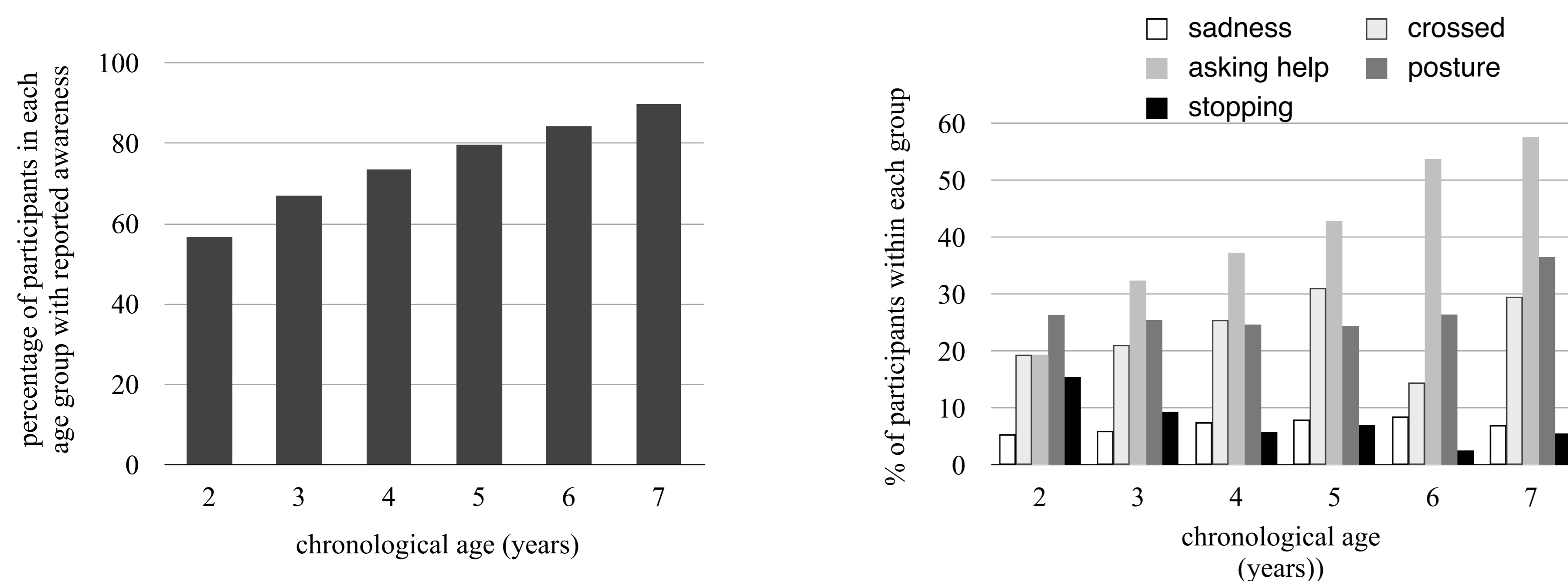
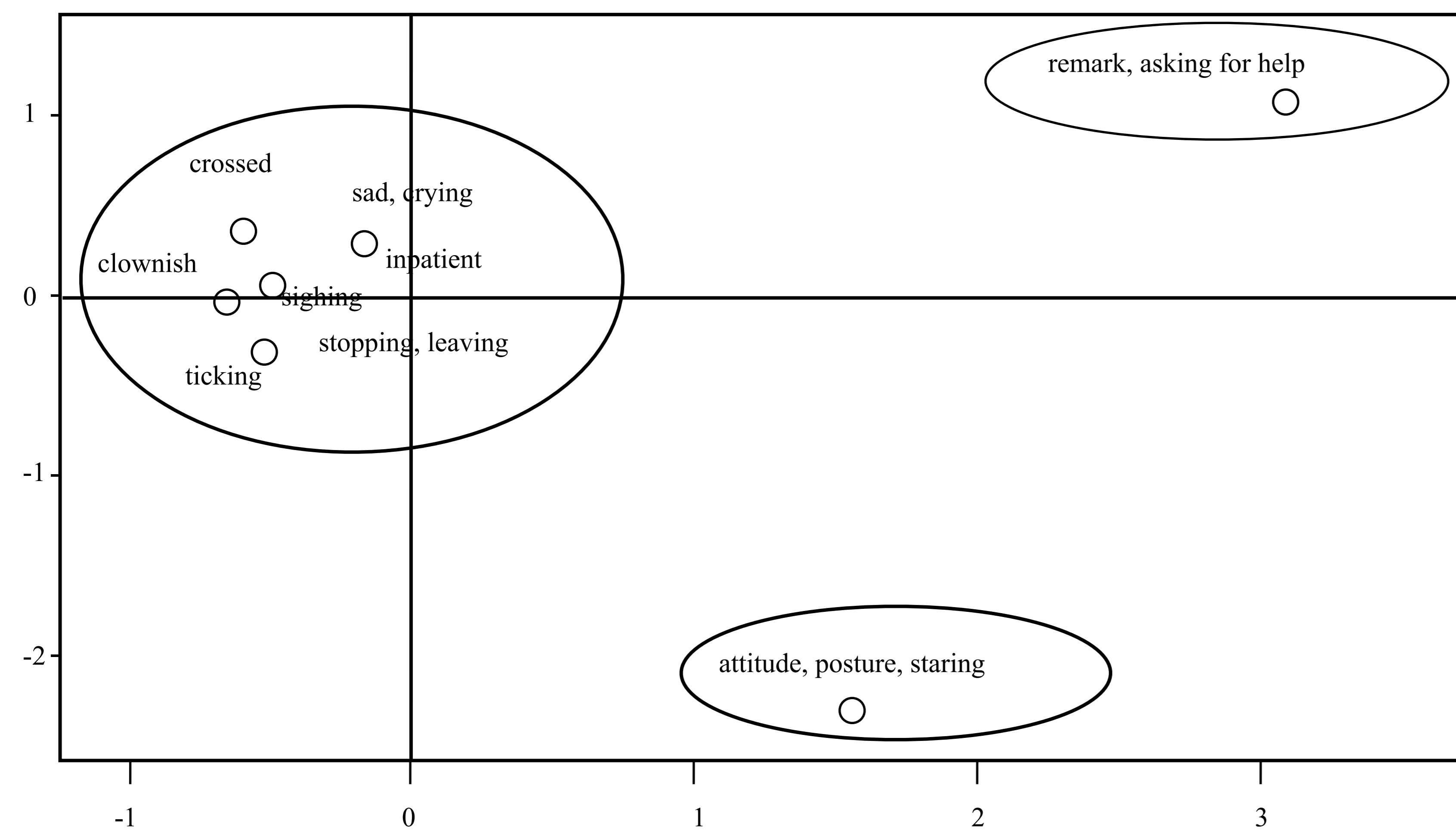


Awareness of young stuttering children towards their speech disfluency

Ronny Boey^{1,2}

This study is part of the Antwerp epidemiological and phenomenological study on stuttering (Boey, 2008). Awareness has been an important factor in theories of onset and development of stuttering. So far it has been suggested that even young children might be aware of their speech difficulty. The purpose of the study was to investigate (a) the number of stuttering children aware of their speech difficulty, (b) the description of reported behavioral expression of awareness, (c) the relationship with age-related variables and with stuttering severity.

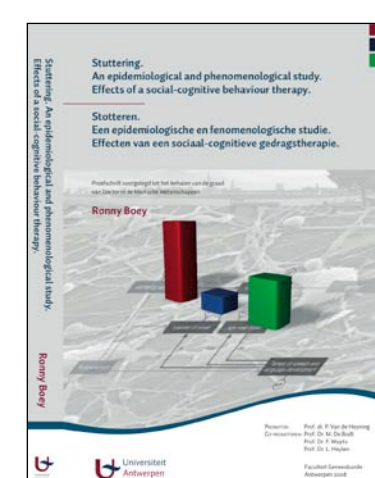


¹ The present findings are part of the results of a doctoral research project conducted by the author at the University of Antwerp, Faculty of Medicine.

² Centrum voor Stottertherapie Wijnegem (Antwerp, Belgium)
Ph.D. & Post Doctoral Researcher University of Antwerp, Belgium

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Abstract

For a total group of 1122 children with mean age of 4 year 7 months (range 2–7 years old), parental-reported unambiguous verbal and non-verbal reactions as a response to stuttering were available. In the present study, awareness is observed for 56.7% of the very young children (i.e., 2 years old) and gradually increases with age up until 89.7% of the children at the age of seven. All considered age-related factors (i.e., chronological age, age at onset and time since onset) and stuttering severity are statistically significantly related to awareness.

Participants

- A group 1122 native Dutch-speaking young stuttering children participated and consisted of 850 boys and 272 girls. Male-female ratio: 3.1 : 1

Criteria and variables

Stuttering

- procedure of assessment according to Boey et al. (2007)
- in essence > 3% Stuttering-Like Disfluencies to total words

Stuttering severity

- use of sub-scores and total score of the Stuttering Prediction Instrument (Riley, 1984)
- use of sub-scores and total score of the Test voor Stotteren Niet-Lezers [Test for Stuttering Non-Readers] (Boey, 2000, 2007)

Age

- Mean age is 55 months i.e. 4 years 7 months (range 2-7 years old)

Age at onset

- Mean age is 40.3 months [3 years 4 months] ($SD = 12.3$). Median = 36 months

Time since onset

- 0-4 months $n = 306$
- 5-11 months $n = 258$
- 12-21 months $n = 271$
- > 22 months $n = 262$
- $n = 5$ missing data

Awareness

defined either as parental-reported observations of self-remarks or unambiguous non-verbal reactions related to the child's own speech difficulty/stuttering

Methods

Interview procedure with a section with questions related to awareness

- How does your child react towards the speech difficulties? (open question).
- Do you think the child is conscious about the problem of speech? (yes/no/doubt/unknown to us).
- If so, how do you know? (open question)
- Different possibilities of reactions were asked for, specifically the following:
 - The parents are sure about consciousness or reaction towards the child's speech because of the expression of the child (e.g., sighing, staring etc.).
 - During a stuttering moment, the child stops talking and avoids the situation.
 - The child gives a remark about his speech (e.g., "My mouth doesn't work well." "I stutter." "I can not speak anymore." "Something is stuck in my throat." etc.).
 - The child cries because of the speech difficulty.
 - The child becomes very impatient, crossed about his or her speech (e.g., the child says "Oh no always the same" interrupting a stuttering event and ticking on his head).
 - The child asks for help (e.g., "I can't talk well, can a doctor help me?" "Can you give me a syrup to help me speak at once?"). These examples refer to young stuttering children (< 48 months of age).
 - Immediately after a stuttering event, the child deliberately starts to stutter, exaggerating the severity and duration. The child starts to behave clownish while stuttering.

Observation and analysis of a speech sample for each participant.

Completing SPI and TvS-NL

Data-analysis: recoding, cluster analysis, Chi-square analysis, logistic regression analysis, analysis of variance. Final analysis of data included 1096 of 1122 children (7 missing data and 19 undecided).

Results

Awareness

- 802 children (i.e. 73.2%) of the children have been reported being aware of their speech difficulty/stuttering giving a total of 1102 registered responses.
- The number of different responses differed for each child as tabulated:

number of different responses	number of children	percentage to total with awareness
1	87	10,85
2	340	42,39
3	293	36,53
4	73	9,10
5	9	1,12
Total	802	100,00

- Multidimensional scaling suggests three distinctive clusters of reactions, as can be seen in the left figure above. The first cluster can be described as a *verbal reaction* of the child towards his or her own speech; the second cluster as a *global non-verbal reaction* and the third cluster as diverse *specific non-verbal reactions*.

Awareness and age-related variables

- Awareness increases gradually with age ($p < .000$) from 56.7% for children of 2 years old to 89.7% for children of 7 years old. See left figure beneath.
- The number of children becoming crossed ($p = 0.006$) and asking for help/giving a remark ($p < .000$) increased with increasing age. The number of children stop talking/leaving the situation decreased with increasing age ($p < .003$). Responses of sadness or posture are not significantly related with age.
- Children who began to stutter at a later age report more often awareness compared with children who began to stutter at a younger age ($p < .000$).
- When time since onset increases the percentage of children being aware increases also ($p < .000$). However this significant relationship does not remain when controlled for chronological age ($p = .425$).

Gender

- No statistically significant differences between sexes was noticeably related to awareness ($p = .425$) even not when controlled for stuttering severity across age groups. Only for becoming crossed as response type of awareness boys showed a higher number than girls ($p = .037$)

Stuttering severity

- Children *with* awareness seemed to obtain higher scores on the SPI ($M = 22.5$, $SD = 6.66$, $n = 756$) compared to children *without* awareness ($M = 19.98$, $SD = 6.698$, $n = 285$), $p < .000$. Levene's test revealed no statistical differences between the variances of both groups ($p = .964$).
- Children *with* awareness obtain higher scores on the TvS-NL ($M = 21.01$, $SD = 8.567$, $n = 470$) compared to children *without* awareness ($M = 17.15$, $SD = 7.987$, $n = 162$), $p < .000$. Levene's test revealed no statistical differences between the variances of both groups ($p = .964$).
- The only significant difference concerning stuttering severity occurred between the children of 2 years old and the children of 3 years old (Bonferroni post hoc analysis $p = .03$)

Conclusions

- The majority of stuttering children in the present study (73%) has been reported by their parents to be aware of their speech difficulty/stuttering.
- Reported signs of awareness can be clustered as verbal reactions (remarks, asking help etc.), as global non-verbal reactions (attitude, posture, staring etc.) and as specific non-verbal reactions (crying, being crossed, ticking, clownish behaviour etc.).
- The number of children reported as being aware of their speech difficulty/stuttering gradually increases with age.
- If children start to stutter at an older age, they show more awareness compared to children who began stuttering at a younger age.
- Gender does not seem to be related to awareness.
- There is a clear relationship between stuttering severity and awareness. As a group, stuttering children classified as aware about their speech difficulty/stuttering, have a higher mean stuttering severity than the stuttering children reported as not aware of their speech difficulty/stuttering.