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An investigation of use of non-verbal behaviors among individuals with aphasia in Hong Kong: Preliminary data

Anthony Pak Hin Kong,
University of Central Florida, FL, USA

Sam Po Law, and
University of Hong Kong, Hong Kong SAR, China

Alice Su Ying Lee
University College Cork, Cork, Republic of Ireland

Background

Spoken language and non-verbal behaviors (NVB) are usually used together in human interaction. NVB is commonly employed by individuals with aphasia to supplement or facilitate verbal communications (Herrmann, Reichle, Lucius-Hoene, Wallesch, & Johannsen-Horbach, 1988). Even for severely-impaired aphasic individuals, use of spontaneous gestures that are meaningful, intentional, and communicative in naturalistic settings still exists (Rose & Douglas, 2003). The NVB in speakers with aphasia therefore contains rich information on the style and residual capabilities of communication. Nonetheless, only limited studies have examined gestural employment by speakers with aphasia. While the findings highlighted their importance and beneficial effects on enhancing communication, there is still much room to further explore the relationship between aphasia and other NVB, such as facial expressions or body movements. This study aims to investigate the use of NVB among Cantonese-speaking individuals with aphasia and normal speakers. The relationship between NVB employment and aphasia will be examined.

Methods

The participants included two speakers with fluent aphasia (one anomic and one Wernicke's) and two with non-fluent aphasia (Broca's). Four age-, gender-, and education-matched speakers acted as controls. Each participant was videotaped on their conversation about an important event and two story-telling tasks. The language samples were transcribed orthographically in Chinese. To capture the NVB demonstrated by the participants, the employment of (1) referent-related gestures (e.g., iconic gestures, pantomimes), (2) functional gestures (e.g., beats, self-cueing gestures), (3) facial expressions, and (4) adaptors (bodily or gestural touching behaviors) were tallied. The linguistic properties of the language samples, including the total number of words (token), utterances, and errors produced, were analyzed to evaluate their relations with the NVB. The total numbers of NVB, words, utterances, and errors produced, the NVB-to-token, NVB-to-utterance, and error-to-NVB ratios were computed and compared among groups.

Results

The frequency of employing NVB in the aphasia group was more than double than the controls. The most frequently used NVB included referent-related gestures and adaptors. The fluent aphasic speakers employed more adaptors, which often accompany nervous, stressed, or uncomfortable emotions. The non-fluent speakers, whose linguistic deficits were worsened by impaired or simplified syntax, used more referent-related gestures, possibly for

compensatory purposes. The least employed NVB were facial expressions by the aphasia group and functional gestures by the controls. The NVB-to-token ratio for the non-fluent speakers was five times of the fluent speakers and controls. The NVB-to-utterance ratio was also the highest for the non-fluent group. The mean error-to-NVB ratio for both aphasia groups was comparable (Table 1).

Conclusions

The present data are consistent with previous findings. Speakers with aphasia used significantly more NVB, including gestures, than normal individuals. A different pattern of employing NVB was observed between speakers with fluent and non-fluent aphasia. Further investigation is warranted for a better understanding of how NVB may facilitate verbal communication.

References

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- Rose M, Douglas J. Limb apraxia, pantomime, and lexical gesture in aphasic speakers: preliminary findings. *Aphasiology*. 2003; 17:453–464.

Table 1

Descriptive Measures on Employment of Non-verbal Behavior and Linguistic Properties of Language Samples

| | Aphasia Group (N=4) | Non-fluent aphasia (N=2) | Fluent aphasia (N=2) | Control group (N=4) |
|---------------------------------------|----------------------------|---------------------------------|-----------------------------|----------------------------|
| Total number of NVB | 38.5 (19.23) ^a | 55.00 (1.41) | 22.00 (4.24) | 17.75 (7.09) |
| <u>Percentage distribution of NVB</u> | | | | |
| (1) referent-related gestures | 34.92% (13.37) | 38.16% (1.59) | 31.68% (22.18) | 45.61% (17.92) |
| (2) functional gestures | 13.42% (11.10) | 18.95% (11.08) | 7.89% (11.16) | 13.88% (11.03) |
| (3) facial expressions | 7.47% (5.52) | 8.30% (9.21) | 6.63% (1.94) | 15.14% (15.50) |
| (4) adaptors | 44.19% (21.35) | 34.59% (3.46) | 53.79% (31.41) | 25.367% (29.97) |
| Total number of words | 739.5 (255.80) | 569.5 (195.87) | 909.50 (205.77) | 709.75 (135.15) |
| Total number of utterances | 57.5 (41.39) | 74.00 (63.64) | 41.00 (0.00) | 50.50 (15.15) |
| Total number of errors | 15.25 (11.62) | 22.00 (12.73) | 8.50 (7.78) | 0.50 (1.00) |
| NVB-to-token ratio | 0.06 (0.05) | 0.10 (0.04) | 0.02 (0.00) | 0.02 (0.01) |
| NVB-to-utterance ratio | 0.86 (0.71) | 1.19 (1.04) | 0.54 (0.10) | 0.34 (0.06) |
| Error-to-NVB ratio | 0.42 (0.29) | 0.40 (0.24) | 0.43 (0.44) | 0.03 (0.05) |

Note: NVB = Non-verbal behavior;

^a the values are listed in the order of "mean (standard deviation)".