

In the Antwerp epidemiological and phenomenological study on stuttering the relationship between temperament and stuttering have been studied. The analysis of reported and observed variables revealed (a) a higher incidence of temperament in a group of stuttering children, (b) some more typical onset-related characteristics (more sudden, more factors near onset, more precocious speech and language development), (c) typical more vowel prolongation, higher overall stuttering severity, more physical concomitants, (d) more awareness in terms of becoming crossed (anger) about their disfluent speech.

Temperament and onset of stuttering

Participants

- A group of 437 young stuttering children participated.
- The mean age is 49.9 months i.e. 4 years 2 months ($SD = 13.3$; range 1;11-7;3 years).

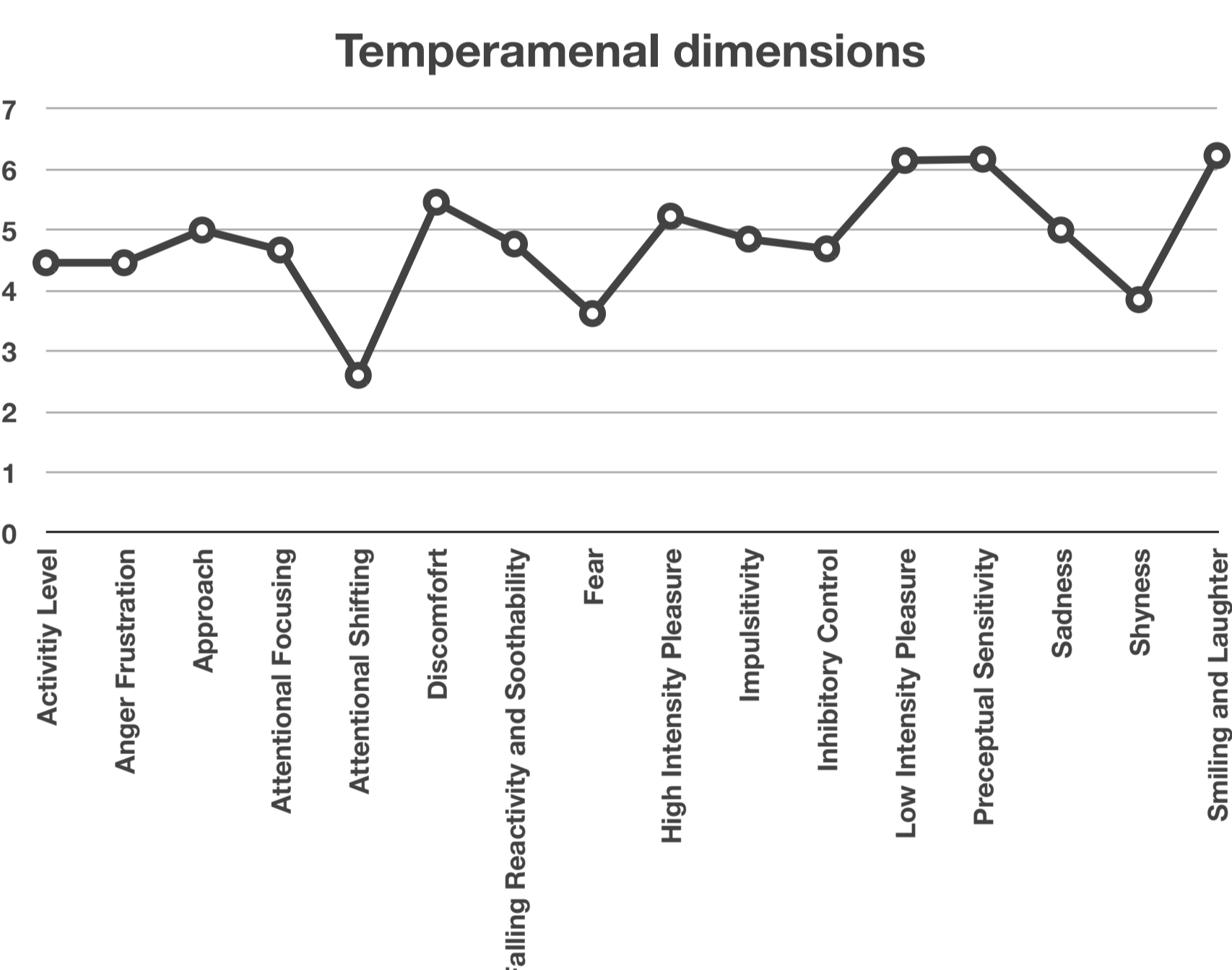
Criteria stuttering

- parental-reported stuttering characteristics
- referral for reasons of stuttering
- observation of $\geq 3\%$ stuttering-like disfluencies in a speech sample (Boey et al. 2007, 2009)
- a positive detection of stuttering on the Detection Instrument of Stuttering DIS (Stes & Boey, 1997)
- Stuttering Prediction Instrument SPI scores ≥ 11
- Test voor Stotterernst Niet-Lezers TvNL [Test for Stuttering Severity Non Readers] scores ≥ 3

Criteria temperament (Chess & Thomas, 1977, 1996, Rothbart 1993, 1994)

- high level of energy, motor activity
- problems with circadian rhythm (e.g. sleeping, eating problems)
- problems with initial reaction and adaptation to new situations
- strong will
- high emotional reactivity and temper tantrum
- intensive and quick change of mood
- problems with attention regulation (shifting, persistence)

Profile CBQ-Dutch (Majdandžić & Rothbart, 2001)



Findings

- a sudden onset of stuttering is more often associated with high temperamental children compared with not high temperamental peers (53% versus 38.5%) than a gradual onset (47% versus 62%)
- factors near onset of stuttering have been reported more frequently for high temperamental children compared with not high temperamental ($p = .027$)
- high temperamental children obtained a significantly higher stuttering severity than the not high temperamental children ($p < .000$)
- delayed tempo of speech/language development is less associated with high temperamental children, and precocious tempo of speech/language development is more often associated ($p = .01$)

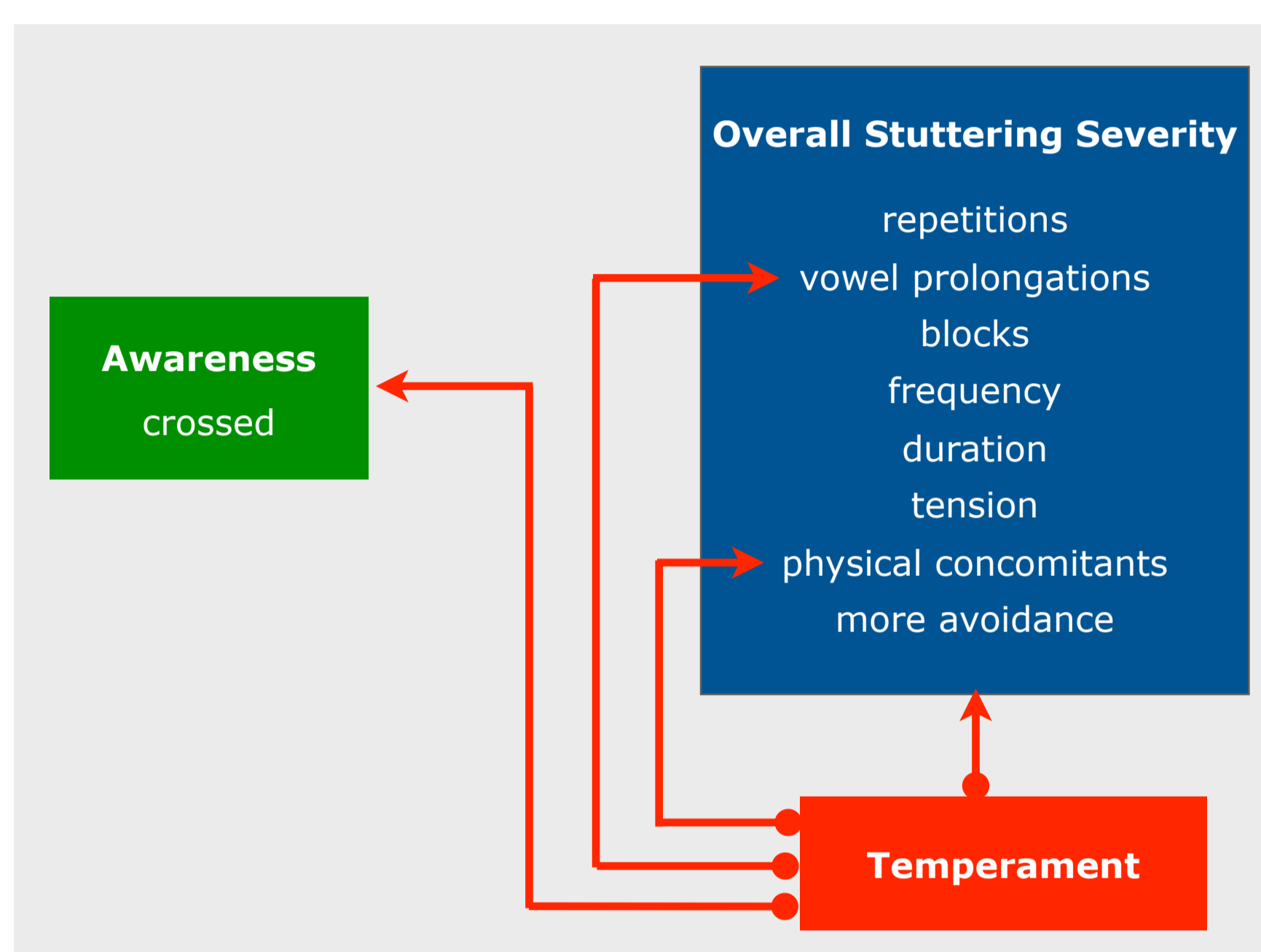
Temperament and stuttering phenomena

Participants

- A group of 479 young stuttering children participated.
- The mean age is 50.1 months i.e. 4 years 2 months ($SD = 12.9$; range 1;11-6;3 years).
- 361 male participants (75.4%) and 118 female (24.6%) - gender ratio 3:1

Incidence of high temperamental behaviour

- 169 children of the total group (35.2%)
- 128 male participants i.e. 35.5% of all males and 26.7% of the total group
- 41 female participants i.e. 34.7% of all females and 8.5% of the total group



Stuttering-like disfluencies

- more vowel prolongations are reported for the high temperamental stuttering children (38.2%) compared with not high temperamental stuttering children (20.6%) ($p < .000$)
- more vowel prolongations observed in the speech of high temperamental stuttering children (SPI 45%, TvS-NL 55%) ($p < .000$) compared with not high temperamental stuttering children (SPI 20%, TvS-NL 34%) ($p < .000$)
- correct classification of high temperamental stuttering children based on the observation of vowel prolongation = 69%
- more high temperamental children obtain higher consistency scores on the TvS-NL ($p < 0.049$)

Stuttering severity

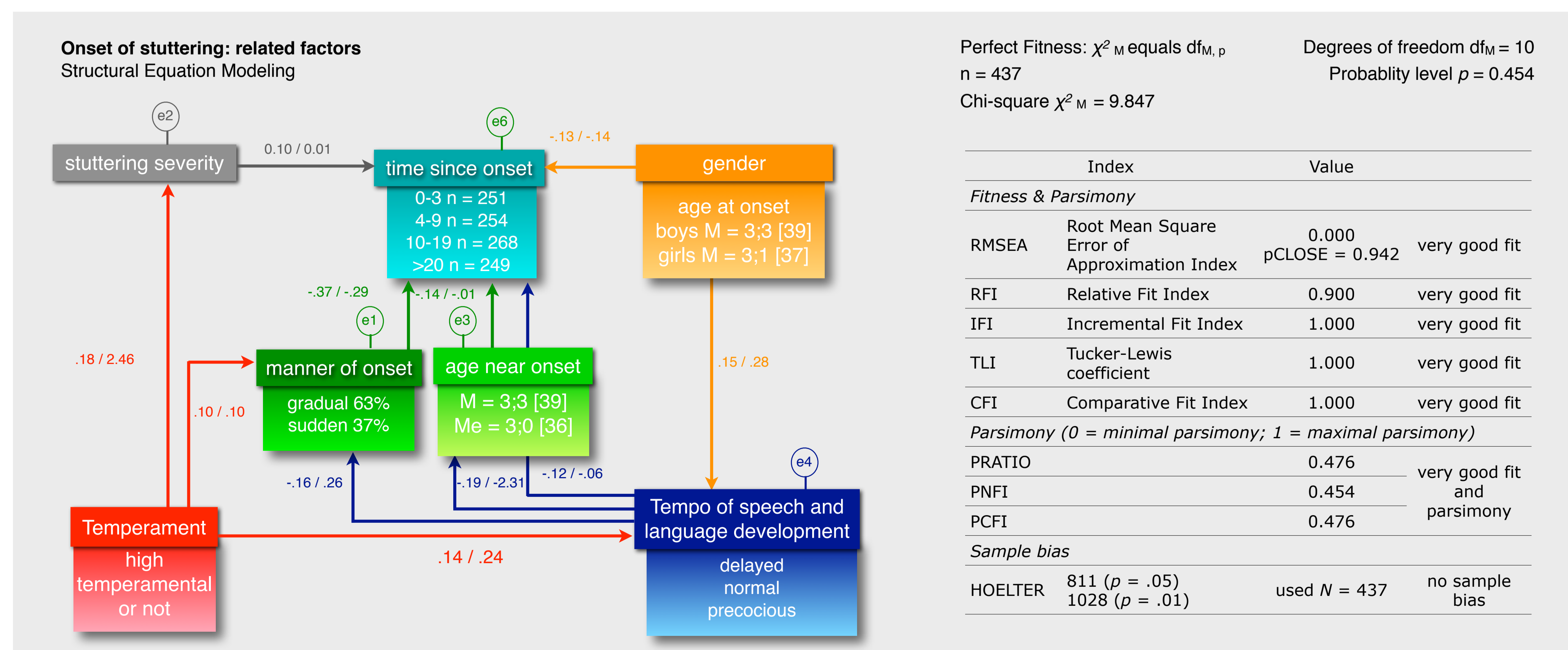
- significant higher overall stuttering severity score obtained by high temperamental stuttering children (SPI $M = 23.4$, $SD = 6.2$; TvS-NL $M = 22.2$ $SD = 7.8$, $p < .000$) compared with not high temperamental stuttering children (SPI $M = 20.7$ $SD = 7.0$; TvS-NL $M = 18.8$, $SD = 8.3$, $p < .000$)

Physical concomitants

- significant more reported physical concomitants in the group of high temperamental children (41.9%) than in the group of not high temperamental children (24.3%) ($p < .000$)
- significant higher severity for physical concomitants observed in the speech high temperamental stuttering children (74.1%) than in the speech of not high temperamental children (56.1%) ($p < .000$)

Awareness

- more high temperamental stuttering children (29.4%) reported to become crossed in reaction to their disfluent speech compared with not high temperamental stuttering peers (21.2%) ($p = 0.04$)



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(2) Boey, R. (2008) Stuttering. An epidemiological and phenomenological study. Effects of a social-cognitive behaviour therapy. Antwerpen: Universiteit Antwerpen Faculty of Medicine and Health Sciences.