COMMUNICATIVE AND PSYCHOLOGICAL DIMENSIONS OF THE *KIDDYCAT*

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ABSTRACT

The purpose of this study was to investigate the underlying constructs of the Communication Attitude Test for Preschool and Kindergarten Children Who Stutter (KiddyCAT; Vanryckeghem & Brutten, 2007). Extant KiddyCAT responses of 114 preschool-age children who do and do not stutter were subjected to a principal components factor analysis (PCA). Results indicate that a single dimension accounts for the KiddyCAT, one which seemingly relates to a speech-difficulty factor. Findings should further our understanding of how attitudes and/or awareness may contribute to developmental stuttering in preschool-age children.

INTRODUCTION

Awareness of stuttering and the emergence of speech-associated attitudes in preschool-age children who stutter (CWS) have long been the subject of considerable debate. While some have suggested that there is a lack of awareness and/or concern in the early stage of stuttering (e.g., Bluemel, 1932), others argued that varying levels of awareness may appear in some children at a very young age (e.g., Bloodstein, 1960; Yairi & Ambrose, 2005). Such observations have seemingly led others to focus the study of awareness and attitudes on grade school-age children and older individuals who stutter (e.g., Brutten & Dunham, 1989; Erickson, 1969; Yaruss & Quesal, 2008).

Empirical findings, however, indicate that children as young as two years of age exhibit some degree of awareness of stuttered versus fluent speech patterns (Ezrati-Vinacour, Platzky, & Yairi, 2001; Grinager Ambrose & Yairi, 1994). These findings seemingly prompted the development of the Communication Attitude Test for Preschool and Kindergarten Children Who Stutter (KiddyCAT; Vanryckeghem & Brutten, 2007). The KiddyCAT is a 12-item questionnaire designed to "provide cognitive data about the belief system" (interpreted as "attitudes") of children ages three to six regarding their speech abilities, based on children's self-reported responses. Vanryckeghem & Brutten (2007) found that preschool-age CWS scored significantly higher on the KiddyCAT than preschool-age children who do not stutter (CWNS), suggesting that preschool-age CWS are more likely to demonstrate negative attitudes toward their speaking abilities than their CWNS peers.

Since the KiddyCAT is currently the only assessment tool that attempts to measure awareness and/or speech-associated attitudes of preschool-age CWS, it seems important to better understand what dimensions are embedded in the test items. Unfortunately, our present understanding of the underlying test dimensions is less than fully developed.

Thus, the purpose of the present study was to empirically assess CWS/CWNS KiddyCAT responses in attempts to better understand if and/or how communicative, emotional and/or social processes contribute to childhood stuttering. This was accomplished by the collection of 114 KiddyCAT responses of preschool-age CWS and CWNS, and subjecting this data to a principal components factor analysis (PCA). Factor loadings were thought to help clarify some of the underlying constructs of the KiddyCAT and possibly reveal differentiating response tendencies of CWS when compared to CWNS.

METHOD

Participants: Participants included 52 preschool-age children who stutter (CWS) and 62 preschool-age children who do not stutter (CWNS). All were between the ages of 36 and 71 months of age (CWNS: M = 49.9 months; CWS: M = 47.4 months), with no significant between group differences in chronological age. Participants' data were collected as part of a large-scale empirical investigation of linguistic and emotional contributions to developmental stuttering (e.g., Byrd, Conture, & Ohde, 2007; Coulter, Anderson, & Conture, 2009; Walden, Frankel, Buhr, Johnson, Conture, & Karrass, 2010).

Procedure: Data collection for all participants included a parent interview, a conversational speech sample between the examiner and the child, as well as administration of a battery of (in)formal speech and language tests. Furthermore, all children were administered KiddyCAT questionnaires (Vanryckeghem & Brutten, 2007) in order to assess their speech-related attitudes/ awareness. Testing was done as part of a pre-experimental diagnosis/screening to determine inclusion/exclusion for subsequent experimental research.

An analysis of variance (ANOVA) was performed to assess whether CWS scored differently from CWNS on the KiddyCAT, particularly with respect to age and gender. To analyze the possible effect of age on KiddyCAT scores, participants were divided into younger (ages 3;0 – 4;6 years) and older (ages 4;7 – 5;11 years) age groups, in a fashion similar to that employed during the development of the KiddyCAT questionnaire (Vanryckeghem & Brutten, 2007). Additionally, KiddyCAT data were subjected to a categorical data principal components factor analysis (PCA) to determine the underlying dimensions of the questionnaire.

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Main finding #1: Preschool-age children who stutter scored significantly higher than children who do not stutter on the KiddyCAT, regardless of gender (Figure 1).
Implication: The KiddyCAT significantly differentiates between CWS and CWNS.

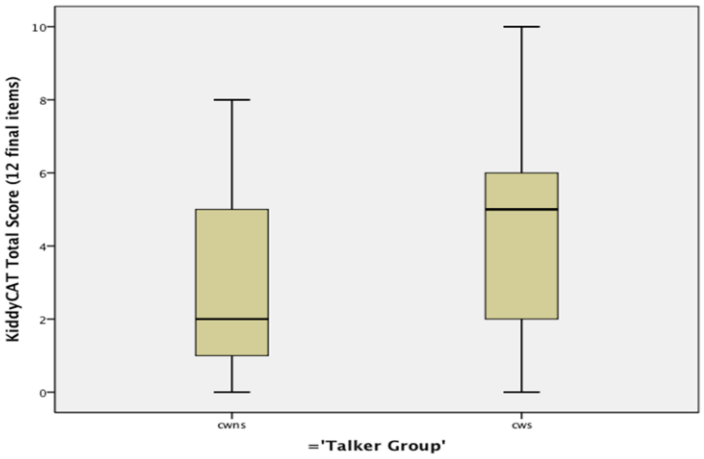

Figure 1. KiddyCAT scores of preschool-age CWS (*n* = 52; M= 4.42) versus CWNS (*n* = 62; M = 2.61).

All Children		CWNS		CWS	
Test Item	Value	Test Item	Value	Test Item	Value
Is it hard for you to say your name?	.802	Is it hard for you to say your name?	.815	Do people like how you talk?	-.663
Are words hard for you to say?	.798	Do you think that people need to help you talk?	.801	Is it hard for you to say your name?	.647
Do you think that people need to help you talk?	.770	Is talking hard for you?	.780	Do you think that people need to help you talk?	.633
Is talking hard for you?	.710	Are words hard for you to say?	.763	Do your words come out easily?	-.582

Table 1. *PCA Results:* Factor loadings of top four KiddyCAT items (Vanryckeghem & Brutten, 2007) for all participants (*N* = 114), CWS (*n* = 52), and CWNS (*n* = 62).

Main finding #2: ***Older CWNS*** scored significantly lower than **younger CWNS** on the KiddyCAT. No such difference was found for CWS, findings consistent with those of Vanryckeghem & Brutten (2007).
Implication: There is a significant age effect for CWNS on the KiddyCAT, with older, when compared to younger, preschool-age CWNS less likely to exhibit negative attitudes towards their speaking abilities.

Main finding #3: For preschool-age ***CWNS and CWS combined*** (*N* = 114), one clear dimension appears to account for the KiddyCAT, which seemingly relates to speech difficulty elements (Table I).
Implication*:* Preschool-age children with typical speech and language abilities understand and can relate to the notion/concept of "hard" with respect to their speech mechanism.

Main finding # 4: ***For CWNS*** (*n* = 62), one clear dimension accounts for the KiddyCAT, which seemingly relates to speech difficulty elements (Table I).
Implication: Typically developing preschool-age children understand and can relate to the notion/concept of "hard" with respect to their speaking abilities.

Main finding #5*:* **For CWS** (*n* = 52)**,** a single dimension seems to account for the KiddyCAT, one of which includes both agreement with questions related to "speech is **hard**" and disagreement with "speech is **easy,**" as well as speech-related social concerns (Table I).
Implication**:** Preschool-age CWS with typical speech and language abilities understand and can relate to the notion/concept of "hard" vs. "easy" with respect to their speech mechanism. Furthermore, CWS appear to have social concerns resulting from their speech difficulties. Taken together, this may reflect awareness of their stuttering from a variety of sources of information (e.g., cognitive, linguistic, motoric, emotional and social), which may foster negative attitudes towards their speaking abilities and/or the act of speaking itself.

DISCUSSION

The KiddyCAT significantly differentiates preschool-age CWS from their normally fluent peers. It may do so, at least in part, due to one distinct factor, which seemingly involves attitude and/or awareness of speaking difficulty (i.e., the concept/notion that speech is "hard" vs. "easy"). Perhaps these preschool-age children are developing some level of understanding of hard versus easy. This seems especially so for CWS who have multiple opportunities from which to develop awareness of the "easiness" vs. "hardness" of their speaking abilities and/or the act of speech itself. Such awareness may, in turn, contribute to these children forming less than attitudes towards their speaking abilities. One question this investigation raises is whether for CWS the notion of speech being "hard" *precedes* their disagreement with speech being "easy" or vice versa. It would also be interesting to explore the development of CWS' social concerns in relation to their conceptualization or awareness of speech difficulty.

CONCLUSION

In essence, the KiddyCAT appears to perform as purported by the test developers and seems to be tapping into children's attitudes/awareness salient to the onset of stuttering. Present findings seem to further our understanding of the underlying dimensions of the KiddyCAT, perhaps allowing for better interpretation of test results. Such understanding may contribute to better implementation/tailoring of therapeutic services for preschool-age children who stutter. Results should also further our understanding of how attitudes and/or awareness may contribute to developmental stuttering in preschool-age children.