Health related Quality of Life of preschool children who stutter

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Purpose of the study

To investigate the Health related Quality of Life (HrQoL) of preschool children who stutter by generic validated instruments
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WHO-based consensus on HrQoL

Multi-dimensional

Physical Functioning

Social Functioning

Mental Functioning

Affected by disease/treatment

Sprangers, 2008
How to measure HrQoL?

• Descriptive vs value-based (preference based) methods

• Validated techniques (TTO, SG) or standardized instruments (EQ-5D, HUI3)

• Generic vs disease-specific instruments

• Instruments incorporate physical, social and mental domains
Why measuring HrQoL in speech- and language pathology?

• Overall goal stuttering therapy: improvement of client’s well-being
• Conventional measures of stuttering assess clinical aspects: stuttering frequency or severity
• However, correlations between clinical measures and how patients/clients feel and how they are able to function in daily activities are only weak to moderate (e.g. asthma & rhinitis: Juniter, 1997)
• Thus, HrQoL along with conventional clinical indices to obtain a complete picture of a clients health status
• And: for decision makers: cost-utility analysis recommended practice to evaluate health care interventions -> value-based HrQoL outcomes needed
HrQoL and stuttering: evidence on adults

• Stuttering affects different life domains, e.g. employment, social life, emotional health, mental health status (Hayhow et al. 2002; Klein and Hood 2004; Klompas and Ross 2004; Craig et al. 2009, Koedoot et al. 2010)

• Utilities (preferences for health status) obtained by:
  * Bramlett et al. (2006):
    0.96 (mild stuttering); 0.81 (severe stuttering)
  * Koedoot et al. (2010):
    0.91 (mild stuttering); 0.72 (severe stuttering)
HrQoL and stuttering: evidence on children

• **School-aged children:** more behavioral problems in children who stutter than in matched controls were reported by Gooding and Davis (2003), using the CHQ-PF50

• **Pre-school children:** no HrQoL research conducted
  * Awareness of speech problems and negative evaluation of speech in children 3-4 years of age (Vanryckeghem et al. 2005);
  * Peers could evaluate stuttering negatively (Ambrose & Yairi 1994; Ezrati-Vinacour & Platsky 2001) and can react disapprovingly (Langevin et al. 2009);
  * Majority of parents of preschool stuttering children reported that stuttering negatively impacted upon their children: emotional consequences in both children and parents reported (Langevin et al. 2010);
  * However, in the study by Langevin et al. (2010) only 8% of the parents thought that stuttering affected their child’s QoL.
Methodology

• Participants: 197 children aged 3 to 6 years
• Baseline data of RESTART trial

• Measurement instruments
  Clinical measures — SSI category score
    mild – moderate – severe
    Time since onset (TSO)
    6-18 months - ≥ 19 months

  HrQoL measures — EuroQoL EQ-VAS (all children)
  ITQOL-97 (3-4 years)
  CHQ-PF28 (5-6 years)
  HUI3 (5-6 years)
EQ-VAS

proxy version
Methodology

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- Measurement instruments
  - Clinical measures — SSI category score
    Time since onset (TSO)
  - HrQoL measures — EuroQoL EQ-VAS (all children)
    ITQOL-97 (3-4 years, N=146): 8 child-focused domains, 3 parent-focused domains
    CHQ-PF28 (5-6 years, N=49): 9 child-focused domains, 4 parent-focused domains
    HUI3 (5-6 years, N=49)

- Reference data from Raat et al. (2005; 2007)
Results: children who stutter compared with reference population

- EQ-VAS: lower health status for children who stutter (88.1 vs. 92.4, \( p < 0.01 \), ES = 0.20)

- ITQOL-97 (children 3-4 years): higher score on Getting Along scale for children who stutter (74.7 vs. 72.0, \( p = 0.01 \), ES = 0.16)

- CHQ-PF28: no significant differences

- HUI3: children who stutter scored lower on domains of:
  - speech
  - emotion
  - cognition

  AND lower HUI3 utility (0.88 vs. 0.94, \( p < 0.01 \), ES = 0.22)
Results: impact of stuttering severity and TSO

<table>
<thead>
<tr>
<th>ITQOL-97 scale</th>
<th>Independent variable</th>
<th>B coefficient</th>
<th>p value</th>
<th>r²</th>
</tr>
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<tbody>
<tr>
<td><strong>Physical functioning</strong></td>
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<tr>
<td>Stuttering severity</td>
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<td><strong>Bodily pain</strong></td>
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<td><strong>Temperament and moods</strong></td>
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<td><strong>General behavior</strong></td>
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<tr>
<td>Gender</td>
<td>Boys vs. girls</td>
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<td></td>
<td>Educational level</td>
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<td></td>
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<td>High education vs. primary education</td>
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<td><strong>Family cohesion</strong></td>
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Results: impact of stuttering severity and TSO

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<td><strong>Self esteem</strong></td>
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<td>TSO ≥ 19 months vs. TSO &lt; 19 months</td>
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<td><strong>Family cohesion: ITQOL-97 and CHQ-PF28 combined</strong></td>
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Main conclusions

• EQ-VAS: mild level of overall impairment in preschool children who stutter

• No impairments on HrQoL domains in children aged 3-4 years

• In older preschool children impact of stuttering becomes more apparent:
  • Lower HUI3 utility reflect mild to moderate impact of stuttering on HrQoL;
  • Impairments on HrQoL domains speech, emotion and cognition;
  • Children seem to experience emotional consequences of their stuttering.

• But: CHQ-PF28 did not show mental health impairment

• However: Mental Health score in severe stuttering 70.0 (n=10) vs. 80.2 in mild stuttering.
Interesting finding

• A better family cohesion for families with children 5-6 years of age who stutter ≥ 19 months or longer: families become closer because of stalling relationships with peers?

• Not supported by results on other CHQ-PF28 scales (i.e. Role/Social Limitations-emotional/behavioral)
Further directions

• Value of the ITQOL-97 and CHQ-PF28 in children with speech and language disorders?

• Need for more research, relevant for:
  * clinical researchers and clinicians (gain insight into the broader health consequences of stuttering in children)
  * policy makers (reimbursement decisions)

• Incorporating characteristics of both child (e.g. temperament) and environment (e.g. family climate) in future research may help the interpretation of HrQoL results in children who stutter
THANK YOU!

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