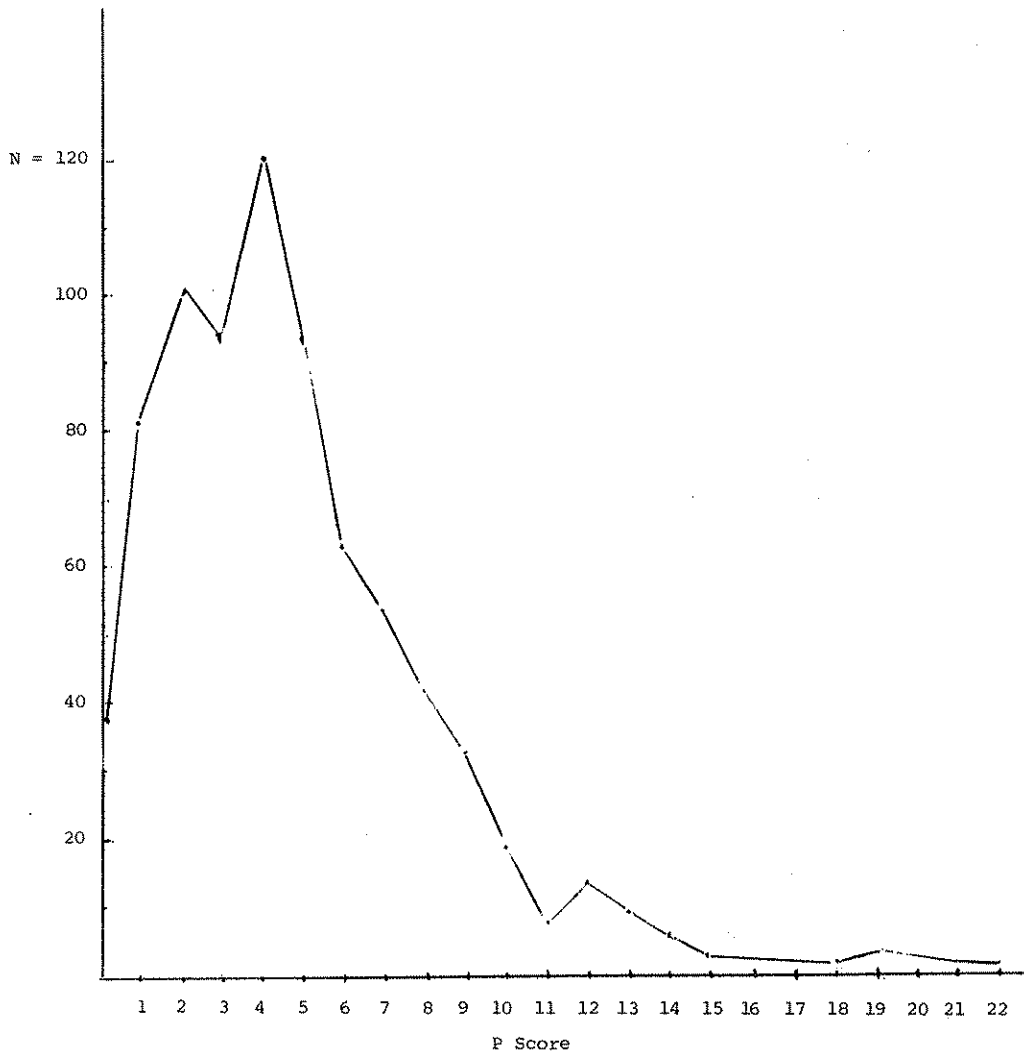
*Response ceilings*

The P scale has a dichotomous rating choice and the term response ceiling is used to indicate the percentage of total respondents utilizing each rating category. A total of 16 items in the 25 item P scale had more than 80 per cent of respondents scoring in the one direction. In the current study the large number of P scale items with a relatively low capacity to discriminate among respondents is of some concern.

*Distribution of scores*

As indicated in Figure 1, the distribution of P scores was highly skewed. This non-normal distribution has been reported elsewhere (Bishop, 1977; Block, 1977) and clearly could create problems with respect to various data analysis models.

FIGURE 1



DISTRIBUTION OF P SCORES FROM AUSTRALIAN SAMPLE (N = 752)

#### *Scale structure*

A linear factor analysis of the EPQ resulted in a very clear structure, in fact, similar to that suggested by the Eysencks. Perhaps the real question is whether it is appropriate to use linear factor analysis when the distribution of P scores is skewed and many item response ceilings indicate a lack of discriminating power.

Although the above summary of P scale properties indicate potential problems, the current study has been continued on the assumption that the P scale does provide a reasonable measure of tough-mindedness.

The establishing of psychometric properties for a particular scale does provide valuable information regarding validity and reliability. However, it is equally important to assess in a practical manner whether the scale does what it purports to do. As mentioned earlier a major thrust of this paper was to explore the possible relationship between tough-mindedness and the concerns of Year 12 students. It seemed likely that students high on tough-mindedness would hold attitudes (concerns) that were somewhat different to those low on tough-mindedness.

## METHOD

A review of literature relating to adolescents in senior years of secondary education indicated that their major concerns included such things as interpersonal relationships, future employment prospects, unequal distribution of resources in the world, pollution problems, erosion of moral and Christian values, lack of specific resources, nuclear weapons and entry to a tertiary institution. An instrument was designed whereby respondents were asked to indicate their degree of concern regarding each of the above eight issues.

The measure of concerns and the Eysenck Personality Questionnaire (EPQ) (Eysenck and Eysenck, 1975) were completed by 752 Year 12 secondary school students.

Pearson product moment correlations were used to explore the relationship between tough-mindedness and the concerns of Year 12 students. Given that this study also intended to examine the comparative concerns of persons assessed as being high or low on psychotic tendencies or tough-mindedness it was necessary to define a procedure for identifying such persons. An examination of the distribution of total P scores indicated that 37 Year 12 students scored zero on the P scale. It was decided to, as far as possible, match the zero P scorers with a group of high P scorers. By taking those students who scored between 12 and 25 on the P scale it was possible to identify a sample of high P scorers. It should be noted that this sample varied between 19 and 35, reflecting a fairly high incidence of incomplete responses to various concern items. A series of t-tests were used to compare the mean concern scores for the groups considered as high and low on tough-mindedness.

## RESULTS

The correlations between tough-mindedness and the degree of concern expressed regarding specific issues are reported in Table 1. It should be noted that the variations in sample size evident in Table 1 reflect missing data.

TABLE 1

Correlation Between Tough-mindedness and Various Concerns of Year Twelve Students

Concerns		r	p
Unequal Resources	(n = 720)	-.06	.06
Interpersonal Relationships	(n = 741)	-.06	.06
Pollution	(n = 742)	-.18	.00*
Christian Values	(n = 672)	-.18	.00*
Employment	(n = 748)	-.14	.00*
Lack of Resources	(n = 742)	-.15	.00*
Tertiary Institution	(n = 708)	-.06	.06
Nuclear Weapons	(n = 713)	-.13	.00*

\* $p < .01$

Significant negative correlations ( $p < .01$ ) are reported between tough-mindedness and the degree of concern expressed regarding pollution, Christian values, employment, lack of resources and nuclear weapons. Negative, but non-significant, correlations are reported between tough-mindedness and unequal resources, interpersonal relationships and entry to a tertiary institution.

An examination of Table 2 indicates significant differences ( $p < .05$ ) between the mean concern scores of extreme P scorers for pollution, Christian values, employment, lack of resources and unequal distribution of resources. No significant differences were evident with respect to interpersonal relationships ( $p = .277$ ), entry to a tertiary institution ( $p = .056$ ) and nuclear weapons ( $p = .192$ ).

With respect to each of the eight concerns the low P scorers had the highest mean score.

TABLE 2  
 T Test Results on Mean Concern Scores of High  
 And Low on Tough-Mindedness Subjects

Concern	Tough-Mindedness	$\bar{x}$	t	d.f.	p
Unequal Resources	Low (n = 37)	3.37			
	High(n = 29)	3.24	1.99	64	.050
Interpersonal Relations	Low (n = 37)	3.86			
	High(n = 35)	3.63	1.10	70	.277
Pollution	Low (n = 37)	4.35			
	High(n = 32)	3.44	4.28	67	.000
Christian Values	Low (n = 36)	3.33			
	High(n = 19)	2.37	3.19	53	.002
Employment	Low (n = 37)	4.59			
	High(n = 36)	4.03	2.31	71	.024
Lack of Resources	Low (n = 37)	4.14			
	High(n = 33)	3.45	2.68	68	.009
Tertiary Institution	Low (n = 37)	4.03			
	High(n = 33)	3.45	1.94	68	.056
Nuclear Weapons	Low (n = 37)	4.16			
	High(n = 31)	3.77	1.32	66	.192

#### DISCUSSION

Eysenck and Eysenck (1975) depicted "the high" or "extreme" P scorer with such terms as insensitive, inhumane, glacial, hostile, aggressive and antisocial (p. 11). If this depiction is correct it would seem reasonable to anticipate negative relationships between high levels of tough-mindedness and the frequently expressed concerns of adolescents enrolled in Year 12. Similarly, it would be anticipated that tough-mindedness students would hold attitudes (concerns) quite dissimilar to those lacking such psychotic or tough-mindedness tendencies.

Based on the sample used in this study, evidence was provided that suggest high levels of tough-mindedness are associated with a lack of expressed concern for the eight issues identified in this study, but especially for pollution, Christian values, future employment, lack of resources and nuclear weapons. Although tough-mindedness was significantly correlated with the above mentioned issues, it should be kept in mind that the significant negative correlations range from  $-.13$  to  $-.18$  and account for 1.69 to 3.24 percent of the variances.

This study found that tough-minded Year 12 students had lower mean scores with regard to their concern for unequal distribution of resources, interpersonal relationships, pollution, Christian values, employment prospects, lack of specific resources, entry to a tertiary institution and nuclear weapons than did students classified as low on tough-mindedness. However, the extent of difference in the degree of concern between tough-minded and more tender-minded students did not reach statistical significance with respect to entry to a tertiary institution, nuclear weapons and interpersonal relationships. Although the general data trends are supportive of the Eysenckian position it is difficult to explain why a more substantial difference was not evident with respect to concern for interpersonal relationships.

It should be pointed out that the sample involved in this study was a somewhat select group. These students had shown the persistence or intelligence to reach the last year of secondary school, and as such, form a distinctive element in the Australian population. Consequently, it is impossible to generalize from the findings of this study to the total population. It should also be recalled that the second stage of the study was carried out despite potential difficulties concerning the psychometric properties of the P scale. Additional data sets are required to more fully explore both the validity and reliability of the P scale.

## REFERENCES

- BISHOP, D.V.M. (1977). The P scale and psychosis. *Journal of Abnormal Psychology*, 86, 127-134.
- BLOCK, J. (1977). P scale and psychosis: Continued concerns. *Journal of Abnormal Psychology*, 86, 431-434.
- EYSENCK, H.J. & EYSENCK, S.B.G. (1975). Manual to the Eysenck Personality Questionnaire. London: Hodder and Stoughton.
- EYSENCK, H.J. & S.B.G. (1976) Psychoticism as a dimension of personality. Hodder and Stoughton.