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BRIEF COMMUNICATION

The relationship between suggestibility and anxiety among suspects detained at police stations

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SYNOPSIS   The present study investigated the relationship between anxiety, as measured by the State–Trait Inventory (Spielberger, 1983) and interrogative suggestibility, as measured by the Gudjonsson Suggestibility Scale (GSS 2, Gudjonsson, 1987). One hundred and sixty-one suspects detained at two English police stations for questioning were assessed prior to being interviewed by the police. Unexpectedly, trait anxiety correlated more consistently with suggestibility than did state anxiety. The correlations were consistently higher among the Caucasian than the Afro-Caribbean subjects and the Afro-Caribbean subjects were significantly more suggestible than the Caucasian subjects even after their GSS 2 memory and IQ scores had been controlled for. The main practical implications of the findings are that interrogative suggestibility cannot be easily evaluated from the person's self-reported anxiety and the situation in which people are assessed may influence the relationship between these psychological variables.

INTRODUCTION

'Interrogative suggestibility' is one of the psychological factors that is relevant to investigative interviewing (Gudjonsson & Clark, 1986). It comprises two distinct types, which are referred to as 'Yield' and 'Shift', respectively (Gudjonsson, 1983). Yield describes the extent to which subjects give in to leading (or misleading) questions, whereas Shift refers to the tendency of subjects to alter their answers when pressured to do so by the interrogator. The two types of suggestibility are objectively measured by the Gudjonsson Suggestibility Scale (GSS 1, Gudjonsson, 1984) and its parallel form (GSS 2, Gudjonsson, 1987). The two scales, which are highly correlated, are identical except for the content of the narrative passage and interrogation questions (Gudjonsson, 1987).

Gudjonsson (1992) reviews the relationship between suggestibility, as measured by the Gudjonsson Suggestibility Scales, and anxiety.

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Trait anxiety, as measured by the Eysenck Personality Questionnaire, has been found to correlate with suggestibility (Gudjonsson, 1983). In another study, Gudjonsson (1988) found that state anxiety, as measured by the Spielberger State Anxiety Inventory, correlated significantly with Yield and Shift scores on the GSS 1. The correlations were consistently higher with regard to Shift than Yield. Gudjonsson concluded that this indicated that Shift is more associated with anxiety and coping processes than Yield.

The purpose of this paper is to report a study conducted at two English police stations, where both suggestibility and anxiety had been measured as a part of a larger study carried out for the Royal Commission on Criminal Justice (Gudjonsson *et al.* 1993). It was hypothesized that there would be a positive correlation between suggestibility and trait and state anxiety.

METHOD

Subjects

The sample consisted of 161 subjects who were detained at two police stations in the south of England (Peckham and Orpington) for inter-

viewing in connection with suspected criminal offences (see Gudjonsson *et al.* 1993, for a detailed description of the sample). Of the sample, 120 were Caucasian and 40 Afro-Caribbean subjects, with a mean age of 28·0 (S.D. = 10·4) and 28·2 (S.D. = 10·5), respectively. One further subject was from the Indian sub-continent. The great majority (83%) of the sample were male.

Instruments and procedure

The subjects completed the Gudjonsson Suggestibility Scale (GSS 2, Gudjonsson, 1987), the Spielberger State–Trait Anxiety Inventory (STAI, Spielberger, 1983), three subtests of the WAIS-R (Vocabulary, Comprehension and Picture Completion), as well as other psychological tests (see Gudjonsson *et al.* 1993, for a detailed review of all the instruments).

The GSS 2 consists of a narrative paragraph, which is read out to the subjects, who then have to report all they can recall. This gives Immediate Recall (IR). Delayed Recall (DR) is typically obtained after an interval of about 50 min. The subjects are then asked 20 specific questions about the story, 15 of which are misleading. The extent to which the subjects give in to the (mis)leading questions is scored as Yield, whereas the number of times the subjects alter their answers to all 20 questions after being presented with negative feedback, is scored as Shift. Yield and Shift are generally added together to give Total Suggestibility. The validity of the scale is described in detail in Gudjonsson (1992).

The STAI consists of two individual 20-item, self-report, rating scales for measuring State and Trait anxiety, respectively. State anxiety refers to a transitory feeling of tension or apprehension and it is measured by the subjects describing the intensity of their feelings of distress and discomfort at a particular moment in time. Trait anxiety, on the other hand, refers to relatively stable individual differences in anxiety proneness and is thought to be relatively independent of situational stress. It was anticipated that being detained at a police station would be highly stressful for many suspects and their state anxiety score should, therefore, exceed their trait anxiety score.

The STAI and the three WAIS-R subtests were administered between the Immediate and Delayed Recall of the GSS 2. The anxiety inventories were carefully explained to the subjects and those subjects who could not read had the inventories read out to them.

RESULTS

Table 1 gives the mean and standard deviation scores for the Caucasian and Afro-Caribbean subjects. The mean scores of the two groups were analysed separately as *t* tests for independent samples and they indicated significant ethnic differences on some of the measures.

No significant differences between the groups were found with respect to prorated Full Scale IQ and state anxiety. However, the Caucasian subjects had significantly higher trait anxiety and GSS 2 memory scores and lower suggestibility scores than the Afro-Caribbean subjects. Analyses of covariance were performed on the suggestibility scores, with IQ and delayed recall (DR) controlled for (DR was used rather than IR as a covariate because it is closest in time to the interrogation on the GSS). In spite of this, highly significant ethnic differences emerged with regard to Yield 1 and Total Suggestibility.

For the total sample, the State anxiety score was significantly higher than the Trait anxiety score ($t = 9·1$, $P < 0·001$), as predicted.

Table 1. *The mean and standard deviation scores on the WAIS-R, STAI, and GSS 2 for the Caucasian and Afro-Caribbean subjects*

Test	Caucasian			Afro-Caribbean			
	N	Mean	S.D.	*N*	Mean	S.D.	*t*
WAIS-R							
FSIQ	116	83·0	12·4	40	81·0	12·1	0·9
STAI							
State	116	54·0	13·5	40	51·2	13·5	1·1
Trait	116	44·1	12·6	40	39·2	10·2	2·4*
GSS 2							
IR	120	12·5	6·6	40	9·3	5·7	2·7**
DR	118	11·4	6·5	40	8·4	5·6	2·6**
Yield 1	118	5·2	3·4	40	7·4	4·1	−3·3***
Yield 2	115	6·4	4·1	39	8·5	4·7	−2·6**
Shift	115	4·0	3·2	39	5·4	3·5	−2·3*
TSS	115	9·1	5·6	39	12·8	6·2	−3·5***

* $P < 0·05$; ** $P < 0·01$; *** $P < 0·001$ (all two-tailed tests).
Analysis of covariance with IQ and DR controlled for
  Yield 1: $F = 6·7$ (df = 1, 155), $P = 0·010$.
  Yield 2: $F = 3·3$ (df = 1, 151), $P = 0·071$.
  Shift: $F = 3·1$ (df = 1, 151), $P = 0·082$.
  TSS: $F = 7·6$ (df = 1, 151), $P = 0·007$.

Table 2. *The correlations between STAI and GSS scores*

GSS 2	Entire sample (N = 156)		Caucasian (N = 116)		Afro-Caribbean (N = 40)	
	State	Trait	State	Trait	State	Trait
IR	−0·03	−0·09	−0·03	−0·14	−0·08	−0·05
DR	−0·07	−0·10	−0·05	−0·15	−0·15	−0·04
Yield	0·10	−0·18**	0·24**	0·28***	−0·01	0·18
Shift	0·08	0·16*	0·16	0·20*	0·05	0·29*
Total	0·11	0·22**	0·24**	0·30***	0·02	0·32*

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$ (all one-tailed tests).

The correlations between the State and Trait inventory scores were as follows: (1) entire sample (N = 156), $r = 0.33$, $P < 0.01$; (2) Caucasian subjects (N = 116), $r = 0.38$, $P < 0.01$; (3) Afro-Caribbean subjects (N = 40), $r = 0.13$, N.S.; and (4) women (N = 25), $r = 0.25$, N.S. Table 2 gives the correlations between the GSS 2 and STAI scores for the entire sample and then separately for the Caucasian and Afro-Caribbean subjects. Neither Immediate nor Delayed Recall had any significant relationship with the STAI scores. Trait anxiety had low but significant correlations with the suggestibility scores, whereas with the exception of the Caucasian group, state anxiety did not.

DISCUSSION

The present findings support the hypothesis that trait anxiety correlates with suggestibility. However, no significant correlation was found between state anxiety and the suggestibility scores, except in the Caucasian sample where the correlations were very modest ($r = 0.16$ to 0.24). This is surprising in view of the findings of Gudjonsson (1988), where the correlations were consistently moderately high. Since being detained for questioning is often highly stressful, one would have expected this to have increased the correlation between suggestibility and state anxiety. Why this did not happen requires further research, but there could be a number of explanations for this surprising finding.

First, the average IQ of the sample was only 82, with one-third of the sample having a prorated Full Scale IQ of 75 or below on the WAIS-R (see Gudjonsson *et al*. 1993). Therefore, some of the subjects may not have fully understood all the STAI items, which could

have affected the validity of the overall results. As a result, one may need to question the validity of the STAI as a reliable and valid measure of state anxiety among low IQ groups. However, excluding all subjects with an IQ of 75 or below from the analysis did not improve the correlations between the suggestibility and anxiety scores. This seems to exclude the likelihood that the lack of correlation between the tests was primarily due to the low IQ of many of the subjects in the present study.

Secondly, even though the mean state scores were significantly higher than the mean trait scores, it is noteworthy that 25 subjects (16%) reported a markedly higher (i.e. a discrepancy of 5 or more) trait than state anxiety score. One reason for this appeared to be due to the considerable relief that some subjects experienced after speaking to one of the researchers. Several subjects commented that seeing the researcher took their mind away from their predicament and made them more relaxed. The interview with the researcher may, therefore, have functioned as a temporary distraction for these subjects, which could have confounded the relationship between the suggestibility and anxiety scores. However, when all STAI scores where trait anxiety exceeded state anxiety were excluded from the analysis, the correlations with suggestibility still remained very low. This indicates that the temporarily low state anxiety score was not responsible for the reduced correlation with suggestibility.

Thirdly, it is evident from the present findings that there were ethnic differences in relation to the correlations between the anxiety and suggestibility scores. That is, the correlations were generally higher for the Caucasian than the Afro-Caribbean subjects. The reasons for this

are not clear, especially since the measure used, the STAI, has been shown to be valid for different ethnic subpopulations (Novy *et al.* 1993). What the findings indicate is that possible ethnic differences should be further investigated in studies of this type.

Fourthly, the most likely explanations for the present findings relate to the inherently complex nature of anxiety and suggestibility. Even though suggestibility is undoubtedly mediated partly by anxiety (Gudjonsson, 1992), anxiety may affect suggestibility in different ways, depending on the context and the individual circumstances of the case. It is unlikely that anxiety, even when severe, inevitably results in heightened suggestibility. Similarly, suggestibility is mediated by a number of factors, which can be affected by the situation as well as the enduring characteristics of the individual (Gudjonsson, 1992, 1995).

The correlations between the state and trait anxiety scores in the present study were much below those reported by Spielberger (1983) and Novy *et al.* (1993). Spielberger (1983) reports that high stress situations associated with a threat to self-esteem tend to increase the correlation between state and trait anxiety, whereas stress associated with fear or threat of physical danger has the reverse effect. This is one example of the inherent complexity of anxiety and its context-bound characteristics. It is possible that being detained at a police station induces in some subjects a fear of physical danger, although we found no direct evidence of this from the subjects in the present study. This is clearly an area that requires further study, because it is the subjective experiences of the suspects at the police station that are likely to influence their behaviour rather than the objective reality of the situation.

The main practical implications of the findings are that interrogative suggestibility cannot be easily evaluated from the person's self-reported anxiety and the situation in which people are assessed may influence the relationship between these psychological variables.

The finding that the Afro-Caribbean subjects were significantly more suggestible than the Caucasian subjects needs further investigation. Previous research with the GSS 1 and GSS 2 has not looked specifically at ethnic differences. The present results strongly suggest that significant ethnic differences may well exist with regard to suggestibility and that they cannot be primarily accounted for in terms of differences in memory and IQ. What causes this difference in suggestibility remains unknown, but future research must begin by addressing the possible effects of the ethnic origin of the experimenter.

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