Simulation of Aphasia by Wives of Aphasic Patients

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The counseling needs of family members of aphasic patients have been well reocgnized in the literature. Frequently, family members have been asked to predict how their aphasic relative would perform on functional communicative tasks. Results of these predictions differ. Helmick, Watamori and Palmer (1976), Linebaugh and Young-Charles (1978), and Flowers et al. (1979) report that family members' ratings (generally those of spouses) often differ from those of clinicians. Typically, family members underrate the severity of aphasia. Czvik (1977) found that family members denied the presence of severe auditory processing problems, but they acknowledged the existence of speech formulation difficulties. Linebaugh and Young-Charles (1981) observed that family members are very confident in their rating of the aphasic patient's abilities. Porch, Friden and Porec (1977) asked family members to simulate aphasia on the PICA. Discriminant function analysis revealed that performance could not be classified as aphasic. Conversely, studies conducted by Chwat and Gurland (1981) and Holland (1980) found that family members could accurately estimate the aphasic patient's functional communication problems.

One measure of how well one understands aphasia is one's ability to simulate it. To determine how well the wives of aphasic patients understand their husbands' deficits, we asked them to simulate how they believed their husbands would perform on the Porch Index of Communicative Ability (PICA) (Porch, 1967) and the Communicative Abilities In Daily Living (CADL) (Holland, 1980).

METHOD

Seven patients and their wives participated in the study. Table 1 summarizes descriptive data for the subjects. The wives had been participating in a weekly support group for an average of two and one-half years. The patients were receiving either individual or group therapy. Six of the patients had suffered a left hemisphere CVA and were diagnosed as aphasic. The other patient had suffered multiple CVA's and was diagnosed as displaying word deafness. All patients were tested with the Porch Index of Communicative Ability (PICA) and the Communicative Abilities in Daily Living (CADL).

Table 1. Subject Descriptive Data.

Measure (In Years)	Wives $\bar{x}$	Wives Range	Aphasic Patients $\bar{x}$	Aphasic Patients Range
Age	62	47 - 72	64	54 - 72
Education	13	12 - 16	13	12 - 14
Support Group Member	2.6	1 - 5	--	--
Time Post-onset	--	--	5	1.5 - 8

The wives were tested twice with the PICA and CADL on two separate occasions. During the first test, they were asked to perform as themselves.

During the second test, they were asked to perform the way they thought their husbands would.

RESULTS

When the wives performed as themselves, overall PICA scores ranged from 14.18 to 14.58 with a mean of 14.55. This is within the range of normal performance reported by Duffy and Keith (1980). Their CADL scores ranged from 124 to 134 with a mean of 130. This was consistent with norms provided by Holland (1980) on normal subjects.

Table 2 shows the aphasic patients' performance and the wives' simulated performance on the PICA and CADL. The aphasic patients' overall PICA scores ranged from 7.87 to 13.94 with a mean of 10.94. Their mean modality response level scores on the PICA were 11.98 for gestural, 9.50 for verbal, and 8.70 for graphic. Their CADL scores ranged from 60 to 126 with a mean of 93. When the wives simulated their husbands' aphasia, their overall PICA scores ranged from 8.09 to 13.15 with a mean of 11.16. The mean modality response level scores on the PICA were 13.01 for gestural, 10.97 for verbal, and 8.81 for graphic. Their CADL scores ranged from 73 to 127 with a mean of 94.

Table 2. Aphasic Patients' and Wives' Simulated Performance.

Measure	WIVES $\bar{x}$	WIVES Range	APHASIC PATIENTS $\bar{x}$	APHASIC PATIENTS Range
PICA				
Overall	11.16	8.09 - 13.15	10.94	7.87 - 13.94
Gestural	13.01	8.93 - 14.40	11.98	8.98 - 14.19
Verbal	10.97	7.28 - 13.33	9.50	6.40 - 13.10
Graphic	8.81	5.98 - 12.97	8.70	5.97 - 14.45
CADL Total	94	73 - 127	93	60 - 126

Comparison of the patients' performance and the wives' simulated aphasic performance was done on the PICA Overall and Modality scores and the CADL total score (see Table 3). Analysis of variance indicated no significant difference between the two groups on the PICA overall, gestural, and graphic modalities or the CADL total score. The difference between the patient's and their wives on the PICA verbal modality was significant at the .05 level. Wives performed significantly better than their husbands on the verbal subtests.

Table 3. Anova Comparison of Aphasic Patients' and Wives' Simulated Performance.

Measure	Mean Wives $\bar{x}$	Mean Patients $\bar{x}$	F	p
PICA				
Overall	11.16	10.33	2.81	n.s.
Gestural	13.01	11.98	3.03	n.s.
Verbal	10.97	9.50	6.61	$<.05$
Graphic	8.81	8.70	.04	n.s.
CADL	94	94	.11	n.s.

Significant positive correlations existed between performance by the two groups (Table 4). Significant relationships between wives' and husbands' performance on all measures implied the wives had a good understanding of the nature and severity of their husbands' aphasia. The CADL mean scores, 94 for the wives and 93 for the aphasic patients, showed the strongest correlation.

Table 4. Correlations Between Aphasic Patients' and Wives' Simulated Performance.

Measure	r	p
PICA		
Overall	.84	.01
Gestural	.72	.05
Verbal	.82	.05
Graphic	.84	.01
CADL	.92	.01

Figure 1 shows the mean subtest scores on the PICA for the two groups, plotted on ranked response and modality response summary forms. The wives' simulated performance followed a pattern similar to the aphasic patient's performance (Figure 1a). These results differ from those reported by Porch et al. (1977), whose family members did not show an "aphasic" test profile on the PICA. There was a general tendency for wives to perform better than their husbands on the PICA gestural and verbal subtests (Figure 1b). While individual subtest scores showed obvious differences, particularly tests II, III, VI and X, only verbal performance differed significantly ($p < .05$). On the verbal subtests, the wives closely imitated their husbands' performance on subtest I. On subtests IV, IX, and XII, the wives' verbal performance was better than that of their husbands. (Perhaps they spend little of their day asking their husbands to name objects, complete sentences, and repeat words.)

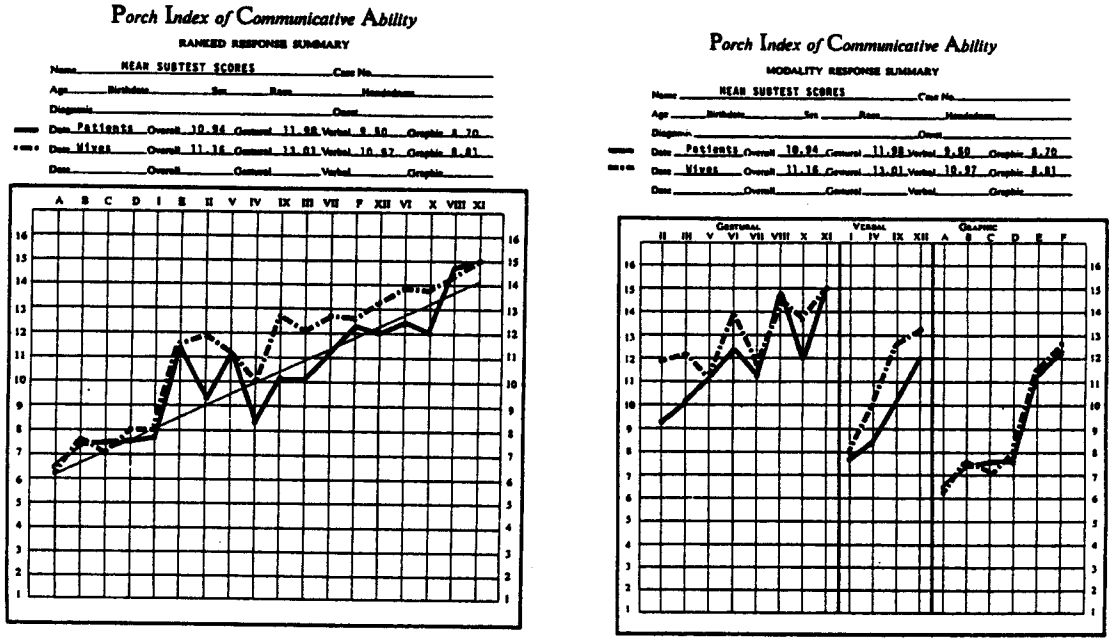

Figure 1. PICA Ranked and Modality Response Summaries showing mean performance by aphasic patients and their wives.

Graphic subtest scores were most similar between the two groups. Figure 2 demonstrates the wives' understanding of their husbands' writing ability by comparing PICA Subtest B performance by one couple. The wife elected to use her left hand to emulate her right hemiplegic husband.

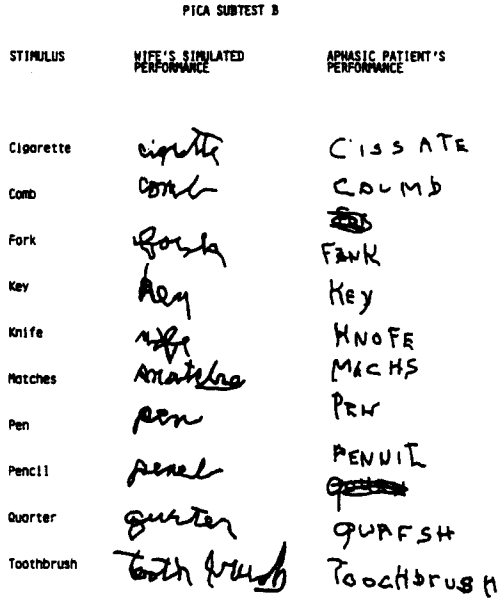

Figure 2. Performance on PICA Subtest B by an aphasic patient and his wife.

The wives' PICA scores were analyzed with a discriminant function analysis using weights developed by Porch et al. (1977). Six of the wives' simulated performance were classified as aphasic, and one's performance was classified as nonaphasic (Table 5). This was consistent with their husbands' diagnoses. Husbands of the six wives who simulated aphasic performance were diagnosed as aphasic. The wife whose score was nonaphasic was consistent with her husband's high performance on the PICA and his diagnosis of word deafness.

Table 5. PICA Discriminant Function Analysis.

Comparison	Wife's Simulation	Aphasic Husband
1	.94	.91
2	.67	.38
3	.51	.88
4	.39	.34
5	-.07	.72
6	-.14	.45
7	-.36	.23

Scores greater than -.211 = Aphasic
Scores less than -.279 = Not Aphasic
Scores between -.212 and -.278 = Undetermined

Further examination of the wives' scores revealed some of the characteristics observed by Porec and Porch (1977). While five of the patients were right hemiplegic and used their left hand exclusively, only two of the wives used their left hand for the entire PICA. The six aphasic patients were nonfluent,

but their wives were inconsistent in the fluency of their simulated verbal productions. None of the wives simulated apraxia of speech, even though four of the men were apraxic. One apraxic patient's mean PICA verbal subtest scores ranged from 3.4 on Subtest I to 5.1 on Subtest XII. At no time was he able to produce higher than a score of "7" on any item. His wife's simulated scores ranged from 2.0 on Subtest I to 10.4 on Subtest XII. This woman clearly articulated a number of words her husband could not produce. Perhaps she knows something about him we do not.

The wives' and husbands' individual CADL scores were compared using one of the ten categories discussed by Holland (1980). This category, called speech acts, consists of twenty-one test items. The items use speech, gesture, and/or writing to convey information. Both groups in this study achieved a mean score of 28 in the speech acts category. The wives appeared to understand how their aphasic husbands would communicate a message, regardless of the language modality used.

DISCUSSION

Our results differ somewhat from those reported by Helmick et al. (1976), Porch et al. (1977), Linebaugh and Young-Charles (1978), and Flowers et al. (1979). The wives we studied appeared to understand the nature and severity of their husbands' aphasia. They emulated their husbands' aphasia on all measures except the PICA verbal scores, where they produced a significantly elevated shadow of their husbands' performance. Further, all PICA scores and the CADL total score produced by the two groups correlated positively and significantly. Six of the wives simulated aphasia, as demonstrated by discriminant function analysis. We agree with Chwat and Gurland (1981) and Holland (1980), who found that family members could accurately estimate their aphasic relatives' language deficits. All of the previously mentioned authors have discussed the importance of providing counseling to family members of aphasic patients. Because the wives we studied participated in a support group for an average of two and on-half years, one might speculate this experience gave them a better understanding of aphasia and their husbands' deficits.

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