



Using Emotional Valence to Analyze Elicited Stories about an Important Event Told by Individuals with Aphasia in AphasiaBank

Kathryn L. Arcy, Amanda R. Camp, Julie A. Fargo, Katie A. Strong, Ph.D., CCC-SLP

Department of Communication Sciences and Disorders, Central Michigan University

Background

Incidence of Stroke

Stroke is the leading cause of long-term disability and the leading preventable cause of long-term disability. Approximately 795,000 people in the U.S. have a stroke each year¹ and a third of people with stroke have aphasia.²

Impact on Identity

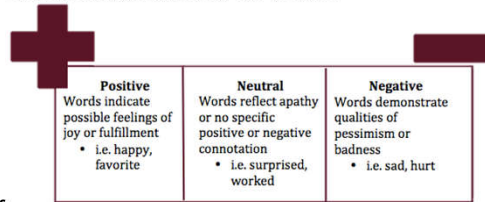
The impact of living with stroke and aphasia can be devastating and chronic as individuals with aphasia have a range of losses that can include physical, emotional, social, cognitive, and communicative abilities.³ These can all impact how a person with aphasia conceptualizes their identity.⁴ Individuals with aphasia report a lower quality of life than stroke survivors who do not have aphasia.⁵ Further, having aphasia was ranked as the largest negative impact on quality of health out of 60 diseases and 15 health conditions in individuals living in long term extended care facilities.⁶

Storytelling

Storytelling is a fundamental aspect of being human.⁷ Stories are a way to make meaning out of traumatic events, such as having a stroke and aphasia. Stories contribute to our identity and provide a lens through which we view ourselves.⁸

Emotional Valence

Emotional state of individuals living with aphasia is an important component in the rehabilitation process, both short-term and long-term.⁹ Emotional valence can be used to reveal the underlying attitudes and feelings of individuals with aphasia. The valence of one's story is a crucial part of understanding identity post-stroke. Vinson et al. identified a discrete scale of valence: negative, neutral, and positive.¹⁰



Research Aims

Using a discrete scale of negative, neutral, and positive, what is the emotional valence of a story about an important event told by a person with aphasia?

Methods



Data Source: AphasiaBank was used to access elicited stories about an important event told by people with aphasia.¹¹ A search revealed a total of 400 important stories; 162 stories were selected for analysis.



Procedures: Stories were coded by a group of 10 reviewers. Reviewers were trained in determining emotional valence. The discrete scale included positive, negative, and neutral ratings.¹⁰



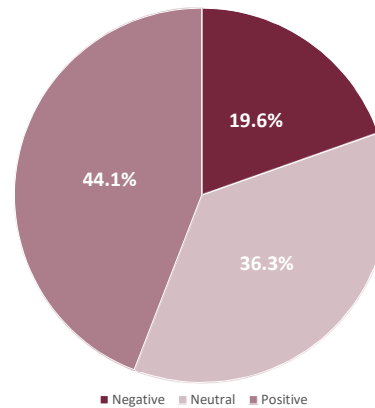
Analysis Each reviewer individually coded 40-45 cases for emotional valence. Reviewers cross-referenced their findings with another reviewer. Any discrepancies found between reviewers were brought to all reviewers for consensus. The codes for valence were entered into SPSS to analyze with descriptive statistics.

Results

Participant Characteristics (n=102)

Aphasia Type	Global (1), Broca's (14), Wernicke's (17), Anomic (17), Transcortical Motor (5), Transcortical Sensory (1), Conduction (23), Not Aphasic (24)
Severity	Severe (11), Moderate (42), Mild (49)
Age	<44 (5), 45-64 (50), 65-84 (44), >85 (2)
Sex	Male (54), Female (48)

Emotional Valence



Emotional Valence and Aphasia Type

Type		Global	Broca's	Wernicke's	Anomic	TransMotor	TransSensory	Conduction	Not Aphasic
Valence	Negative	0	2	2	3	2	0	6	5
	Neutral	1	2	10	5	2	0	9	8
	Positive	0	10	5	9	1	1	8	11
Total		1	14	17	17	5	1	23	24

Emotional Valence and Aphasia Severity

Severity		Severe	Moderate	Mild
Valence	Negative	2	6	12
	Neutral	7	15	15
	Positive	2	21	22
Total		11	42	49

Emotional Valence and Age

Age		<44	45-64	65-84	>85
Valence	Negative	1	10	9	0
	Neutral	2	15	18	1
	Positive	2	25	17	1
Total		5	50	44	2

Emotional Valence and Sex

Sex		Male	Female
Valence	Negative	5	15
	Neutral	27	10
	Positive	22	23
Total		54	48

Discussion and Impressions

Key Findings

The majority of the cases were determined to be positive in valence.

Clinical Application

The identification of emotional valence in storytelling may assist clinicians to be better able to identify emotions of clients with aphasia in the rehabilitation process. This understanding is important as improved rehabilitation outcomes are noted in individuals with aphasia who demonstrate positive mood states. Being able to identify the emotional valence of a story may be able to help clinicians guide their clients through the process of recovery and identity reconstruction through storytelling.

Limitations

Due to the exclusionary criteria, multiple cases were determined to be uncodeable and were not included in the study, having an overall affect on the sample size. Given the sample size, there was an uneven distribution of participants for aphasia type, severity, age, and sex to represent each independent variable equally. Also, the clinician varied per case, potentially causing differences within participants' responses.

Future Research

Future research may include analyzing the independent variables (i.e., aphasia type, severity, age, sex) impact on emotional valence further to determine if there is a relationship between emotional valence and non-verbal cues (i.e., facial expression, body language, gestures). Additionally, research could be conducted regarding a clinician's role in supporting and identifying an individual's emotional valence during the process of recovery.

Acknowledgements

We wish to acknowledge <https://aphasia.talkbank.org/> for providing the data of important events told by individuals with aphasia. A special thank you to Dr. Davida Fromm for support and education of AphasiaBank and the CLAN Software; Dr. Strong's Research Team for assisting in coding; and the CMU CSD Department for providing Student Research Funding for this project.

References

- ¹Impact of Stroke (Stroke Statistics). Stroke Association. <http://www.strokeassociation.org>. Updated June 6, 2016. Accessed February 28, 2018.
- ²Palmer R, Hughes H, Chater T. What do people with aphasia want to be able to say? A content analysis of words identified as personally relevant by people with aphasia. *PLoS ONE*. 2017; 12(3):2.
- ³Musser B, Wilkinson J, Gilbert T, Bokhour B. Changes in identity after aphasic stroke: Implications for primary care. *International Journal of Family Medicine*. 2015; 2015(2015): 8.
- ⁴Hole E, Stubbs B, Roskell C, Soundy A. The patient's experience of the psychosocial process that influences identity following stroke rehabilitation: A metaethnography. *The Scientific World Journal*. 2014; 2014, 13.
- ⁵Hilari K, Needle J, Harrison K. What Are the Important Factors in Health-Related Quality of Life for People With Aphasia? A Systematic Review. *Arch Phys Med Rehabilitation*. 2012; 93(1 Suppl 1): 90.
- ⁶Lam JM, Wodchis WP. The relationship of 60 disease diagnoses and 15 conditions to preference-based health-related quality of life in Ontario hospital-based long-term care residents. *Med Care*. 2010;48:380-387.
- ⁷Kenyon G. & Randall W. Restorying our lives: personal growth through auto biographical reflection. *Praeger*. 1997: 4.
- ⁸McAdams D. American identity: The redemptive self. *The General Psychologist*. 43(1), 20-27.
- ⁹Doughty Horn E, Crews J, Guryan B, Katsilometes B. Identifying and Addressing Grief and Loss Issues in a Person With Aphasia: A Single-Case Study. *Journal of Counseling & Development*. 2016; 94:2, 225-233.
- ¹⁰Vinson D, Ponari M, Vigliocco G. How does emotional content affect lexical processing? *Cognition & Emotion*. 2014; 28:4, 740.
- ¹¹AphasiaBank. *TalkBank*. Web. <https://aphasia.talkbank.org/>. 15 March 2019.