

Studying the Differences in the Role of Speech Related Attitude in French-Speaking Preschool Children Who Stutter and Do Not Stutter

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1. Introduction

Stuttering is associated with long-term effects on social and emotional functioning, leading to a lower quality of life (QOL) throughout the lifespan (Blumgart et al., 2010; Iverach et al., 2018; Iverach & Rapee, 2014; Koedoot et al., 2011). The impact of stuttering on health-related QOL is already significant in preschool children who stutter (CWS) in the sense that they are more likely to experience behavioral, emotional and social difficulties from the age of three (McAllister, 2016; Ntourou et al., 2013). A widely used self-report tool for assessing communication attitude in preschoolers, the Communication Attitude Test for Preschool and Kindergarten Children who Stutter (Vanryckeghem & Brutten, 2007, 2018), has been validated in a range of nations on many continents. Previous studies have shown that preschool CWS express a negative attitude towards their speech ability in English (Clark et al., 2012; Vanryckeghem et al., 2005), Dutch (Vanryckeghem et al., 2015), German (Neumann et al., 2019), Slovenian (Brce & Vanryckeghem, 2017), Finnish (Jansson-Verkasalo et al., 2021), Greek (Ntourou et al., 2015), Italian (Bernardini et al., 2018), Turkish (Oral et al., 2022), Persian (Shafiei et al., 2015) and Polish-speaking countries (Węsierska & Vanryckeghem, 2015).

Communication attitude in children with developmental language disorder (DLD) is less explored. Using a self-report health related QOL scale in children with DLD aged seven to 13 years, Coales et al. (2019) reported scores below population norms on the ‘moods and emotion’ and the ‘social acceptance and bullying’ dimensions. As early as age three, parents reported language problems significantly impacting the communication and social functioning of their children (van Agt et al., 2005; Vlassopoulos et al., 2012). One question is whether children with language and phonological disorders experience a negative communication attitude to the same extent as is evident in CWS. De Nil and Brutten (1990) found no significant difference in speech-related beliefs between a group of school aged children with an articulation disorder and a control group of typically developing children. Groner et al. (2016) revealed that an increase in articulation errors coincided with a more negative attitude toward speech, as assessed by the KiddyCAT. In addition, McCormack et al. (2019) showed that about 40% of the English-speaking preschool children with speech sound disorders (SSD) reported a negative attitude toward talking, as indicated by their KiddyCAT score.

As it relates to the link between stuttering and language, a meta-analysis by Ntourou et al. (2011) revealed that CWS, as a group, exhibit lower receptive, expressive and overall language capacities than their typically developing peers. Other data, however, show that CWS exhibit the same range of language abilities as CWNS do (Watts et al., 2015; see Nippold, 2012, for a discussion). Earlier research (Blood et al., 2003), indicated that the co-occurrence of these conditions (fluency and speech and language issues) might reach up to 30% in the population of preschoolers who stutter. Whatever the relationship may be, as far as we know, no study has yet measured what might be the differential effect of stuttering or DLD on communication attitude in French-speaking preschool children, nor the possible cumulative impact of the two disorders on speech-related attitude.

This study aimed to:

- Assess the impact of stuttering on communication attitude in French-speaking preschool children by comparing the KiddyCAT scores of CWS to those of children who do not stutter (CWNS);
- Appraise the influence of DLD on communication attitude in preschool CWNS by comparing the KiddyCAT scores of CWNS with and without DLD;
- Evaluate the cumulative effect of having a DLD on communication attitude in preschool CWS by comparing the KiddyCAT scores of CWS with and without DLD;
- Explore the possible differential influence of DLD and stuttering on communication attitude by comparing the KiddyCAT scores of children with DLD to those of CWS;

- Assess whether significant correlations exist between speech and language abilities on the one hand and communication attitude scores on the other hand, both in CWS and CWNS.

2. Method

2.1. Participants

One hundred and seventy-eight children, 122 boys and 56 girls, aged 3 to 6 years (CWS: $M = 4.38$, $SD = 1.09$; CWNS: $M = 4.42$, $SD = 0.97$), were recruited through specialized speech-language therapists (SLT) throughout France. Of those, 85 were diagnosed with stuttering (hereafter, CWS), 30 of whom also presented with DLD (hereafter, CWS with DLD). Thirty-five only presented with DLD without related stuttering (hereafter, children with DLD), and 58 had no specific clinical background (hereafter, CWNS).

2.2. Materials

Each child was administered the following tests from the *Evaluation du Langage Oral (ELO)* battery (KHOMSI, 2001): receptive lexicon (picture designation), expressive lexicon (picture naming), word repetition (speech sound errors analyzed), sentence repetition (syntactic skills analyzed), and morphosyntax production (sentence completion).

The *Communication Attitude Test for Preschool and Kindergarten Children who Stutter* (Vanryckeghem & Brutten, 2007, 2018) is a standardized and norm-referenced self-report test that aims to assess the communication attitudes of children between the ages of three and six. Twelve statements are judged by the child as applying to them or not, by indicating “yes” or “no”. A negative speech-associated attitude is scored as 1 and positive thinking as 0, leading to a possible score between 0 and 12.

3. Results

3.1. Comparison of Communication Attitude in CWS and CWNS without DLD

As Figure 1 and Table 1 indicate, CWS report a significantly more negative communication attitude ($Mdn = 3$) than their fluent peers ($Mdn = 1$), $U = 908.5$, $p < .001$. Effect size, based on rank-biserial correlation, was moderate ($r_b = -.420$, 95% CI [-0.580, -0.229]).

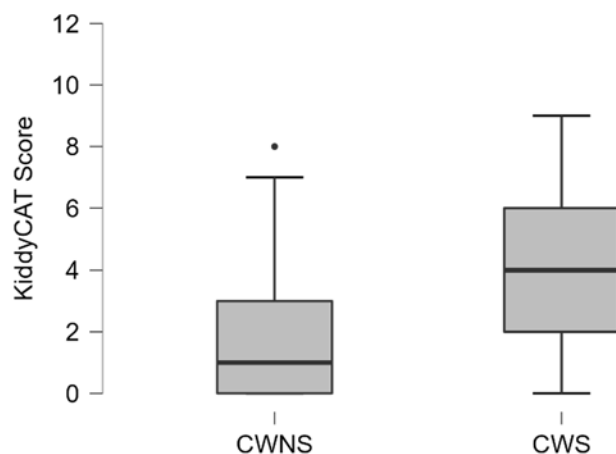


Figure 1 : Communication attitudes in CWS and CWNS

Table 1. Mean, Standard Deviation, and Range of KiddyCAT Scores for Children Who Stutter (CWS) and Children Who do Not Stutter (CWNS) with or without Developmental Language Disorder (DLD)

	KiddyCAT scores			
	Children with DLD	CWNS	CWS with DLD	CWS
Mean (SD)	3.68 (2.07)	2.16 (2.51)	4.83 (2.56)	3.44 (2.05)
Range	0 – 9	0 - 9	1 – 11	0 – 8

3.2. Comparison of Communication Attitude of Children with and without DLD

The communication attitude of children with DLD was significantly more negative (higher KiddyCAT score) ($Mdn = 4$) than those of their typical language peers ($Mdn = 1$), $U = 1429.0$, $p < .001$, with a moderate effect size ($r_b = .449$, 95% CI [0.234, 0.623]) (see Table 1 and Figure 2).

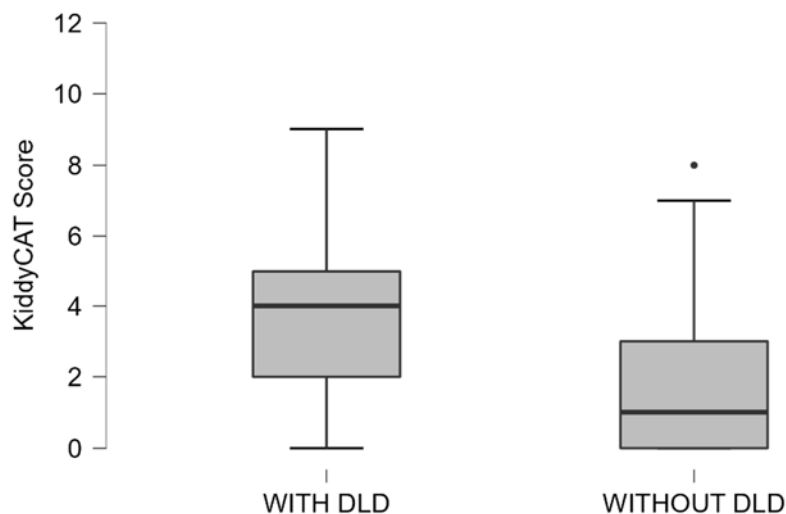


Figure 2 : Communication attitudes of children with and without DLD

3.3. Comparison of Communication Attitude of CWS with and without DLD

CWS with co-morbid DLD reported a more negative communication attitude ($Mdn = 5$) compared to peers who stutter without DLD ($Mdn = 3$), but without reaching the significance threshold, $U = 1015.5$, $p = .025$ (due to Bonferroni correction, the significant threshold was reduced to $p = .0125$). The effect size was small ($r_b = .297$, 95% CI [0.044, 0.514]) (see Figure 3).

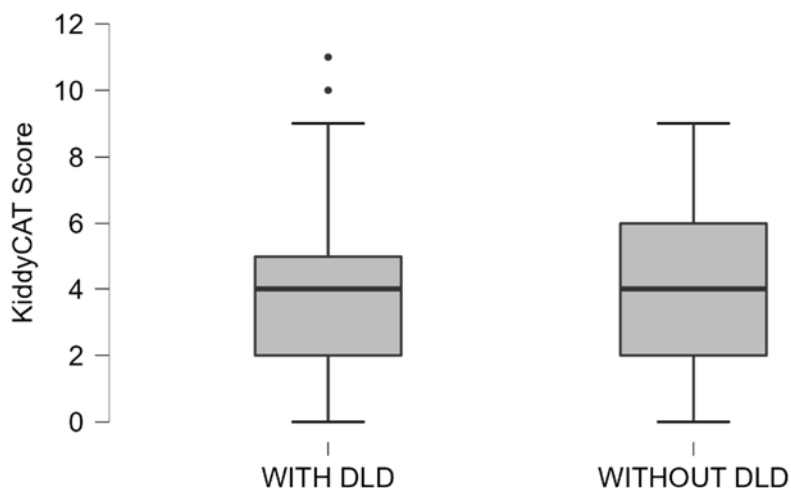


Figure 3 : Communication attitudes of CWS with and without DLD

3.4. Comparison of Communication Attitude of CWS and Children with DLD

The KiddyCAT scores of CWS ($Mdn = 4$) and children with DLD were compared ($Mdn = 4$). The difference was not significant, $U = 1081.5$, $p = .603$ and once again, the effect size was very small ($r_b = -.064$, 95% CI [-0.295, 0.175]) (see Figure 4).

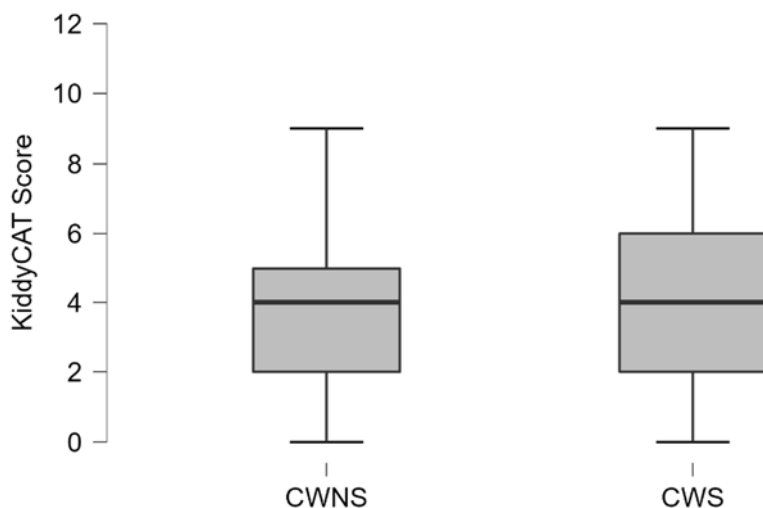


Figure 4 : Communication attitudes of CWS and children with DLD

3.5. Correlation between speech proficiency and communication attitude

To calculate these correlations, we grouped the two groups of children who stutter (CWS with and without DLD) on the one hand, and the two groups of children who do not stutter (CWNS with and without DLD) on the other hand. Assessing the relationship between speech and language difficulties and communication attitude, it was observed that, overall, CWS and CWNS do not exhibit the same pattern. For CWS (with and without DLD), no significant Spearman correlations were found between the five areas of speech and language assessed and KiddyCAT scores. For CWNS (with and without DLD), significant but moderate correlations were found between KiddyCAT scores and phonological and syntactic tasks (Table 2).

Table 2. Spearman Rho Correlations between Language Scores and Communication Attitude for Children Who Stutter (CWS) and Children Who do Not Stutter (CWNS)

	CWS with and without DLD (ρ)	CWNS with and without DLD (ρ)
Receptive lexicon	- .11	- .10
Expressive lexicon	- .02	- .22
Word repetition (articulation)	- .11	- .48***
Sentence repetition (syntax)	- .05	- .33**
Morphosyntax production	- .14	- .43***

** = $p < .01$, *** = $p < .001$

4. Conclusions

French-speaking preschool CWS express a significantly more negative attitude toward speech than CWNS. This result corroborates previous studies in other countries (Brce & Vanryckeghem, 2017; Clark et al., 2012; Jansson-Verkasalo et al., 2021, 2021; Neumann et al., 2019; Oral et al., 2022; Shafiei et al., 2015; Vanryckeghem et al., 2005, 2015; Węsierska & Vanryckeghem, 2015).

Furthermore, our research shows that, when compared to CWS, children with DLD report a similar communication attitude. The present findings revealed that preschoolers with DLD had higher KiddyCAT scores than preschoolers without DLD, in contrast to De Nil and Brutten's 1990 study, which found no significant difference between school-age children with an articulation difficulty and a control group. The current findings support earlier research that highlight the detrimental effects of DLD on QOL and show that reduced speaking abilities are associated with higher KiddyCAT scores (Arkkila, 2010; Arkkila et al., 2008, 2009, 2011; Coales et al., 2019; Eadie et al., 2018; Hubert-Dibon et al., 2016; Nicola & Watter, 2015; van Agt et al., 2005; Vlassopoulos et al., 2012). Our study shows that preschoolers express the negative implications of having a language disorder, which is demonstrated by their report of a negative belief about their speech and language abilities (van Agt et al., 2005; Vlassopoulos et al., 2012). If these negative reactions are not recognized, the child may limit social interactions and withdraw from communication situations, which could result in a decrease in QOL as they become older (Eadie et al., 2018).

According to studies by McCormack et al. (2019) and Groner et al. (2016), only in CWNS do phonological and articulation skills strongly associate with a negative communication attitude. The findings of our study are consistent with their data. The present research extended these findings, showing that in addition, there is a significant correlation between communication attitude and expressive morphosyntactic skills. Assessment of communication-related attitude should therefore be optimally performed as part of the QOL assessment.

This research has succeeded in putting the spotlight on the question of the psychological and cognitive impact of expressive language disorders in young children. It is well documented that individuals with childhood onset stuttering have a negative communication attitude compared to typical speakers from early childhood into adulthood. The current study expanded on this topic to include children with DLD and revealed that DLD has an impact that is not statistically different from stuttering on communication attitude in young children.

Disclosures

Financial: None.

Nonfinancial: The second author is the co-developer of the Communication Attitude Test. No nonfinancial relationships exist for the first and third authors.

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