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Much interest has been evidenced recently in right-left discrimination and finger localization tasks as techniques for demonstrating behavioral impairment in patients with known cerebral disease or injury. Defective performance by brain injured patients on both types of tasks has been described in numerous case reports (cf. 3) and has been demonstrated in experimentally-produced cerebral dysfunction (1). In a systematic study of the incidence of defective performance in brain-injured and control patients, Benton and Cohen (2) found that the brain-injured patients, who did not suffer from serious general intellectual deficit, showed significant impairment in finger-localization performance when compared to the matched controls. There were, however, no differences in right-left discrimination performances between the two groups.

These findings, while, of course, interesting and significant in their own right, raise some important questions which now require empirically derived answers. One such question, of considerable theoretical significance and practical importance, is whether the observed deficit in performance is specifically characteristic of brain-injured patients or whether it represents another instance of psychological deficits common to most psychopathological individuals (4). The present study attempts to answer this question in part by replicating the Benton and Cohen study with a group of adult schizophrenic patients.

Procedure

The subjects (*Ss*) used in this study were all selected from patients at the Mental Health Institute at Mt. Pleasant, Iowa on the basis of the following restrictions: (1) age range from 20 through 69 years; (2) minimal functioning IQ of 80 as defined by the full scale Wechsler-Bellevue IQ; (3) an undisputed medical diagnosis of schizophrenia with no reported history or other evidence of cerebral injury or disease; (4) sufficient contact with the invironment to permit compliance with the experimental instructions. Two groups of 22 patients each, one male and the other female, were randomly selected from the patient population meeting these criteria.

The right-left discrimination task as well as the finger localization task was identical to that used by Benton and Cohen (2). Briefly,

the former task involves 20 items requiring identification of parts of the *Ss*' own body while the latter 50 item task requires the identification of the fingers which have been tactually stimulated by the experimenter.

Results and Discussion

Personal Characteristics of the Subjects

The means and standard deviations (*SD*s) of the age and IQ distributions for the two schizophrenic groups are presented in Table 1 together with comparable data for the brain-injured and

Table 1

Personal Characteristics of the Subjects (N = 22 in each group)

Group	Age		*IQ*	
	Mean	*SD*	Mean	*SD*
Schizophrenic Males	36.7	9.4	100.3	11.7
Schizophrenic Females	36.4	7.4	102.8	13.0
Brain-Injured Males*	46.6	13.4	102.5	7.7
Control Males*	43.6	14.2	103.9	8.6

*These data from Benton and Cohen (2).

control groups previously reported upon by Benton and Cohen (2). An analysis of variance of the data indicated significant differences ($p < .01$) among the mean, the further analysis of these mean differences revealed that both schizophrenic groups were younger than either the control or brain injured group although only the latter difference was statistically reliable ($p < .01$). The analysis of variance of the intelligence test results indicated no significant mean differences.

Right-Left Discrimination

The scores of the two groups of schizophrenic *Ss* on the right-left discrimination task together with the comparable data from Benton and Cohen are presented in Table 2. It is obvious that there is little

Table 2

Distribution of Errors in Right-Left Discrimination Task for the Four Groups of Subjects (N = 22 in each group)

Number of Errors	Group			
	Schiz. Males	Schiz. Females	Brain-Injured*	Controls*
0	20	18	18	19
1	1	4	4	3
2	0	0	0	0
3	1	0	0	0

*These data from Benton and Cohen (2).

difference between the four groups with all *Ss* (except for one male schizophrenic) making either a perfect score or only a single error. While the number of patients in each group is small it is probable

that severe right-left disorientation is a relatively infrequent event in either brain-injured or schizophrenic patients, at least in such relatively intact patients who constituted the *Ss* for these investigations.

Finger Localization

The scores of the two groups of schizophrenic *Ss* on the finger localization task together with the comparable data from Benton and Cohen are presented in Table 3. These results are in marked contrast with those from the right-left discrimination task. The per-

Table 3

Distribution of Errors on Simple Finger Localization Task for the Four Groups of Subjects (N = 22 in each group)

Number of Errors	Group			
	Schiz. Males	Schiz. Females	Brain-Injured*	Controls*
0	0	3	9	13
1	3	4	1	4
2	4	4	5	2
3	2	3	3	3
4	5	3	1	0
5	0	2	0	0
6	1	2	2	0
7	1	0	1	0
8	3	1	0	0
9	1	0	0	0
10	1	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	1	0	0	0

*These data from Benton and Cohen (2).

formance of all four groups involves some errors and there appear to be differences between the groups. An analysis of these data using the extension of the medians test (5, pp. 179-184) indicated that there is a significant over-all difference among the four groups ($\chi^2 = 21.3$, $p < .01$ for 3 d.f.). An inspection of the data reveals that the two groups of schizophrenic *Ss* make the most errors and the control *Ss* the fewest errors. The overlap between the distributions of errors for the brain-injured and schizophrenic *Ss* would indicate that defective finger localization performance is possibly a general characteristic of psychopathological individuals and is not pathognomic only of individuals with cerebral injury or disease. It is clear from these results that finger localization is not a task which discriminates sharply between individuals with cerebral dysfunction and those with a functional psychosis. The clinical use of this task would appear to require considerable caution, particularly in interpretation. It can be recalled that the schizophrenic *Ss* were significantly younger than the other *Ss* but these differences

in age should presumably attenuate the differences in errors and should not substantially modify the interpretation of these findings.

Summary and Conclusions

Two groups of 22 schizophrenic patients each, one male and one female, were given a 20 item right-left discrimination task and a 50 item finger localization task and the results of their performances were compared to those of groups of brain-injured and control patients. There were no differences in right-left discrimination performance among the several although there were significant differences in finger localization with the two schizophrenic groups and brain-injured groups giving the poorest performance. These results were interpreted as another instance of *psychological deficit* frequently reported for psychopathological individuals.

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