

Hand Preference and Schizotypal Personality among Girl Students

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ABSTRACT

Atypical hand preference is found to be related with high schizotypal personality scores; however, it is not quite clear how degree and direction of hand preference combine to determine schizotypal personality. A sample of 200 girl students with mean age of 21.73 years (SD=4.06) were selected based on availability. Hand preference and schizotypal personality (SPQ) were assessed through questionnaires. Results show that left-handers are more schizotypal than right-handers whereas degree of hand preference has no effect on schizotypal personality scores. Findings support genetic factors as determinant of relationship between hand preference and schizotypal personality.

Key Words : Hand preference, Schizotypal personality, Girl students

INTRODUCTION

Hand preference, a marker of cerebral lateralization, has been found to be related with large number of development disorders including schizophrenia (Bishop, 1990). Studies have shown that number of non-right-handers is significantly higher in schizophrenic population compared to that in general population (Green *et al.*, 1989; Satz and Green, 1999; Sommer *et al.*, 2001). Dragovic and Hammond (2005) showed that both exclusive left-handers and mixed-handers were in significant excess in schizophrenia patients compared to control subjects. Crow (1989) has suggested that a common 'X' locus gene determines atypical cerebral lateralization and schizophrenia. However, large number of studies has failed to find an association between left-hand preference and developmental disorders (Bishop, 1990).

Because the occurrence of disorder is an event, involving immediate precipitating factors, the study of dispositional factors like personality disorders, as mentioned in axis-II of DSM- IV, may unequivocally establish the likelihood, or otherwise, of relationship between left hand preference and developmental disorders. The schizotypal personality is an axis-II disorder of DSM- IV, which involves measuring the characteristics like faulty cognition and perception, interpersonal problems and behavioral aberrations similar to those found in schizophrenia proper (Halgin and Whitbourne, 2000). Studies have shown that the relatives of schizophrenics are more schizotypal as compared to relatives of persons afflicted with any other developmental disorders (Kremen *et al.*, 1998). It has been suggested that schizotypal personality is a better marker of genetic disposition to

schizophrenia (Torgerson, 1985).

Studies have shown that mixed handers tend to have higher schizotypal personality scores than right handers (Kim *et al.*, 1991; Poreh *et al.*, 1997). Gruzelier and Doig (1996) found that left handedness, and to a lesser extent mixed handedness, were associated with odd speech, odd behavior, and negative schizotypal traits. Thus it is not quite clear how degree and direction of hand preference combine to determine schizotypal personality. Some studies have shown that degree rather than direction of handedness is closely related with disorders (*cf.* Bishop, 1990).

Association between schizotypy and non-right handedness has mostly been studied in western societies, however, little is known about this relationship outside western cultures. Few studies conducted in Asian societies have failed to find a relationship between hand preference and schizotypal personality (Chen and Su, 2006; Gregory *et al.*, 2003). A strong pressure for right hand use may be one of the reasons for lack of relationship between hand preference and schizotypal personality in Asian cultures (Gregory *et al.*, 2003). The present study, therefore, seeks to find relationship of both the degree and the direction of hand preference with schizotypal personality.

METHODOLOGY

The study included 200 female participants with mean age of 21.73 years (SD=4.06). Participants were assessed individually as well as in groups. Hand preference was assessed through a questionnaire include 14 items similar to the Oldfield's questionnaire (Oldfield, 1971). A five-point response scale: always left, generally left, equal, generally right, and always right, was attached with the items of questionnaire. Laterality Quotient (LQ) was calculated using the formula: $LQ = ((\text{Total score of items} - 3 * \text{number of items}) / 2 * \text{number of items}) * 100$. Participants scoring between -100 to 0 LQ points were classified as left-handers and participants scoring between 0 to 100 LQ points classified right-handers. Participants scoring below 50 points on absolute values of LQ were classified as weak-handers and participants scoring above 50 points on absolute values of LQ classified strong-handers.

Schizotypal Personality Questionnaire (SPQ; Raine, 2001) was used to assess the schizotypal personality scores of the participants. It has 74-items with forced choice response schedule. SPQ is a reliable instrument (.82; Raine, 1991) with strong cross-cultural validity (Raine, 2001).

RESULTS AND DISCUSSION

The 2*2 (degree * direction) analysis of variance shows main effect of the direction of hand preference, $F(1, 196) = 4.42, p = .04$, on schizotypal personality. Left handers have higher schizotypal personality scores than right handers (Table 1). Degree of hand preference has no effect on schizotypal personality (Table 1).

Table 1 : Mean and standard deviations of schizotypal personality of weak- and strong- handed among left- and right- handers

	Strong-handed (n = 154)		Weak-handed (n = 46)		Total	
	M	SD	M	SD	M	SD
Right-handers (n = 139)	27.24	13.19	30.48	9.93	27.78	12.73
Left-handers (n = 61)	33.47	12.57	33.30	9.17	33.41	11.32
Total	28.78	13.27	31.89	9.56	29.49	12.56

Discussion :

Results of present study show that left-handers are comparatively more schizotypal than right handers. Earlier studies have also shown that schizotypal personality is related with atypical hand preference (Kim *et al.*, 1991; Poreh *et al.*, 1997; Gruzelier and Doig, 1996). Thus, present study supports the likelihood of atypical cerebral lateralization determining schizotypal personality (Gruzelier *et al.*, 1995).

Variations in the degree of hand preference is largely considered to be determined by environmental effects, prenatal and postnatal, whereas difference of direction of hand preference determined by innate, most likely genetic factors (Bishop, 1990). Results of present study shows that degree of hand preference has no effect on schizotypal personality scores, therefore, it is more likely that genetic factors may be determining relationship between left hand preference and high schizotypal personality score. Thus, present study supports Crow's theory (1989) which suggest that a common gene determines atypical cerebral lateralization and schizophrenia. Present study also shows that relationship between atypical hand preference and schizotypal personality is not limited to western societies.

REFERENCES

- Bishop, D.V.M. (1990). *Handedness and Developmental disorders*. Blackwell, Oxford.
- Chen, W.J. and Su, C.H. (2006). Handedness and schizotypy in non-clinical populations: Influence of handedness measures and age on the relationship. *Laterality*, **11** : 331-349.
- Crow, T.J. (1989). Development arrest of cerebral asymmetry in early onset schizophrenia. *Schizophrenia Psychiatry Res.*, **29** : 247-253.
- Dragovic, M. and Hammond, G. (2005). Handedness in schizophrenia: A Quantitative Review of Evidence. *Acta Psychiatrica Scandinavica*, **3** : 410-419.
- Green, M.F., Satz, P., Smith, C. and Nelson, L. (1989). Is there atypical handedness in schizophrenia? *J. Abnormal Psychol.*, **98** : 57-61.
- Gregory, A.M., Claridge, G., Clark, K. and Taylor, P.D. (2003). Handedness and schizotypy in a Japanese sample: An association masked by cultural effects on hand usage. *Schizophrenia Res.*, **65** : 139- 145.
- Gruzelier, J.H., Burgess, A., Stygall, J., Irving, G. and Raine, A. (1995). Patterns of cognitive asymmetry and syndromes of schizotypal personality. *Psychiatry Res.*, **56** : 71-79.
- Halgin, R.P. and Whitbourne, S.K. (2000). *Abnormal Psychology: clinical perspectives on psychological disorders. IIIrd edition*. McGraw Hill Higher education (pp.156-157) .
- Kim, D., Raine, A., Triphon, N. and Green, M.F. (1992). Mixed handedness and features of schizotypal personality in a nonclinical sample. *The J. Nervous & Mental Diseases*, **180** : 133-135.
- Kremen, W.S., Faraone, S.V., Tommey, R., Seidman, L.J. and Tsuang, M.T. (1998). Sex differences in self-reported schizotypal traits in relatives of schizophrenic probands. *Schizophrenia Res.*, **34** : 27-37.
- Oldfield, R.C. (1971). The assessment and analysis of handedness: the Edinburgh inventory. *Neuropsychologia*, **9** : 97-113.
- Poreh, A.M., Levin, J., Teves, H., and States, J. (1997). Mixed handedness and schizotypal personality in a non-clinical sample: The role of task demand. *Personality & Individual Differences*, **23** (3) : 501-507.
- Raine, A. (2001). *Manual for the schizotypal personality questionnaire*. Department of Psychology, University

of Southern California.

Raine, A. (1991). The SPQ: A scale for assessment of schizotypal personality based on DSM-III-R criterion. *Schizophrenia Bulletin*, **17** : 556-564.

Satz, P. and Green, M. (1999). Atypical handedness in schizophrenia: Some methodological and theoretical issues. *Schizophrenia Bulletin*, **25** : 63-79.

Sommer, I. E., Ramsey, N. F., Kahn, R. S., Aleman, A. and Bouma, A. (2001). Handedness language lateralization and anatomical asymmetry in schizophrenia: A meta analysis. *British J. Psychiatry*, **178** : 344-351.

Torgerson, S. (1985). Relationship of schizotypal personality disorders to schizophrenia. *Genetics, Schizophrenia Bulletin II*, 543- 563.
