

Behavior Assessment Battery: Normative and comparative study of Greek-speaking school-age children who stutter

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Background

Studies in different cultures/languages (Gačnik & Vanryckeghem, 2014; Węsierska & Vanryckeghem, 2015) and a recent meta-analysis (Guttormsen, Kefalianos, & Næss, 2015) indicate that children who stutter (CWS) exhibit more negative communication attitudes than children who do not stutter (CWNS). Also, as suggested by Yaruss and colleagues (Coleman & Yaruss, 2014; Yaruss, 2007; Yaruss & Quesal, 2006) and adopted in clinical practice (Fourlas & Marousos, 2015; Oonk, Bast, van Ormondt, & Pertijs, 2014) assessment in the area of stuttering should not focus solely on the overt stuttering behaviors but rather address all the components of the World Health Organization's (WHO's) International Classification of Functioning, Disability, and Health Model (ICF; WHO, 2001). So, it is imperative for clinicians to assess the speech-associated attitudinal, emotional and cognitive/coping facets of stuttering using (in)formal diagnostic tools and if/when needed address these components in therapy. However, the absence of such formal assessment tools in the Greek language is striking.

Thus, the **goal** of this study was to address this void by adapting and standardizing for the Greek population of CWS, the *Behavior Assessment Battery* (BAB; Brutten & Vanryckeghem, 2007), one of the few and historically the first diagnostic battery that addresses the multifaceted nature of stuttering and different components of the ICF model. Furthermore, we used BAB to investigate whether the affective, behavioral, and cognitive self-reports of CWS differ from those of children who do not stutter (CWNS).

Method

PARTICIPANTS

- 68 CWS (56 boys) and 50 CWS (43 boys) between 6;0 and 15;10 years of age equated for age. The mean age of the total sample was 9;3 years of age (*SD* = 27 months)
- None of the participants had suspected/diagnosed speech-language problems (with the exception of stuttering for the CWS group) and other diagnoses.
- 60% participants were Greek and the remaining 40% Greek Cypriots
- All participants were monolingual speakers of Modern Greek

MEASURE

To ensure that the Greek version of BAB was culturally acceptable and linguistically/semantically and conceptually equivalent, the recommended method of forward- and back-translation was followed (Sousa & Rojjanasrirat, 2010). Also, to ensure the correctness of the text, the final translations were proof-read and edited by a Greek editor.

Behavior Assessment Battery (BAB)

Communication Attitude Test (CAT)

Assesses the child's attitude towards his/her speech. It is composed of 33 "True/False" questions (e.g., I like the way I talk)

Behavior Checklist (BCL)

Assesses the use of possible coping behaviors used in anticipation of, or during the moment of stuttering. It is composed of 49 Yes/No questions/items (e.g., To help your sounds or words come out do you.... close your eyes?).

Speech Situation Checklist-Speech Disruption (SSC-SD)

Assesses the perceived by the speaker speech disruption in different situations. It is composed by 54 rating questions/items (e.g., How is your speech when you... tell someone your address?)

Results

Table 1: Internal Consistency of BAB Subtests for CWS and CWNS

	Cronbach's alpha	
	CWS	CWNS
CAT	0.88	0.81
BCL	0.89	0.93
SSC-SD	0.96	0.97

Finding 1: The reliability (Cronbach's alpha) of CAT, BCL, and SSC-SD for both CWS and CWNS is good to excellent.

Table 2: Means (*M*), Standard Deviations (*SD*), *p* values, and Cohen's *d* estimates for the BAB subtests for CWS and CWNS.

	CWS		CWNS		<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)		
CAT	12.44	(6.78)	5.62	(4.29)	<.001	1.20
BCL	10.58	(7.76)	7.10	(7.94)	.02	0.44
SSC-SD	91.26	(27.55)	79.43	(28.50)	.03	0.42

Table 3: Cohen's *d* estimates for CAT in different studies.

Study	Cohen's <i>d</i>	CWS	CWNS	Language
Bernardini, Vanryckeghem, Brutten, Cocco, & Zmarich (2009)	2.66	149	148	Italian
Jelčić Jakšić (2012)	2.54	118	391	Croatian
Gačnik & Vanryckeghem (2014)	2.50	58	138	Slovenian
Brutten & Vanryckeghem (2007)	1.83	139	578	English
Vanryckeghem & Brutten (1996)	1.77	55	55	Dutch
Present Study	1.20	50	68	Greek
Kawai, Healey, Nagasawa, & Vanryckeghem (2012)	1.15	80	80	Japanese

Finding 2: CWS exhibited significantly **higher** CAT, BCL, and SSC-SD scores than CWNS.

Finding 3: Only the effect size of the difference in average CAT scores between CWS and CWNS was large.

Finding 4: There was **no** statistically significant difference in CAT ($z = -.49, p = .23$), BCL ($z = -.44, p = .66$), and SSC-SD ($z = -.85, p = .39$) scores between CWS who were enrolled in therapy ($N = 34$) and CWS who had never received services ($N = 16$).

Finding 5: Only BCL scores were significantly and moderately related to chronological age (*Spearman rho* = .31, $p = .03$) for CWS.

Conclusions

- The Greek BAB subtests have comparable degree of internal consistency/reliability as the original English version.
- Similarly to other languages/cultures, Greek-speaking school-age CWS exhibit significantly greater negative communication attitudes (CAT) more speech associated-avoidances (BCL), and greater difficulty speaking (SSC-SD) than CWNS. However the magnitude of the difference in communication attitudes between CWS and CWNS seems to be lower than that found in other cultures.
- The magnitude of the talker-group difference is greater for CAT than BCL or SSC-SD scores.
- The presence of coping and avoidance behaviors as captured by BCL seem to be increasing with age.
- The Greek BAB subtests, especially the CAT, will allow for a more comprehensive assessment and consequently holistic individualized treatment planning and therapy progress monitoring for Greek speaking school-age CWS in Greece and Cyprus.

Disclosures

Dr. Vanryckeghem is the coauthor of the Behavior Assessment Battery (BAB) and she does not have a financial relationship with the Greek BAB subtests described in this study. The other authors have no financial or other conflicts of interest that need to be disclosed.