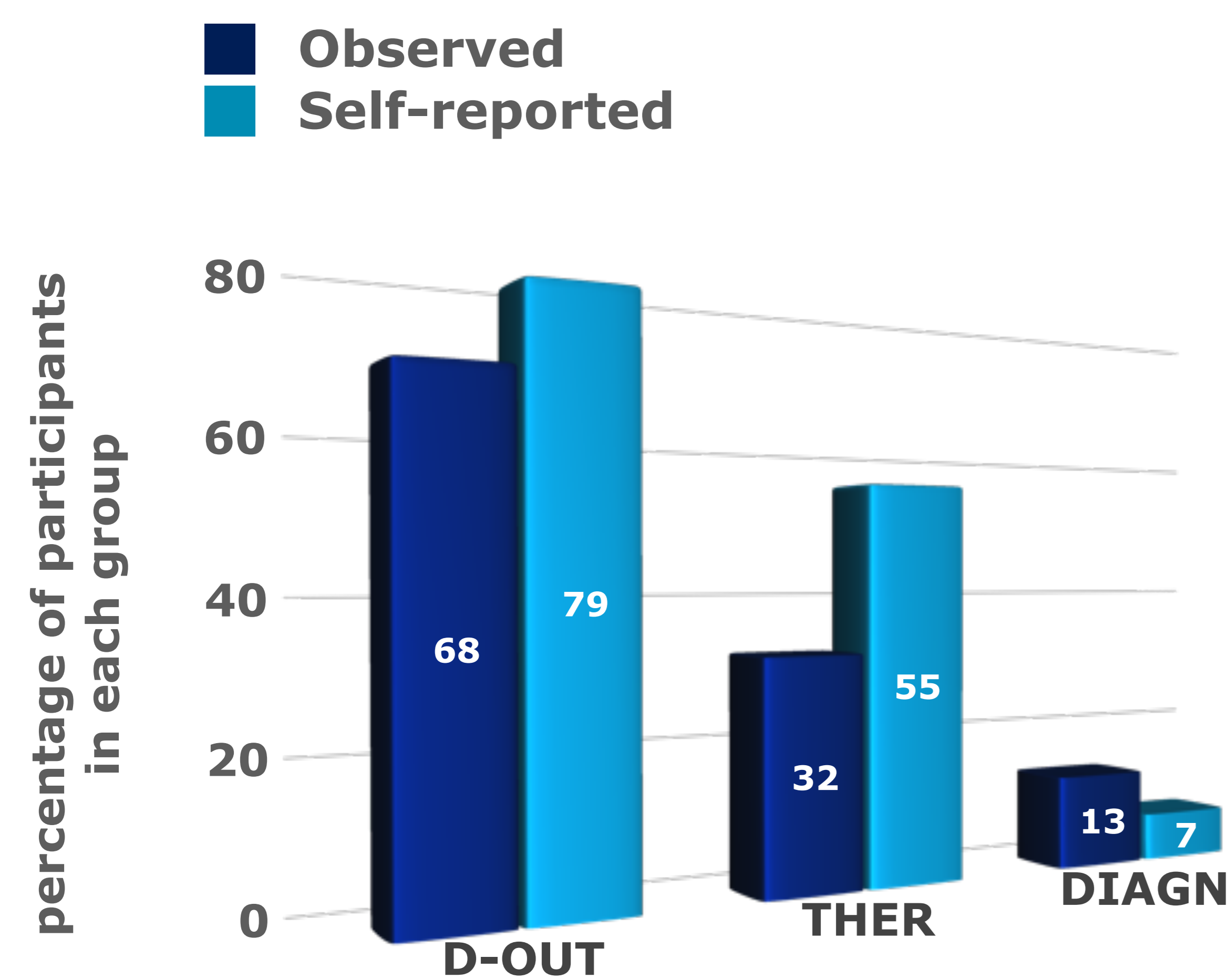# Stuttering:
effects of a social-cognitive behaviour therapy.

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Effects of a social-cognitive behaviour therapy for stuttering have been studied on long term for three different at random selected groups of participants (N = 122): a the therapy group, an only-diagnosis group and a drop-out group. Observed and reported data have been obtained at the first intake and at the moment of follow-up on the average 10 years later, concerning: (a) self-report and diagnosis of stuttering, (b) stuttering-like disfluencies (frequency, duration, tension), (c) precipitating factors, (d) stuttering-associated behaviour (physical concomitants and avoidance behaviour), (e) speech-related cognition and emotion, (f) speech attitude, (g) personality characteristics, (h) listener reactions. In addition, a quality-of-life study has been completed. Findings reveal that (a) for the drop-out group the diagnosis of stuttering has been observed for approximately more than twice the value of the therapy group. (b) A discrepancy emerges between the outcome of the diagnosis of stuttering when based on direct observation of stuttering in speech samples compared with the self-report of stuttering. (c) The findings for the three groups contribute to clarify the reported numbers of unassisted recovery for stuttering. (d) All for-mentioned speech-related phenomena improved significantly for the therapy-group, compared with the drop-out group.

Observed / Self-reported

The figure left illustrates the percentage of persons who stutter (PWS) that meet the diagnostic criteria for stuttering at the re-evaluation (dark blue bars) for the drop-out group (D-OUT), the therapy group (THER) and the only-diagnosis group (DIAGN). The percentage of PWS that still stutters at the re-evaluation based on self-report is also illustrated (light blue bars).

Diagnosis of stuttering at the re-evaluation

The figure right illustrates the z-transformed stuttering severity scores obtained by the individuals of the therapy group at intake (PRE z-scores) and post therapy (POST z-scores). The results are shown for each age category when starting therapy. Positive z-scores indicate a higher stuttering severity, and negative z-scores a lower.

Participants

- *Number.* A group of 122 persons who stutter (PWS) participated, all native Dutch-speaking individuals leaving in Flanders, northern part of Belgium (Europe).

- *Groups.* A first group of 87 PWS -the therapy group- has received a social-cognitive behaviour therapy for stuttering. A second group of 19 PWS -the drop-out group- has been recommend to engage in therapy but did not do so. A third group - the only-diagnosis group- has been advised not to take therapy.

- *Criteria for participation:*
  - the therapy-group: (a) diagnosed as stuttering on the initial assessment, (b) recommend to involve in therapy, (c) completed a social cognitive emotive behaviour therapy for stuttering, (d) not being engaged in any form of treatment for reasons of speech or stuttering since the end of therapy, (e) randomly selected out of a database with clients who meet all of the former criteria, (f) responding positively to the invitation to be re-examined post therapy.
  - the drop-out group: (a) PWS who meet the same criteria as the therapy-group (b) except for the fact that they did not engage in therapy although they have been recommended to do so. (c) Furthermore, they reported not have taken any therapy after the diagnosis.
  - the only-diagnosis-group: consisted of PWS that only received a diagnosis and have been recommended not to take therapy, based on reported and observed data indicating (a) a mild stuttering severity, (b) the estimation of absence or low impact of potential stuttering precipitating factors, (c) the absence of listener reactions towards the stuttering of the child, (d) the estimation of low sensitivity of the child, and emotional stability of the parental environment.

Individual pre and post z-transformed stuttering severity scores related to age category
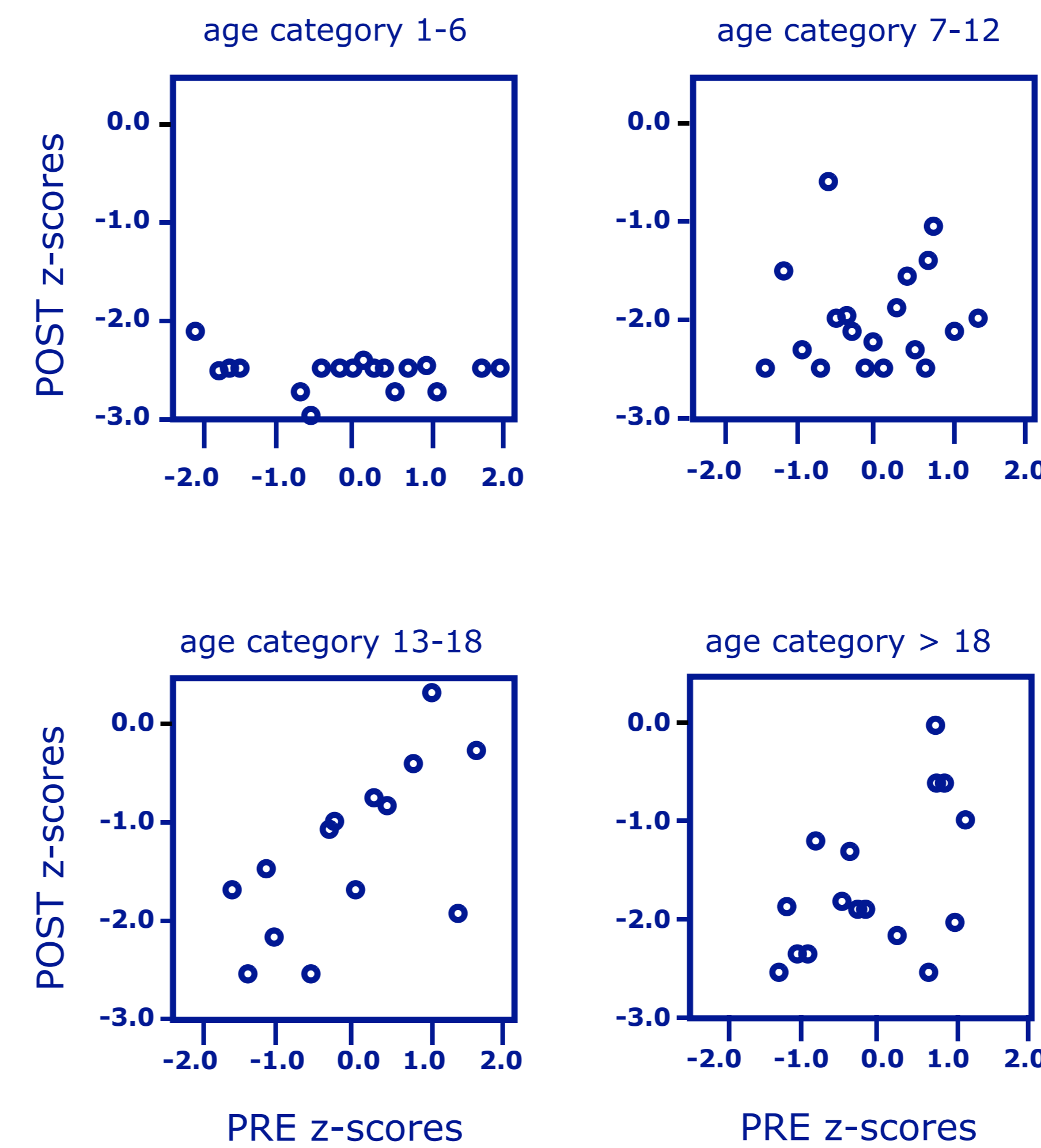
- *Response rate.* The percentage of response rate "telephone contacted/re-examined" is 93.5% for the therapy-group, 83.3% for the only-diagnosis group, 70.4% for the drop-out group. The ratio "scheduled/re-examined" is respectively 97.8%, 93.8% and 95.0%.

- *Time between pre en post condition.* The mean time between pre and post examination is 10;0 years (SD = 3;3; range 2;2-14;8). The median value is 10;8 years.

- *Duration of therapy (ref. sessions of 30 minutes).* For the age category 1-6 M = 63 (SD = 31); for the age category group 7-12 & 13-18 M = 80 (SD = 34) and for the age category group of adults (> 18) M = 94 (SD = 39).

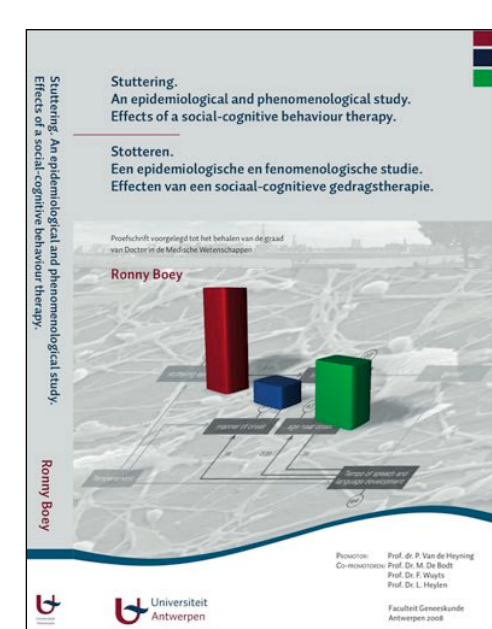## Universiteit Antwerpen

Stratification

- The therapy-group has been stratified according to age category, gender, temperament and stuttering severity.

- *Age category:* 4 groups have been constructed : (a) young children (1-6 years), (b) children (7-12 years), (c) teenagers and adolescents (13-18 years), (d) adults (> 18 years).

- *Gender:* 48 males and 39 females participated

- *Temperament:* the young children and children have been divided in a subgroup of children with high temperament (n = 25) and children without high temperament (n = 24)

- *Stuttering severity:* within each age category group, gender group and temperamental group, about 50% of the PWS have been classified with a stuttering severity score lower than the median value of an applied test, and 50% above that value.

Procedure

- Pre and post condition reported and observed data have been registered concerning: (a) stuttering-like disfluencies (type, frequency, duration, tension), (b) subtypes of stuttering and the role of temperament, (c) the onset of stuttering and related variables, (d) precipitating factors post onset, (e) stuttering associated behaviour, (f) awareness of stuttering, (g) speech attitude, (h) listener reactions.

- Procedure and instruments have been described in detail in the epidemiological and phenomenological study (Boey, 2008).

Essential results

- *Diagnosis of stuttering.* Post condition 68.4% of the drop-out group still stuttered, compared with 32,2% of the therapy-group and 13.3% of the only-diagnosis group.

- *Self-report.* Post condition 79.0% of the drop-out group reported to stutter, compared with 55.2% of the therapy-group and 6.7% of the only-diagnosis group.

- *Stuttering severity.* For PWS of the therapy-group the reported and observed stuttering severity reduced post therapy as illustrated in the figure on the left of this text. *Stuttering-like disfluencies* such as blocks and prolongations were reduced or not even present anymore.

- *Stuttering characteristics.* For the therapy-group all of the following stuttering characteristics have been reduced in frequency or intensity: (a) stuttering-associated behaviour (physical concomitants, avoidance behaviour), (b) precipitating factors, (c) speech-related cognition (negative thoughts), (d) emotion related to speech, (e) listener reactions. In addition, (f) speech attitude measures normalised.

- *Personality characteristics* improved (reduced neurotic scores, increased extraversion and self-confidence scores; higher motivation to perform, reduced anxiety of failure). For the drop-out group these findings remained or increased in a negative sense.

- *Effect of pre therapy stratified variables for the therapy-group.*
  - The youngest age categories (1-6 and 7-12) of PWS obtained the best results concerning post therapy diagnosis of stuttering, stuttering severity and stuttering-related characteristics.
  - A gender effect could be noticed in favour of the girls. Therapy-assisted recovery of stuttering was more prevalent.
  - An interaction effect has been found for age category x gender. Specifically, the male children and adolescents between 13-18 years old pre therapy, obtained less changes of stuttering post therapy compared with all other subgroups.
  - Post therapy, no significant differences in results have been found related to the pre therapy stratified temperament.
  - Quality of life measurement post therapy for the adult group (> 18 years) revealed a significant improvement.