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Disposition towards hallucination, gender and EPQ scores: a brief report

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Summary—The Launay–Slade Hallucination Scale (LSHS-A) and the Eysenck Personality Questionnaire (EPQ) were given to 204 male and female undergraduate students. Female students scored significantly higher than male students on the LSHS-A. No relationship was found between the P, E or L scales of the EPQ and the LSHS-A. However, a significant positive correlation was found between the N scores on the EPQ and scores on the LSHS-A. This correlation could not be accounted for by sex differences on the N scale.

INTRODUCTION

The occurrence of hallucinations in supposedly normal individuals has now been well-established in a number of studies (Sidgewick, 1894; West, 1948; McKellar, 1968; Bentall and Slade, 1985a), and has been investigated in a number of ways. For example, Launay and Slade (1981) devised a scale designed to measure predisposition to hallucination by asking hallucinating and non-hallucinating individuals to endorse items referring to a variety of non-pathological and pathological mental states (e.g. vivid daydreams, hearing voices). The final scale consisted of 12 items, examples being 'The people in my daydreams seem so true to life that I sometimes think they are' and 'I have been troubled by hearing voices in my head', which could be rated true or false. The fact that non-pathological items as well as pathological items were related to hallucinations supported the hypothesis that hallucinations exist on a continuum with normal mental events.

The Launay–Slade Hallucination Scale (LSHS) has been used in a number of studies. For example, Raine (1984) found that LSHS scores correlated with the presence of electrodermal non-responding, a known psychophysiological indicator of vulnerability to schizophrenia (Ohman, 1981). Jakes and Hemsley (1986) found that the LSHS score correlated with the number of meaningful stimuli reported by *S*s watching visual white noise on a TV screen.

Bentall and Slade (1985a) devised a modified version of the LSHS (LSHS-A) in which *S*s had to endorse each item on a 5-point scale varying from 'Certainly Applies to Myself' to 'Certainly Does Not Apply to Myself' and gave it to over 100 male undergraduate students. Scores on the scale were normally distributed. Over 15% of the *S*s rated 'In the past I have had the experience of hearing a person's voice and then found that no one was there', and over 17% rated 'I often hear a voice speaking my thoughts aloud' as certainly applying to themselves. In a further study, Bentall and Slade (1985b) gave high and low scorers on the scale an auditory signal-detection task. High scorers on the scale were found to differ from low scorers on a measure of perceptual bias but not on a measure of sensitivity. Similar results were found when hallucinating and non-hallucinating schizophrenics were compared on a shorter version of the same task. The results supported the hypothesis that *S*s highly disposed towards hallucinations are deficient in reality testing and further validated the LSHS.

Given the importance of the LSHS, and its likely link with other variables of relevance to hallucinations, it is of obvious interest to see if the scale correlates with particular personality traits. Launay and Slade (1981) in their original study with prisoners found a positive correlation between LSHS scores and scores on Eysenck's P scale (Eysenck and Eysenck, 1973). These results were not replicated by Raine (1984) who used the P scale of the later Eysenck Personality Questionnaire (EPQ; Eysenck and Eysenck 1975), with a smaller group of prisoners.

It was decided therefore to explore the relationship between the four subscales of the EPQ and the LSHS in a normal student population.

METHOD

Subjects

The *S*s in this experiment were 204 students of mixed disciplines, but excluding psychology students. There were 103 females and 101 males. The mean age of the total sample was 20 yr 5 months (SD = 2 yr 3 months). The mean age of the females was 20 yr 1 month (SD = 2 yr 4 months), and the mean age of the males was 20 yr 7 months (SD = 2 yr 2 months).

Materials

The version of LSHS (LSHS-A) first used by Bentall and Slade (1985a) was used in this study. *S*s had to read a number of statements, and were then required to tick one of five boxes, labelled 'Certainly Applies', 'Possibly Applies', 'Unsure', 'Possibly Does Not Apply' and 'Certainly Does Not Apply', according to the extent to which they considered the statements applied to themselves (Bentall and Slade, 1985a). The EPQ (Eysenck and Eysenck, 1975) was also administered.

Procedure

The *S*s were individually approached on the university campus and asked to complete the LSHS-A and the EPQ

Table 1. Mean and standard deviations of scores of 101 males and 103 females on the LSHS-A and on the P, E, N and L scales of the EPQ

		LSHS-A		P		E		N		L	
	N	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Males	101	15.90	8.76	5.25	3.63	14.31	4.90	10.38	5.04	5.46	3.28
Females	103	19.26	8.20	3.59	2.47	14.54	3.82	12.58	5.29	5.76	3.50
Total	204	17.60	8.62	4.41	3.20	14.43	4.38	11.49	5.27	5.61	3.39

Table 2. Pearson product-moment correlations for age, LSHS-A and P, E, N and L scales of the EPQ

	Age	LSHS-A	P	E	N
LSHS-A	−0.11				
P	0.01	0.01			
E	−0.14	0.00	0.12		
N	−0.04	0.37*	0.00	−0.12	
L	0.14	−0.09	−0.35*	−0.14	−0.05

*$P < 0.05$.

immediately whilst the experimenter waited nearby. They were asked not to discuss their responses with other participants. The confidentiality of their responses was assured.

RESULTS

The LSHS-A and EPQ were completed by 103 female and 101 male students. For each LSHS-A form, a S's score was calculated by awarding 4 points for each item ticked 'Certainly Applies', 3 points for each item ticked 'Possibly Applies', 2 points for each ticked 'Unsure' and 1 point for each ticked 'Possibly Does Not Apply'. Each form had a hypothetical maximum score of 48 and a hypothetical minimum score of 0. Table 1 shows the means and standard deviation scores for the LSHS-A and EPQ scales. No significant differences were found between the males and females on age ($t = 1.63$, $P > 0.05$), the E scale ($t = 0.37$, $P > 0.05$) and the L scale ($t = 0.63$, $P > 0.05$). Significant differences were found between the males and females on the LSHS-A, females scoring higher than males ($t = 2.83$, $P < 0.01$); the P scale, males scoring higher than females ($t = 3.81$, $P < 0.01$); and the N scale, females scoring higher than males ($t = 3.05$, $P < 0.01$).

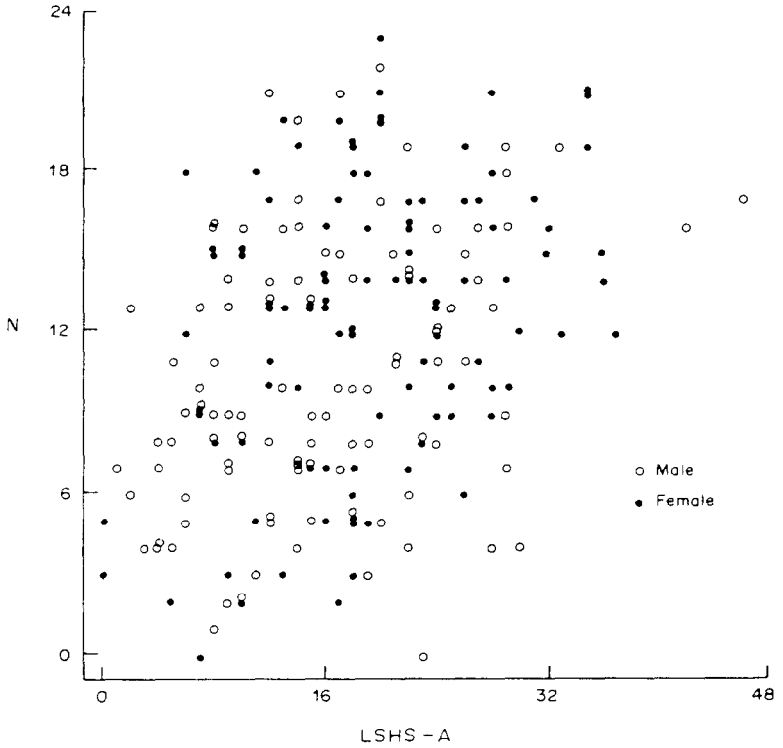

Fig. 1. LSHS-A scores plotted against N scores ($N = 204$).

Table 3. Number and percentage of *Ss* ticking each item on the LSHS-A as 'Certainly Applies' and 'Possibly Applies' ($N = 204$)

	Certainly Applies		Possibly Applies	
	N	%	N	%
1. Sometimes a passing thought will seem so real that it frightens me.	44	21.5	71	34.8
2. Sometimes my thoughts seem as real as actual events in my life.	49	24.0	48	23.5
3. No matter how much I try to concentrate on my work, unrelated thoughts always creep into my mind.	106	51.9	49	24
4. In the past I have had the experience of hearing a person's voice and then found that no one was there.	27	13.2	32	15.6
5. The sounds I hear in my daydreams are usually clear and distinct.	28	13.7	47	23
6. The people in my daydreams seem so true to life that I sometimes think they are.	24	11.7	40	19.6
7. In my daydreams I can hear the sound of a tune almost as clearly as if I were actually listening to it.	77	37.7	48	23.5
8. I often hear a voice speaking my thoughts aloud.	28	13.7	31	15.2
9. I have been troubled by hearing voices in my head.	4	1.9	8	3.9
10. On occasions I have seen a person's face in front of me when no one was in fact there.	3	1.4	6	2.9
11. I have heard the voice of the devil.	2	0.9	5	2.4
12. In the past I have heard the voice of God speaking to me.	11	5.3	14	6.8

Table 2 shows the correlation matrix for the variables age, LSHS-A and the EPQ scales. Significant correlations were found between N and LSHS-A ($P < 0.05$) and L and P ($P < 0.05$). The relationship observed between N and LSHS-A scores is shown more clearly in Fig. 1 which shows individual scores on both scales coded by sex. No relationship was found between the P scale and LSHS-A scores.

Research with the EPQ has consistently shown that females on average score higher than males on the N scale (Eysenck and Eysenck, 1975). To check that this sex difference could not account for the observed correlation between the LSHS-A and N, the correlations between the two scales were calculated for each sex. For males, the correlation between the LSHS-A and N was found to be 0.33 ($P < 0.05$); for females it was 0.36 ($P < 0.05$).

The extent to which the *Ss* were prepared to report hallucinatory experiences is shown in Table 3. This reports the number and percentage of *Ss* who scored as 'Certainly Applies' and 'Possibly Applies' to each of the items on the LSHS-A.

DISCUSSION

The results of this study with a larger group of male and female *Ss* replicate the findings of Bentall and Slade (1985a), and support the view that hallucinatory experiences exist on a continuum with other mental states. The pattern of scores observed on the LSHS-A was similar to those obtained by Bentall and Slade and a sizeable minority of *Ss* were prepared to endorse at least some pathological items as certainly or possibly applying to themselves. The absence of a correlation between the LSHS-A and EPQ P scale is perhaps unsurprising as the P scale underwent substantial revision before its appearance in the EPQ, there now being a greater independence of P from N and E and a shift away from items of an overtly psychotic nature (Eysenck and Eysenck, 1976). The finding that females score significantly higher than males is of interest, particularly as Sidgewick (1894) and West (1948) both found a higher reporting rate of hallucinations among normal females than normal males. Given that women are more likely to report all forms of 'mental illness' apart from schizophrenia (Cochrane, 1983), it is difficult to tell if this sex difference relates to clinical findings.

Also of interest is the positive correlation of the LSHS-A with N. Claridge and Broks (1984), using a newly developed scale for the measurement of schizotypy found that it correlated positively with N. It may be, as Claridge and Broks suggest, that the self-reporting of experiences akin to psychopathology is likely to reflect increased emotional instability of the kind measured by the N scale. Research examining the relationship between the LSHS-A and measures of schizotypy is currently underway.

REFERENCES

Bentall R. P. and Slade P. D. (1985a) Reliability of a scale measuring disposition towards hallucination: a brief report. *Person. individ. Diff.* **6**, 527–529.

Bentall R. P. and Slade P. D. (1985b) Reality testing and auditory hallucinations: a signal detection analysis. *Br. J. clin. Psychol.* **24**, 159–169.

Cochrane R. (1983) *The Social Creation of Mental Illness*. Longman, Harlow, Essex.

Claridge G. and Broks P. (1984) Schizotypy and hemisphere function—I. Theoretical considerations and the measurement of schizotypy. *Person. individ. Diff.* **5**, 633–648.

Eysenck H. J. and Eysenck S. B. G. (1973) The personality of female prisoners. *Br. J. Psychiat.* **122**, 693–698.

Eysenck H. J. and Eysenck S. B. G. (1975) *Manual of the Eysenck Personality Questionnaire*. Hodder & Stoughton, London.

Eysenck H. J. and Eysenck S. B. G. (1976) *Psychoticism as a Dimension of Personality*. Hodder & Stoughton, London.

Jakes S. and Hemsley D. (1986) Individual differences in reaction to brief exposure to unpatterned visual stimulation. *Person. individ. Diff.* **7**, 121–123.

Launay G. and Slade P. D. (1981) The measurement of hallucinatory predispostion in male and female prisoners. *Person. individ. Diff* **2**, 221–234.

McKellar P. (1968) *Experience and Behaviour*. Penguin, London.

Ohman A. (1981) Electrodermal activity and vulnerability to schizophrenia: a review. *Biol. Psychiat.* **12**, 87–145.

Raine A. (1984) Personal communication.

Sidgewick H. A. (1894) Report of the census of hallucinations. *Proc. Soc. psychic Res.* **26**, 25–394.

West D. J. (1948) A mass observation questionnaire on hallucinations. *J. Soc. psychic. Res.* **34**, 187–196.