

AN EXPLORATORY STUDY OF THE RELATION BETWEEN EXTRAVERSION AND CERTAIN ASPECTS OF AUDITORY HALLUCINATIONS IN SCHIZOPHRENICS

A. RAMANATHAN*

Introduction

The relationships between personality dimensions and aspects of auditory hallucinations in schizophrenics had been reported (Ramanathan 1984 a, 1984 b, 1984 c, 1985). Particularly, extraversion was found to be associated with coping behaviour in relation to auditory hallucinations in schizophrenics (Ramanathan 1984 c). Further exploration is necessary with regard to the relation between extraversion and aspects of voices.

The present study was aimed at exploring the relation between extraversion and certain aspects of auditory hallucinations in schizophrenics. The aspects of voice mentioned in the previous report (Ramanathan 1984 b) were included in the present study.

Material and Method

Thirty schizophrenics attending the out-patient department of the Institute of Mental Health, Madras were chosen for the study using the criteria as described earlier (Ramanathan 1984 b).

Personality dimensions were quantified using Eysenck's Personality Questionnaire (1976). Extraversion scores, psychoticism scores, neuroticism scores and 'lie' scores were recorded. The mean extraversion score was 10.8 and standard deviation was 4.73.

An interview schedule was constructed and each patient was interviewed along

with one or more family members in order to elicit reliable information as described in earlier studies (Ramanathan 1984 b). Interference with activities was measured in 4 areas viz. self-care, occupation (not necessarily remunerative), social activities and leisure-time activities using 4 point scales i.e. 0-3 scores. Score 0 indicated absence of interference but not absence of voice during activity. Score 1 indicated distraction during activity without grossly hampering with it. Score 2 was given for distraction leading to delay in completing the act. Score 3 was given if the activity was not completed. Other details of the variables concerned were reported earlier (Ramanathan 1984 a, 1984 b, 1984 c). Each patient was engaged for more than two hours.

The sample was classified on the basis of extraversion scores and the resultant groups were compared for the variables mentioned already. The variables that were statistically significantly associated with extraversion were isolated. Such isolated variables were considered as the independent variables and were regressed on extraversion scores in the Step-wise multiple regression analysis. Scores on other scales of Eysenck's Personality Questionnaire were added to the list of independent variables in order to avoid bias.

Results

Three groups of patients were sorted out on the basis of extraversion score i.e.

* Assistant Professor, Institute of Mental Health, Kilpauk, Madras - 600010.

upto 6 scores in 6 patients, 7-12 scores in 11 patients and 13-18 scores in 13 patients. These 3 groups did not differ in psychoticism scores and 'lie' scores. Patients who had 13-18 scores had (1) less neuroticism scores, (2) greater number of patients with voices positioned outside the body and outside sensory range, (3) high-pitched voices, (4) less interference with occupation by the voice and (5) longer interval between increase in anxiety level prior to the voice and appearance of the voice.

Discussion

The dimension of extraversion refers to cortical arousal. Introverts have higher cortical arousal than extraverts (Eysenck 1973). The length of interval between increase in anxiety level prior to the voice and appearance of the voice is probably determined by the level of cortical arousal.

The positive relation between sensitivity to high-frequency auditory stimulation and extraversion has been discussed (Stel-

Table
Step-wise Multiple Regression Analysis: Certain Variables on Extraversion Scores

Dependent variable	Independent Variables	Regression co-efficients	Standard error	R Square	F value & level of significance
Extraversion scores	Interference with occupation by the voice	- 1.69414	1.01228	0.42127	2.79037 P < .05
	Pitch of the voice	1.58597	1.01087		
	Neuroticism score	- 0.17522	0.18171		
	Interval between increase in anxiety level prior to the voice and appearance of the voice in minutes	0.14439	0.13251		
	Psychoticism scores	0.28987	0.28484		
	'Lie' scores	0.23771	0.23808		
	(Constant)	6.48535			

In the step-wise multiple regression analysis, the above mentioned 5 variables along with psychoticism scores and 'lie' scores (7 independent variables) were regressed on extraversion scores. Interference with occupation by the voice and neuroticism scores were negatively related to extraversion scores which meant that an increase in the scores for these variables were associated with a decrease in extraversion score. Pitch of the voice and interval between increase in anxiety level prior to the voice and appearance of the voice was positively related to extraversion scores which meant that an increase in scores for these variables was associated with an increase in extraversion score. The figures are given in the Table.

mack and Campbell 1974). Perhaps the hallucinating schizophrenic with high scores on extraversion is prone to 'hear' high-pitched voices.

Persistence refers to the motivation to continue a given task. Extraversion scores have a positive relation to persistence (Costello & Eysenck 1961). The schizophrenic hallucinator with high scores on extraversion might have had high level of persistence. Such a person with high level of persistence could have had less interference with his occupation by auditory hallucinations.

In the present study the negative relation between extraversion and interference

with occupation was found. In the previous report the positive relation between neuroticism and interference with occupation by the voice was mentioned about (Ramanathan 1984 b). In other words, the relation of neuroticism and that of extraversion to the interference with occupation by the voice were found to be in different directions. Hence the direct relation between neuroticism and extraversion deserves attention. Another finding of the present study was the negative relation between neuroticism and extraversion. Neuroticism refers to emotionality. The positive relation between neuroticism and the emotions associated with auditory hallucinations has been found (Ramanathan 1985). Strong emotions can increase the level of cortical arousal (Eysenck 1973). High arousal means low extraversion scores. Further studies are strongly indicated for the purpose of confirming the negative relation between neuroticism and extraversion in hallucinating schizophrenics. Studies in future should have larger series and should include physiological measurements of arousal.

Acknowledgement

The author thanks Dr. Vaidyalingam, Superintendent, Institute of Mental Health, Madras for permission to conduct the study and publish the report. Thanks are also due to his colleagues Drs. Thirunavukkarasu, Sureshkumar, Arunagiri, Kumar, Murugan, Subbiah, Dayalan and Catherine Victoria for the help in collection of cases.

References

- COSTELLO, C. G. & EYSENCK, H. J. (1961), Persistence, Personality and Motivation. *Perceptual and Motor Skills*, 12, 169-170. Reprinted in *Readings in Extraversion-Introversion 3, Bearings on Basic Psychological Processes*, (Ed.) H. J. Eysenck (1971), London: Staples Press Ltd.
- EYSENCK, H. J. (1973), *Hand Book of Abnormal Psychology*, London: Pitman Medical.
- EYSENCK, H. J. & EYSENCK, S. B. G. (1976), *Psychoticism as a dimension of Personality*, London: Hodder and Stoughton Educational. Bath. Pitman Press.
- RAMANATHAN, A. (1984 a), An exploratory study of the relation between psychoticism and certain aspects of auditory hallucinations in schizophrenics, *Indian Journal of Psychiatry*, 26(2), 169-174.
- RAMANATHAN, A. (1984 b), A study of interference with the activities of schizophrenics by auditory hallucinations, *Indian Journal of Psychiatry*, 26(3), 206-212.
- RAMANATHAN, A. (1984 c), A study of coping with auditory hallucinations in schizophrenics, *Indian Journal of Psychiatry*, 26(3), 229-236.
- RAMANATHAN, A. (1985), An exploratory study of the relation between neuroticism and certain aspects of auditory hallucinations in schizophrenics, Unpublished.
- STELMACK, M. R. & CAMPBELL, B. K. (1974), Extraversion and auditory sensitivity to high and low frequency. *Perceptual and Motor skills*, 38, (875-879). Reprinted in the *Measurement of Personality* (Ed.) H. J. Eysenck (1976), Lancaster: MTP Press Ltd.