

Cognition and social issues in teenagers

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Preliminary remarks

Very broad topic!

Focus on social difficulties during adolescence and potential cognitive mechanisms contributing to social difficulties in 22q11DS

Presentation of very recent findings - some unpublished

No conflict of interest

Social difficulties in 22q11DS

Social difficulties during childhood and adolescence



In the general population...

People with social difficulties in childhood are more likely to have lower self-esteem or academic failure later in life

Social withdrawal during childhood and adolescence constitutes a risk factor for social anxiety later in life

These difficulties often tend to be minimized by the young person's environment
(Greco and Morris, 2001)

In 22q11DS...

Children with 22q11DS have lower social skills compared to children from the general population
(Shashi et al., 2012)

Level of shyness discriminates young people with 22q11DS from individuals with other genetic conditions (e.g. Williams Syndrome) and from the general population
(Schonherz et al., 2014)

Teenagers and young adults' perspective

« I don't usually make a lot of friends. I have trouble keeping friendships. Even offering outings, I don't think about it »
D. (22 years)

« Sometimes I really want to be with others, but sometimes I want to be alone! For example, when I plan to go out, I have like panic attacks and I don't go out anymore. I think I could go »

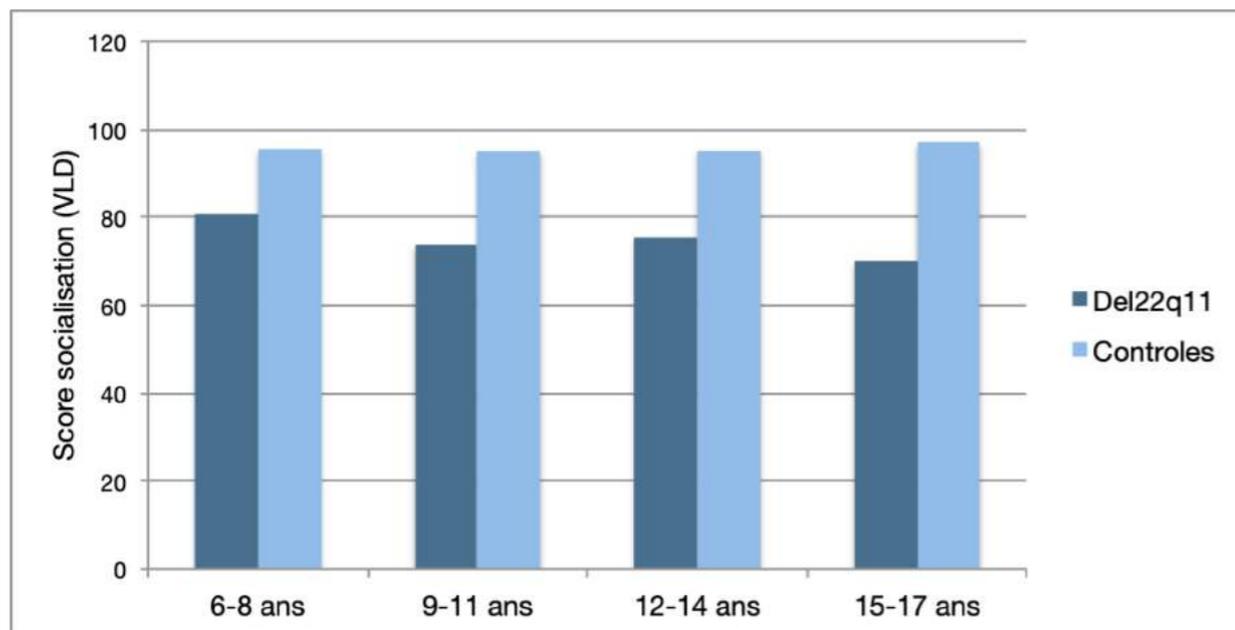
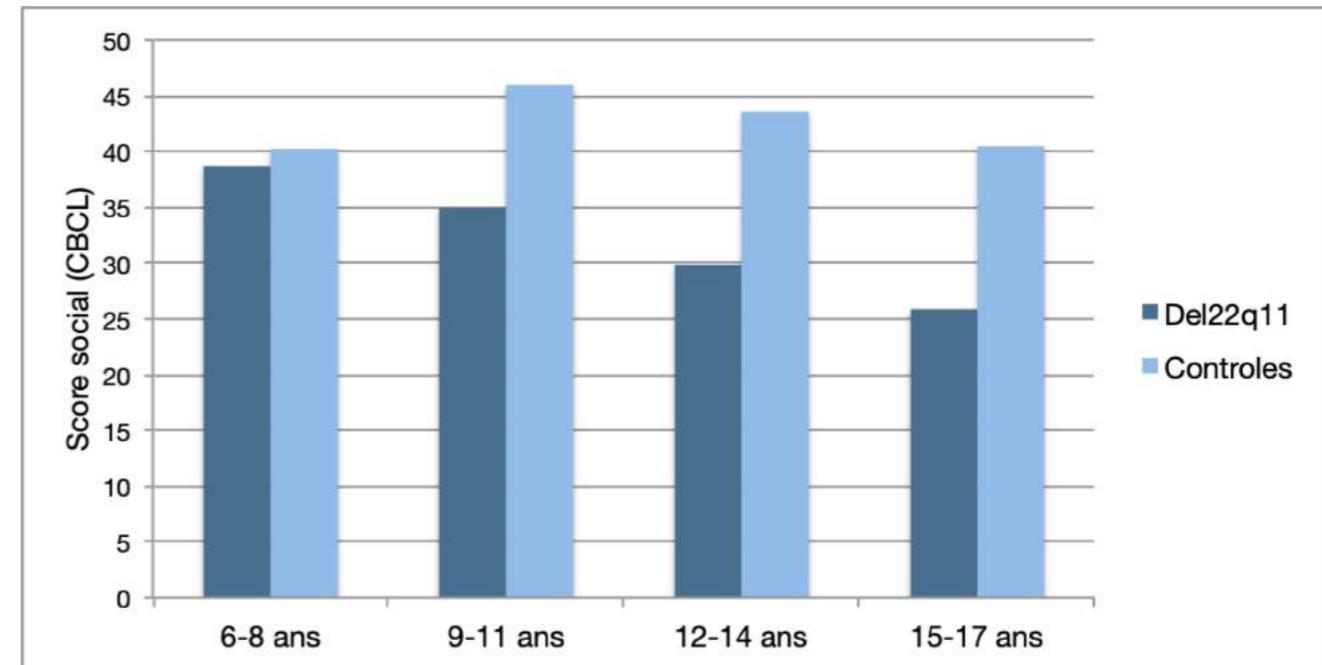
« I would like to be with others but I am only feeling well on my own. When I am with others, I am extremely uncomfortable, I don't move, I can't talk to people. Yet I want to!!!»
A. (15 years)

« I go to others but I don't know what to do. Afterwards, I tell myself that I didn't react as I should have... »
S. (16 years)

« I send too many messages but they don't succeed. Usually, people end up not returning my emails or phone calls. Afterwards, I realize that it's because I send too much of them. But in the moment, I don't realize it. »
S. (26 years)

Social difficulties in 22q11DS

CBCL questionnaire - basic assessment of social competences (reported by the parents)



Vineland Adaptive Behaviour Scales - socialization domain (structured interview conducted with the parents)

Social impairments in daily-life

From the laboratory...



Questionnaires, interviews
**Retrospective
assessment**

Minimizes recall biases

Captures dynamic phenomena

**Contextual information is taken into
account**

... to daily-life



ESM
In-the-moment
assessment; daily-life
context

Social impairments in daily-life

Participants are invited to complete a 6-day ESM protocol

- ▶ 8 beeps/day; max = 48 beeps
- ▶ Semi-random notifications
- ▶ Only participants with at least 1/3 beeps are considered valid

To date:
N = 17 participants
with 22q11DS
N = 19 typically
developing controls

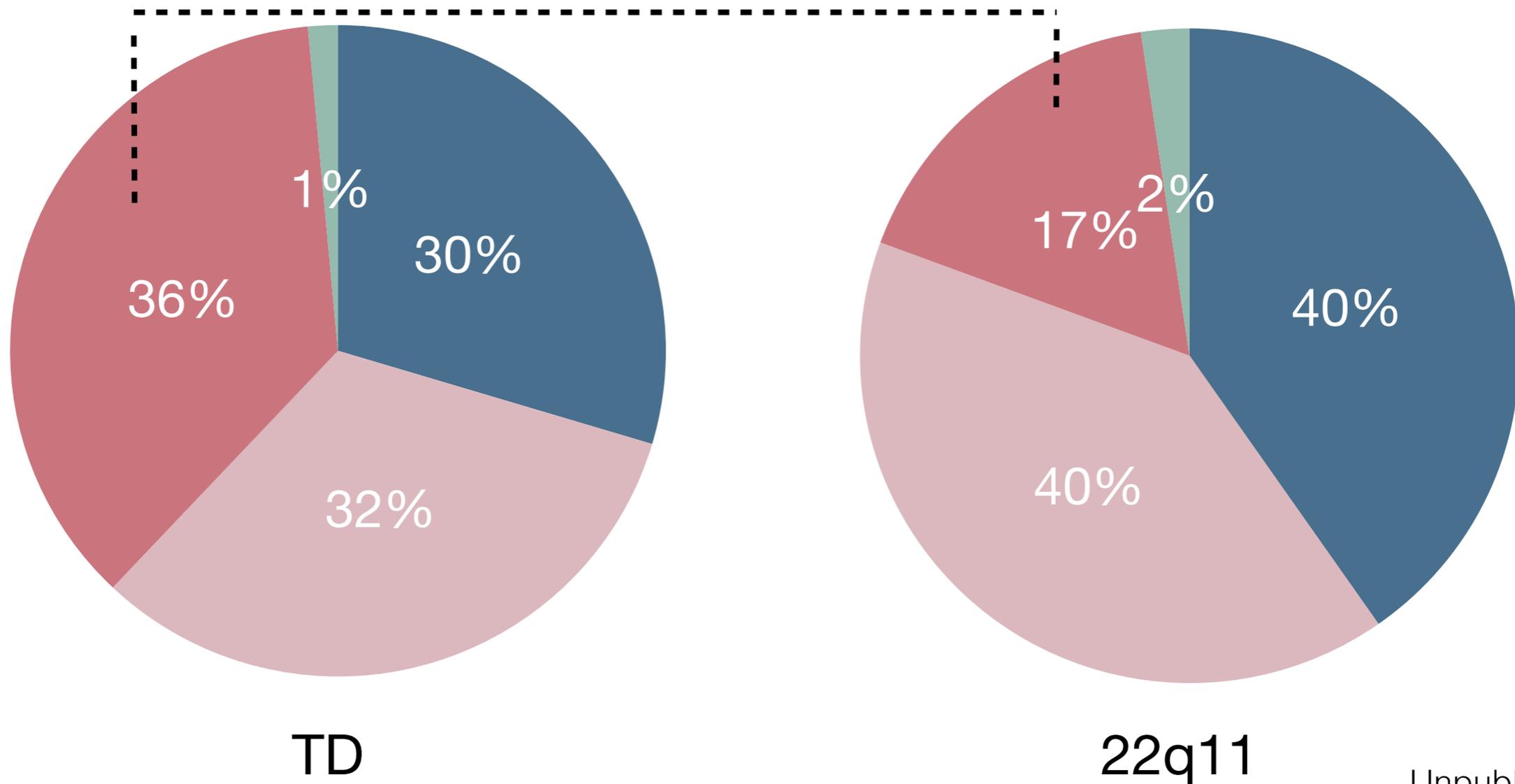
Content of the protocol

- ▶ Social context (alone vs. with others & specification of type of company)
—> alone; family member (living with); familiar person; non-familiar person
- ▶ Appraisal of social context (if reported to be with someone)
- ▶ Appraisal of solitude (if reported to be alone)

Time spent in different social contexts

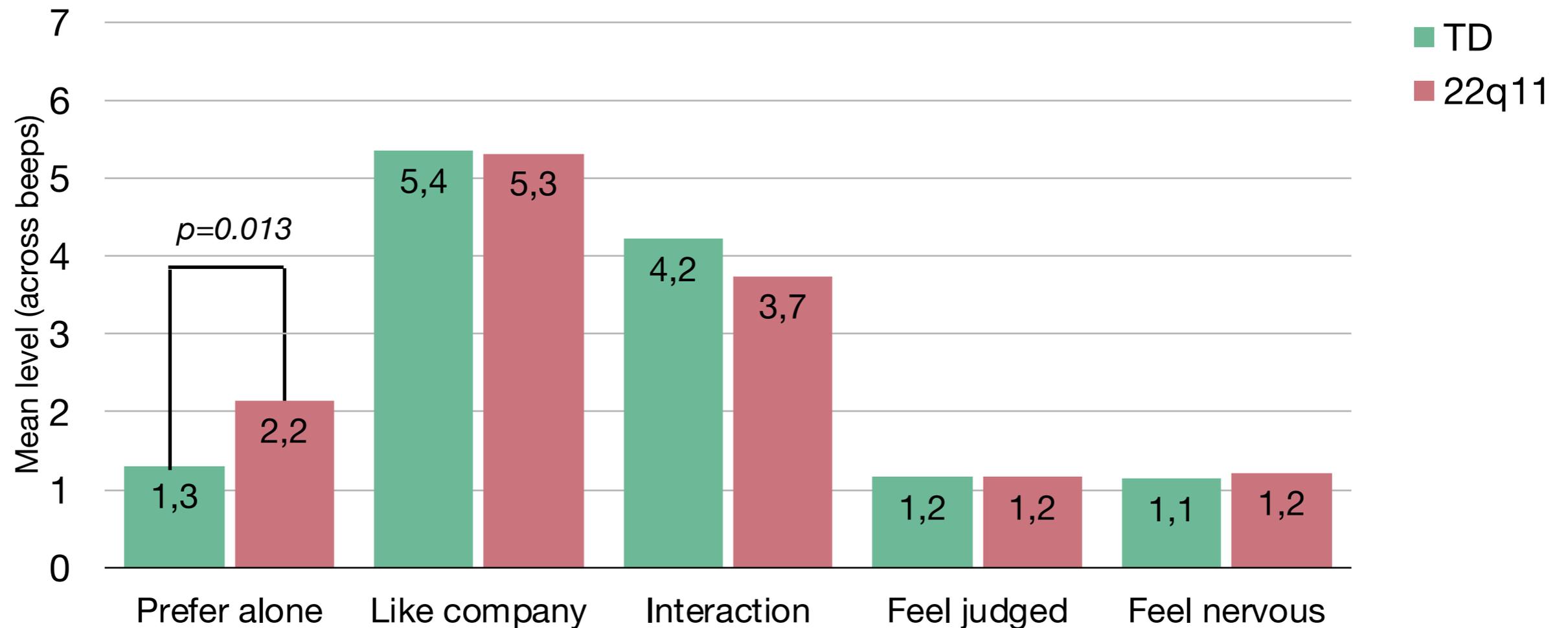
- Alone
- Family members (living with)
- Familiar persons
- Unfamiliar persons

*** $p < 0.001$



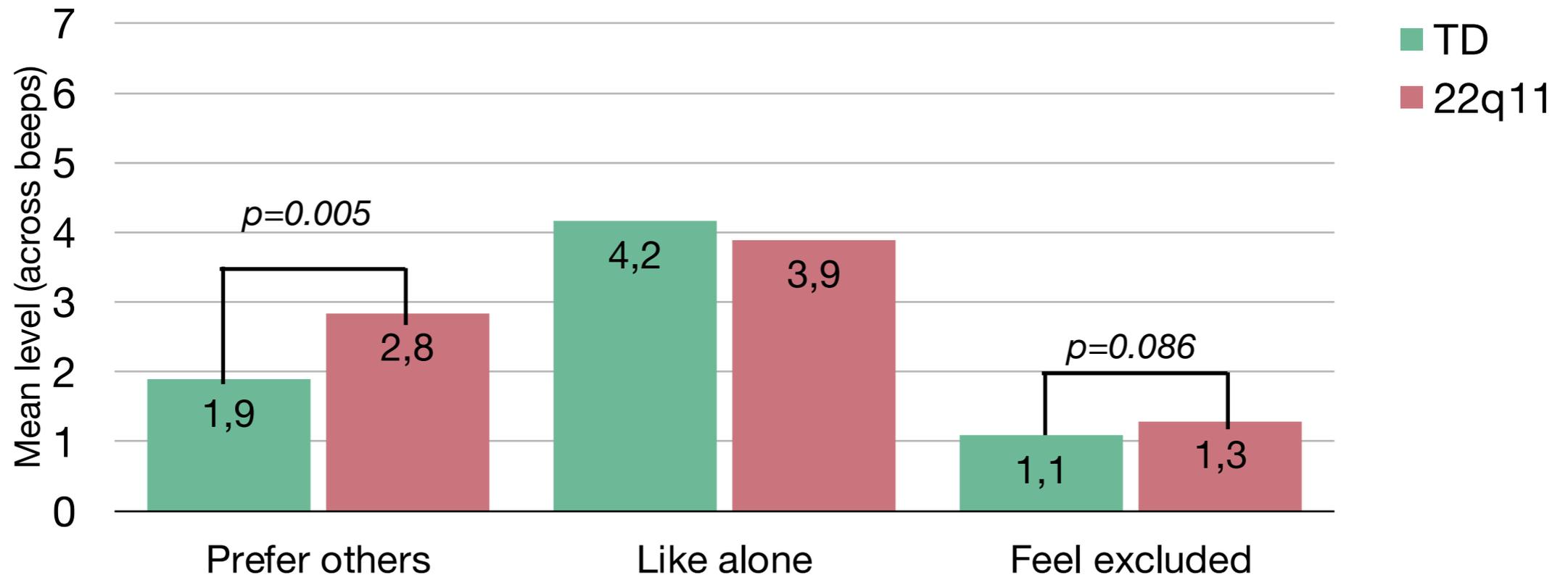
Unpublished data

Appraisal of social company



Higher preference for being alone in adolescents and young adults with 22q11DS during an interaction with someone

Appraisal of solitude

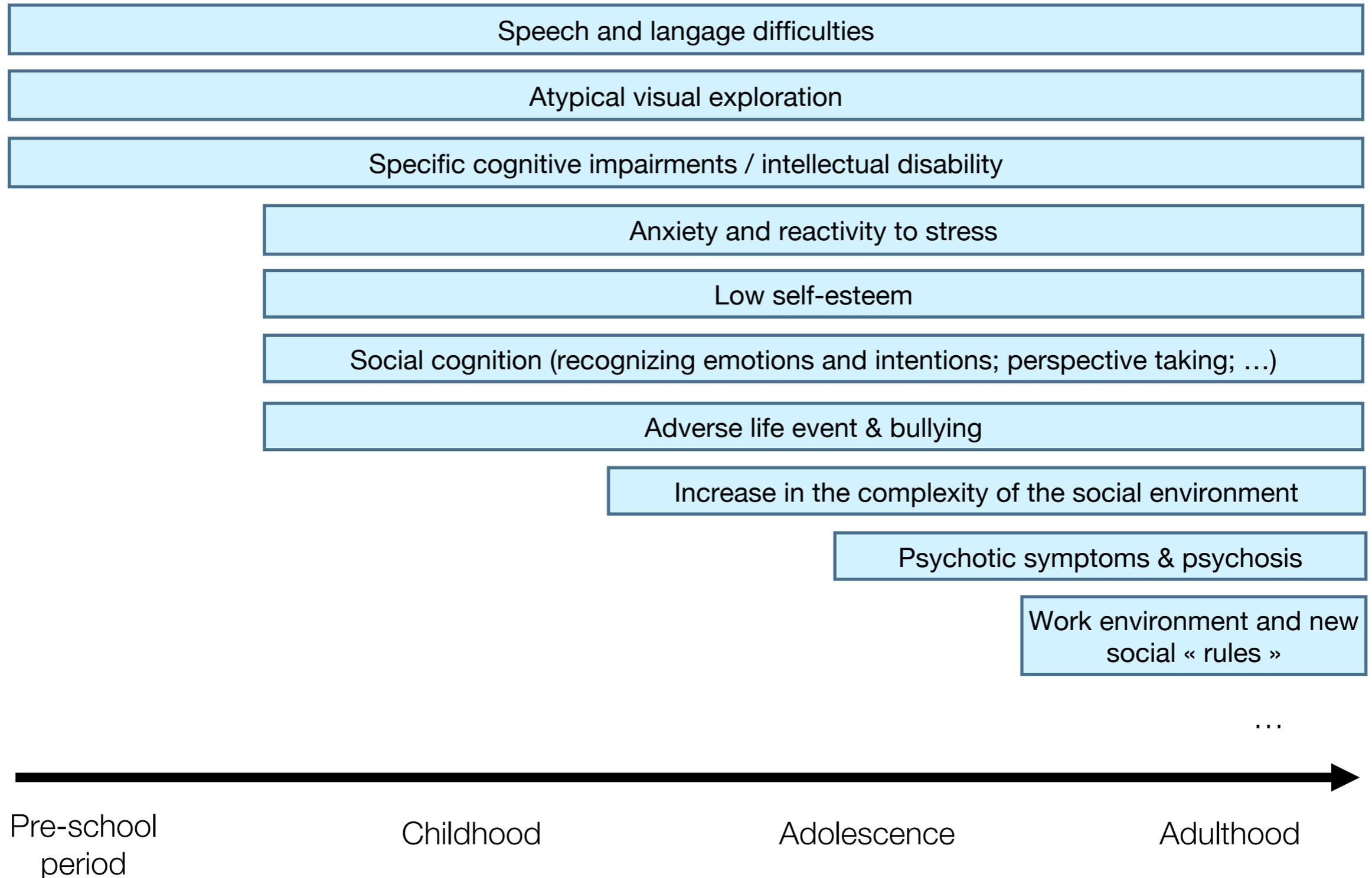


Higher preference for being with others while alone in adolescents and young adults with 22q11DS

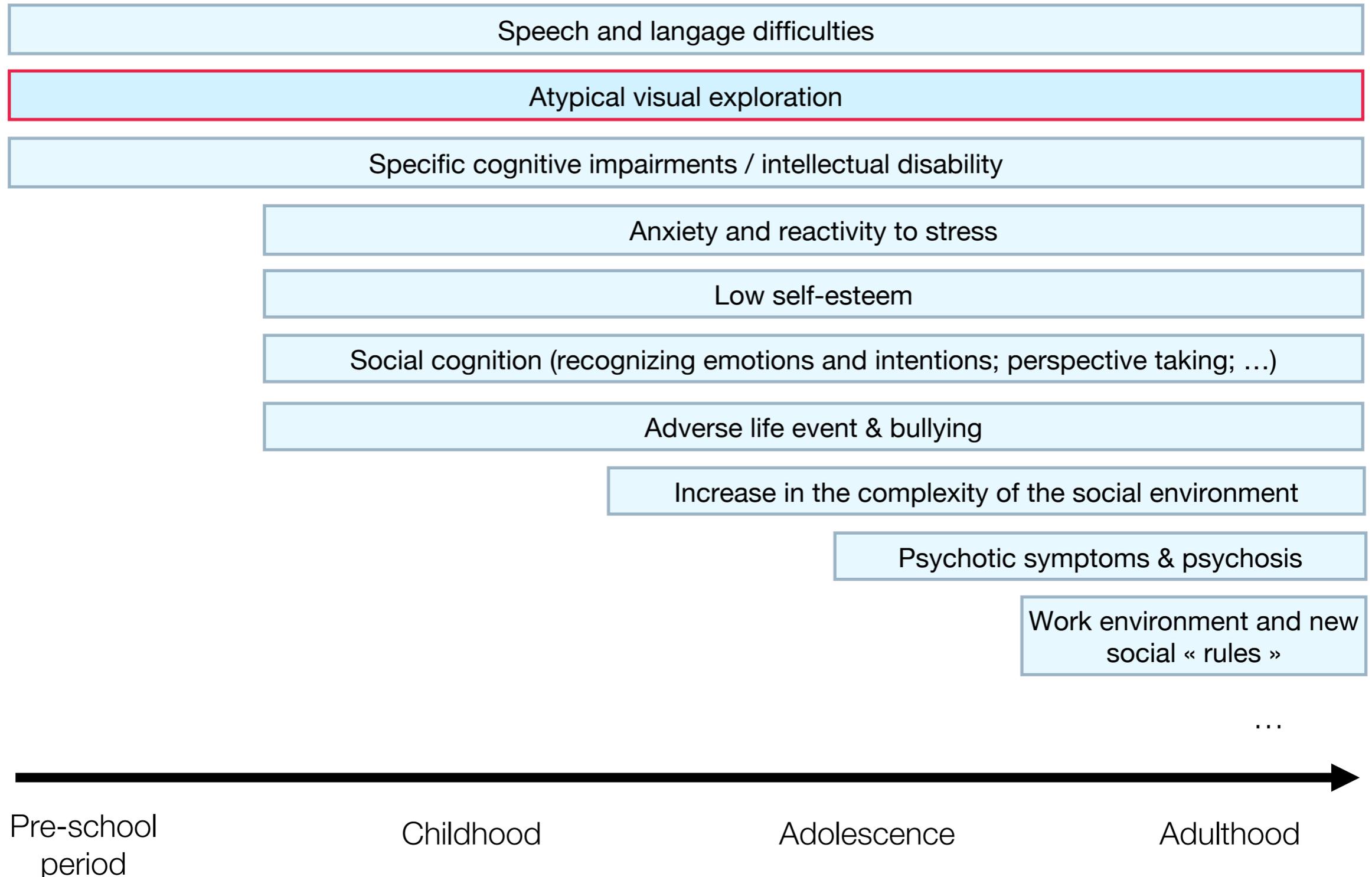
Tendency to feel more excluded when alone in adolescents and young adults with 22q11DS

Factors contributing to social difficulties in 22q11DS across the lifespan

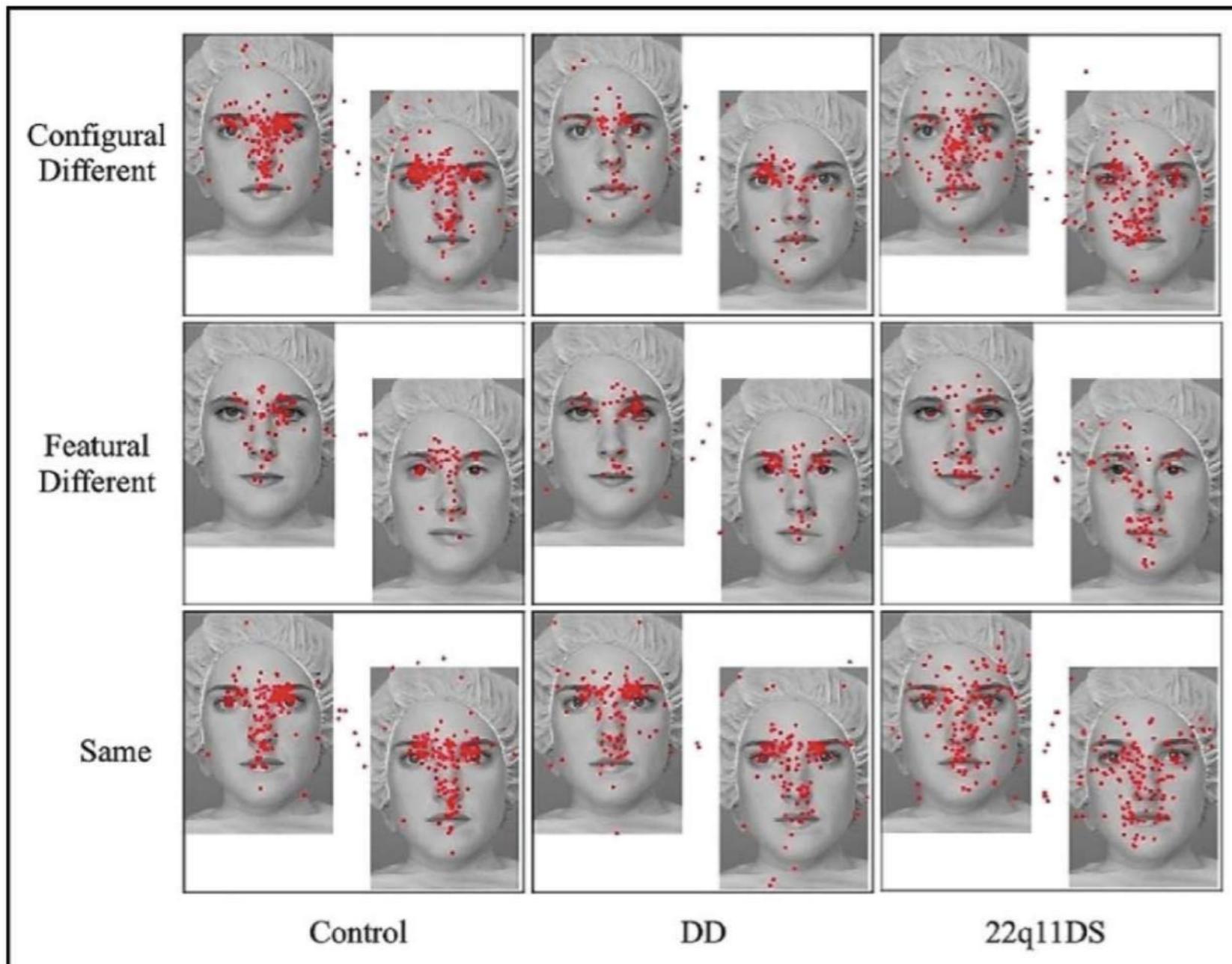
Potential factors influencing social functioning across the lifespan in 22q11DS



Potential factors influencing social functioning across the lifespan in 22q11DS



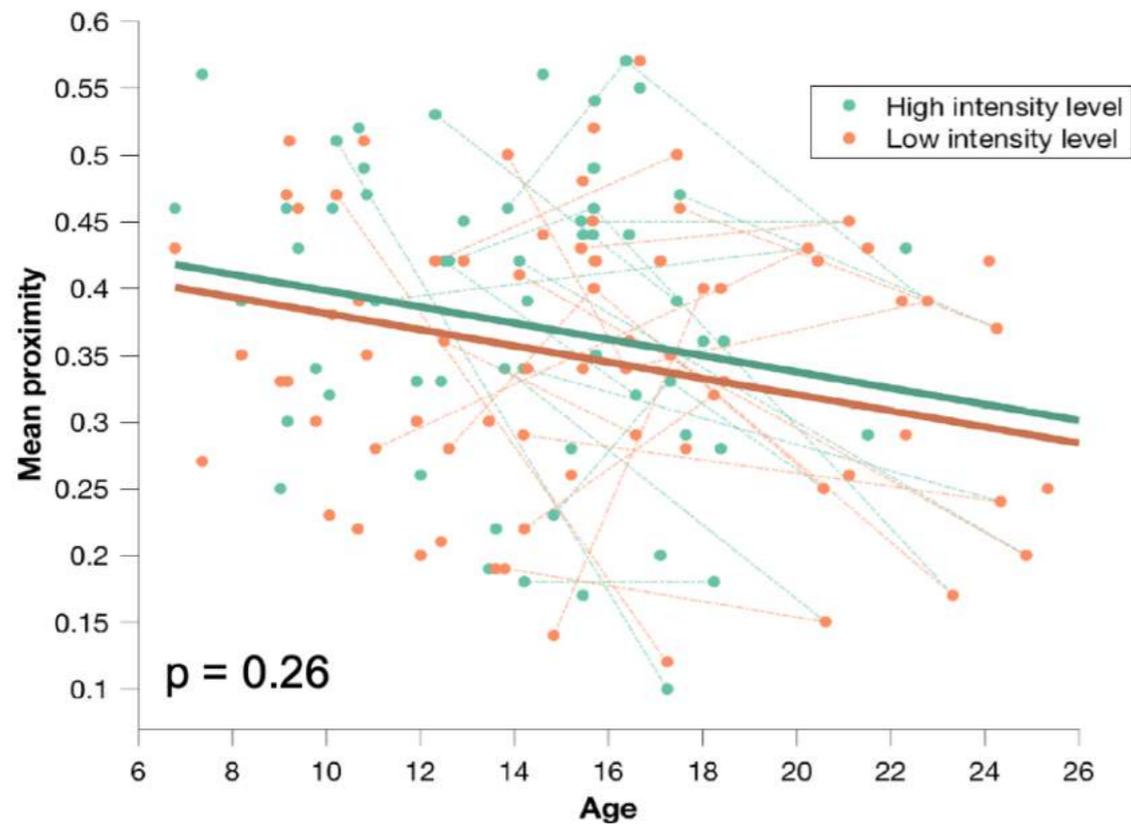
Atypical visual exploration - face recognition -



Time spent on the eyes' region is negatively associated with the level of social anxiety in children with 22q11DS

Atypical visual exploration

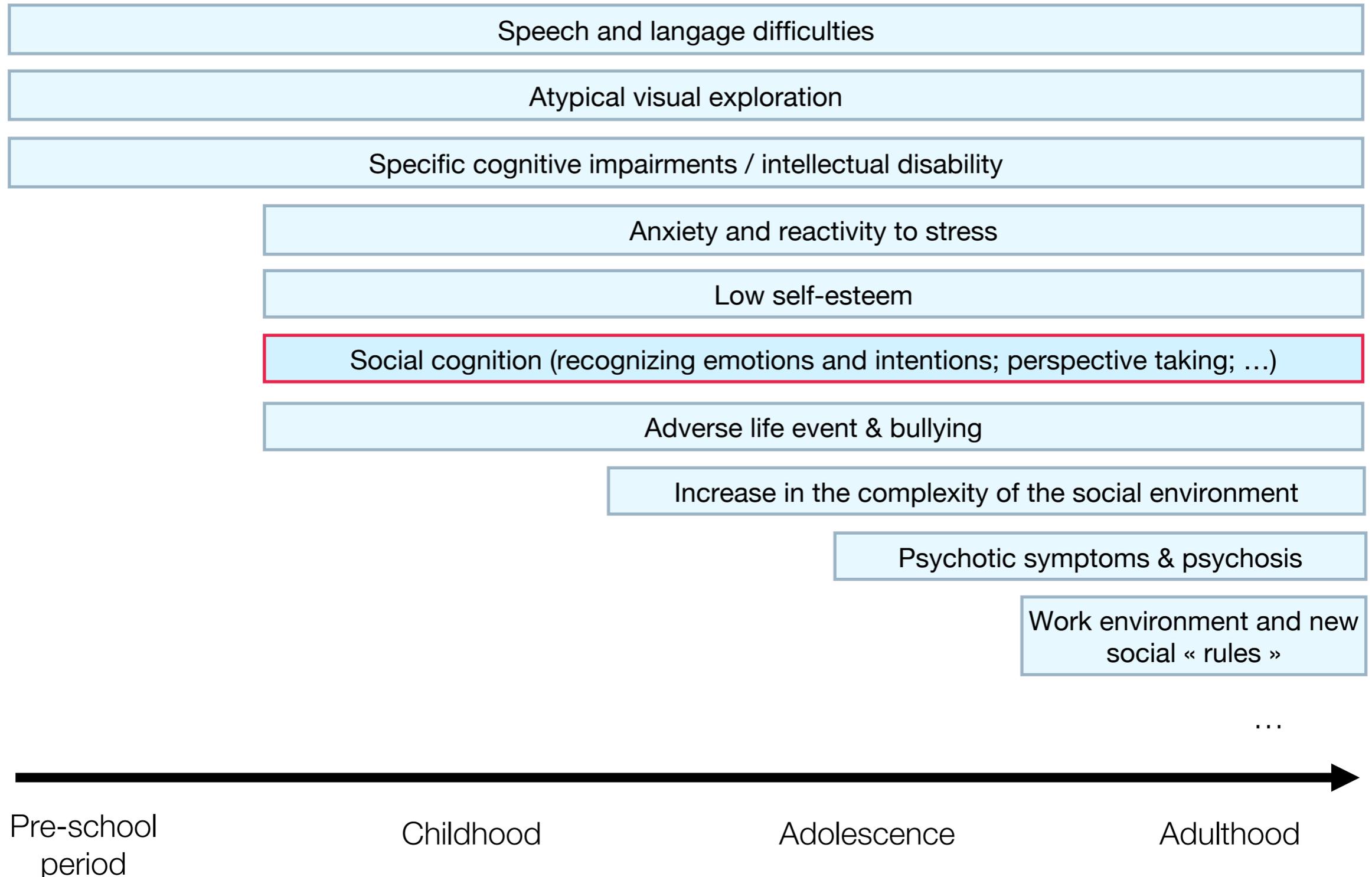
- complex and dynamic social scenes -



Visual exploration becomes more atypical with age

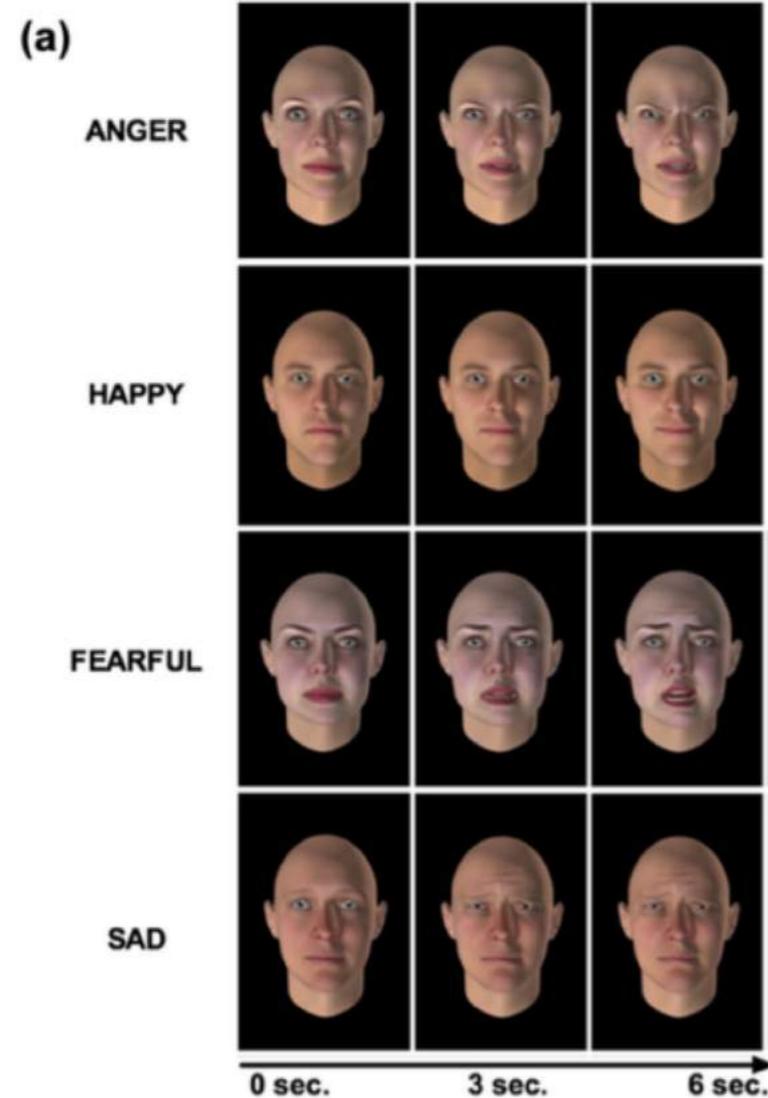
Visual exploration associated with the severity of social difficulties and anxiety

Potential factors influencing social functioning across the lifespan in 22q11DS



Social cognition

- Recognition of facial emotional expressions -

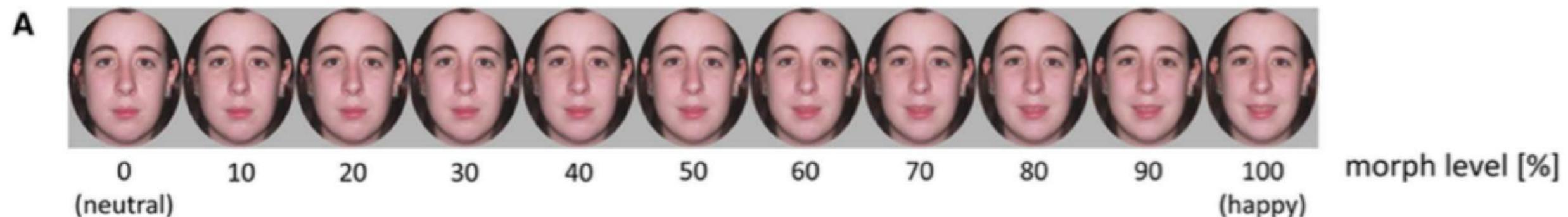


Children and adolescents affected by del22q11 recognize facial expressions when they are more intense

They also make more recognition errors (confusion between two emotions)

These difficulties tend to increase during adolescence

They are associated with the severity of socialization difficulties with peers

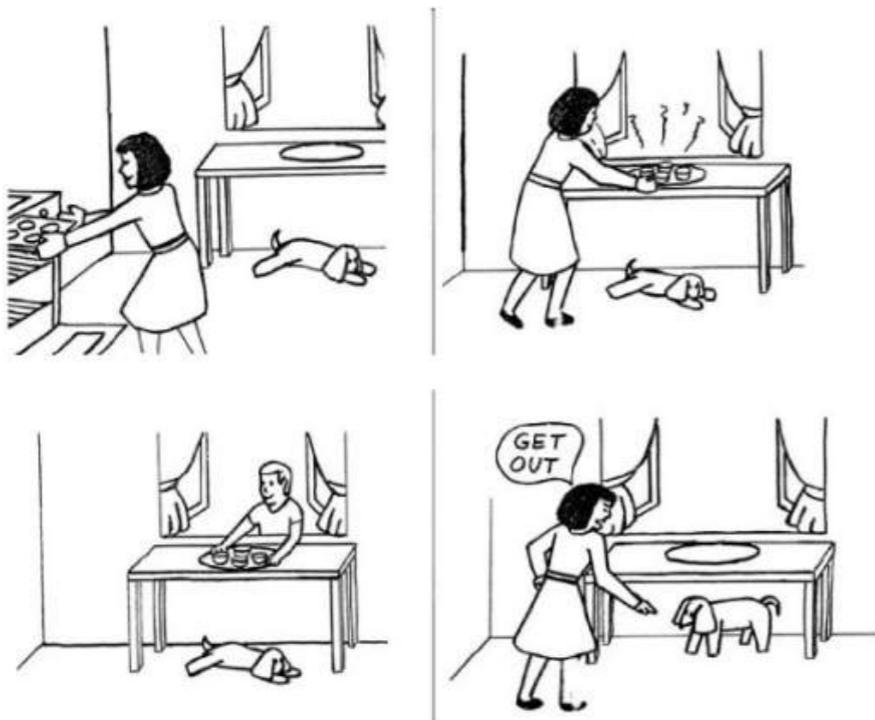


Social cognition

- Perspective taking and « theory of mind » -

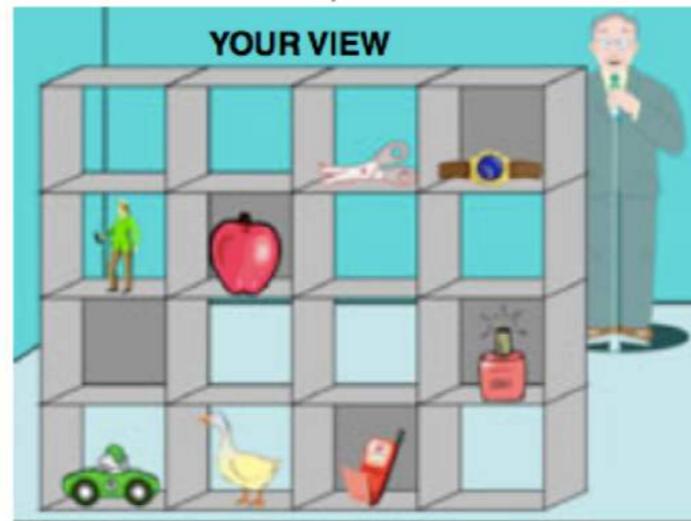
In 22q11DS...

Difficulties understanding « false beliefs »

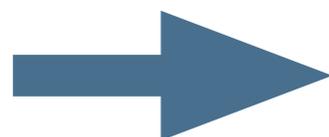
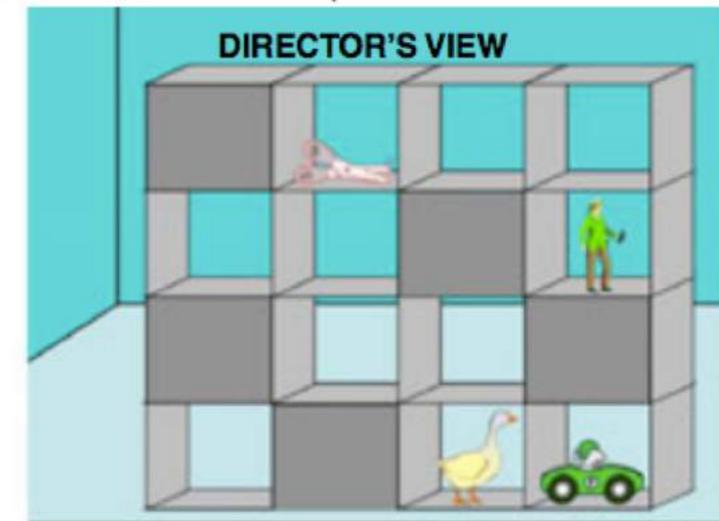


Difficulties taking another person's perspective in complex situations

(a) Instructions example 1



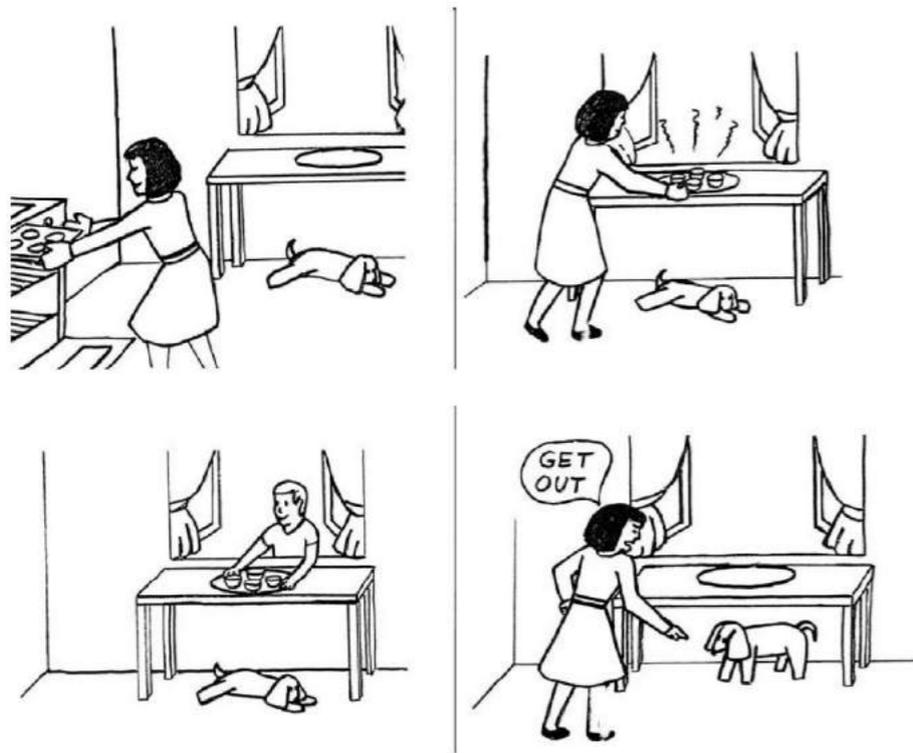
(b) Instructions example 2



But few significant associations with social difficulties....

Social cognition

- Conceptual changes -



Do these tasks reflect what is actually happening in daily-life?

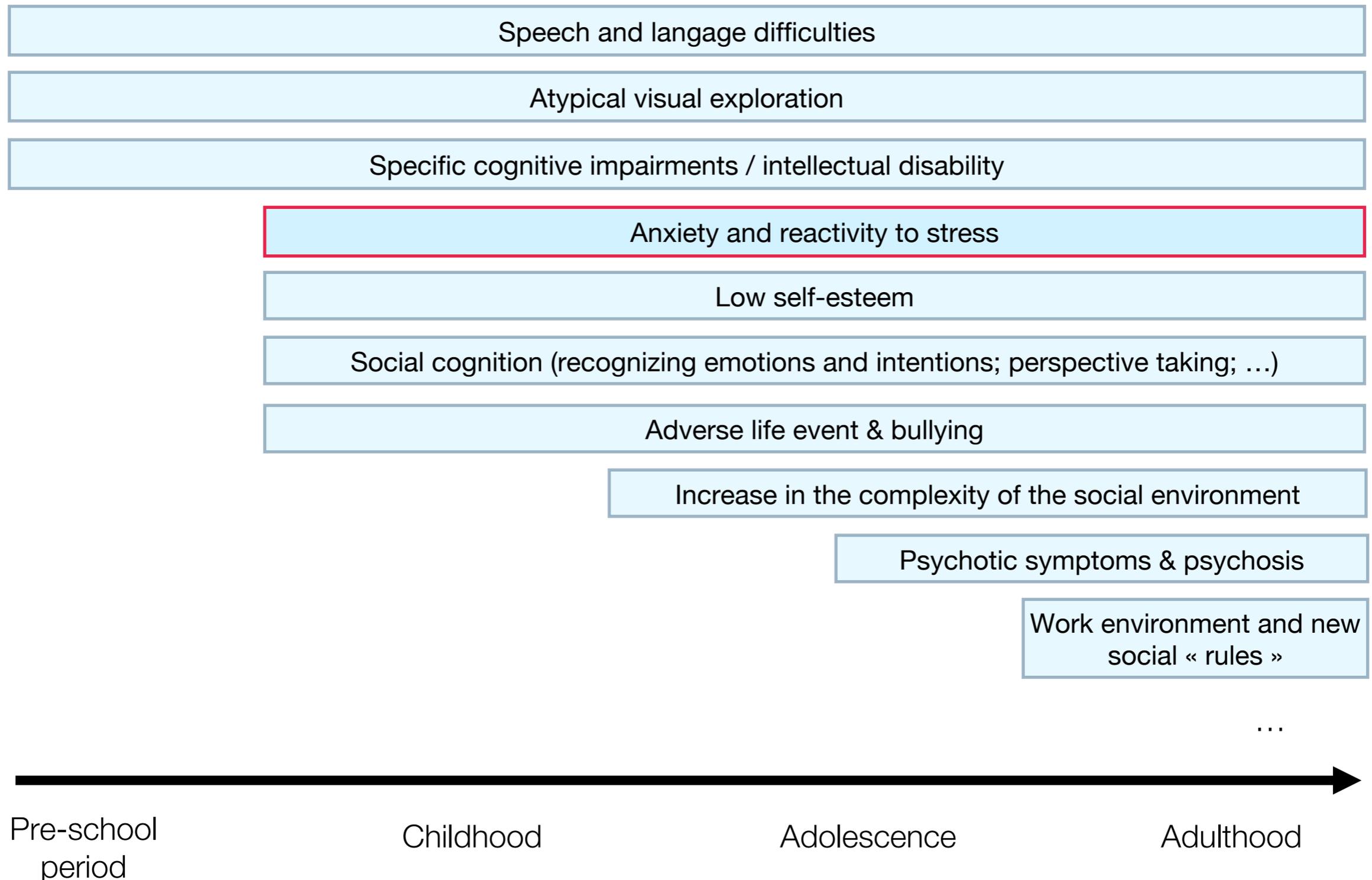
Schneider, Myin, & Myin-Germeys (2019). Psychol. Med.

Current project

We can understand other people's intentions by seeing their movements

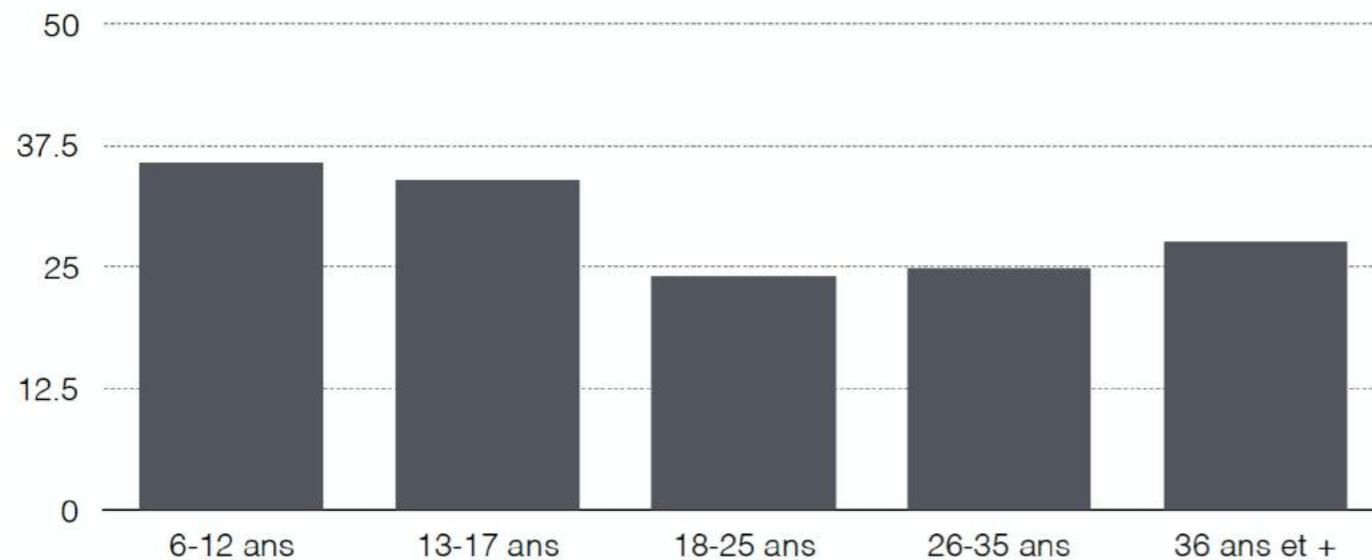
Collaboration with Prof. C. Becchio (University of Genova, IT)

Potential factors influencing social functioning across the lifespan in 22q11DS

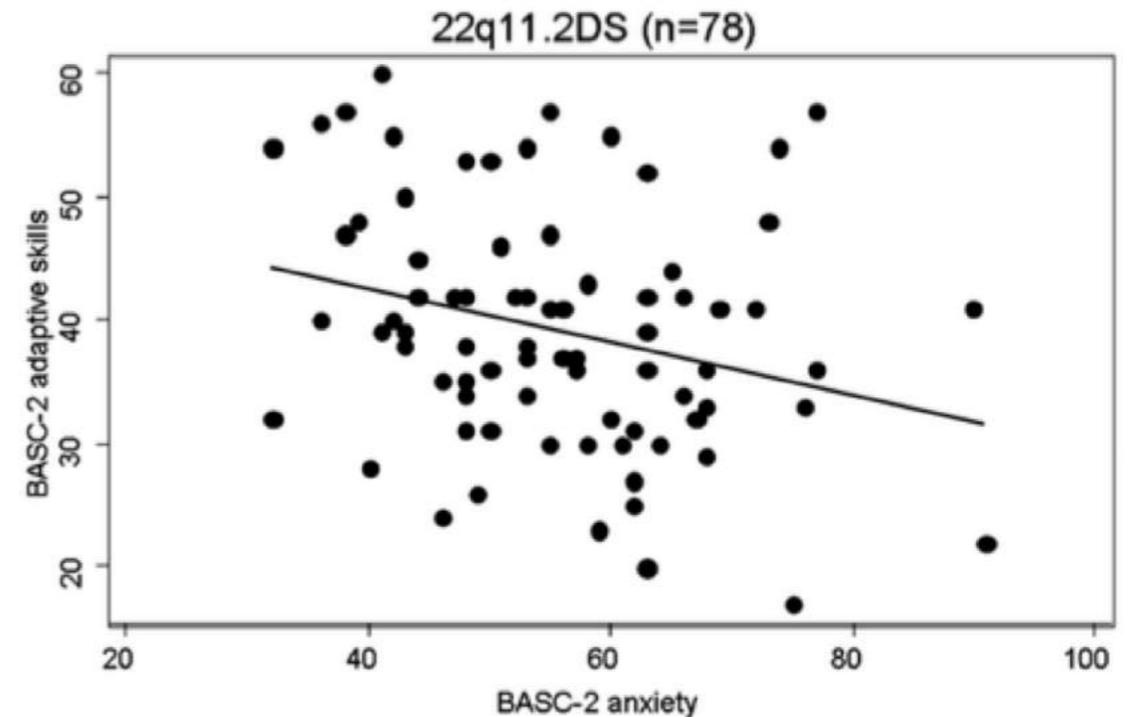


Anxiety in 22q11DS

Prevalence of any anxiety disorder
IBBC Consortium results



Anxiety disorders are highly prevalent in 22q11DS across all age groups

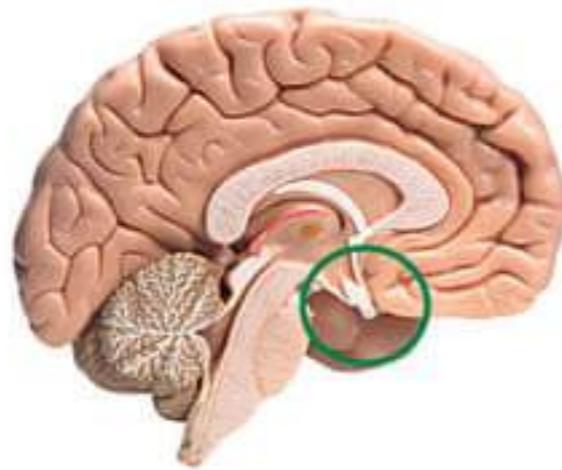


The severity of anxiety in children and adolescents with 22q11DS is more strongly associated with adaptive functioning than intellectual functioning

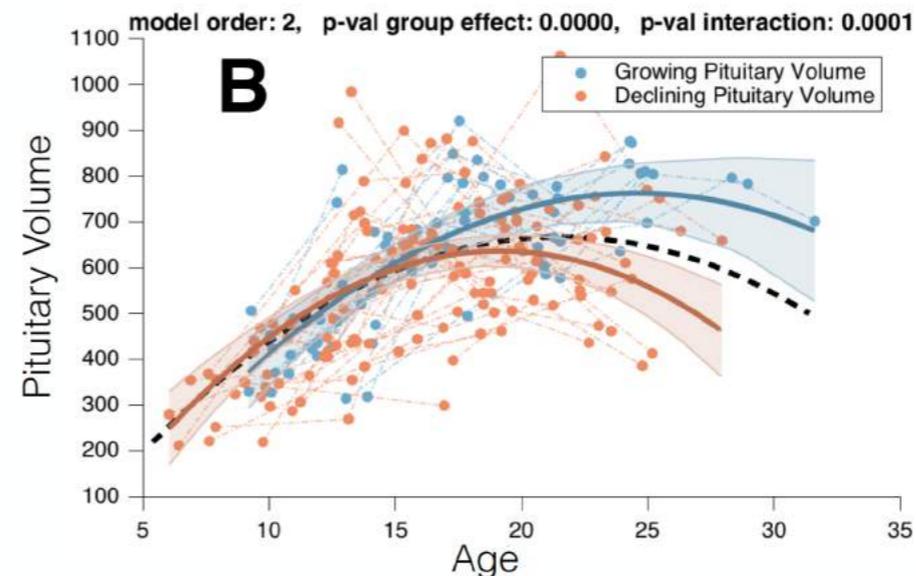
Stress reactivity and impact on social difficulties

Adolescents with 22q11DS are characterized by increased reactivity to stress

They experience more subjectively stressful events in their daily-life (« daily hassles »)



Pituitary gland



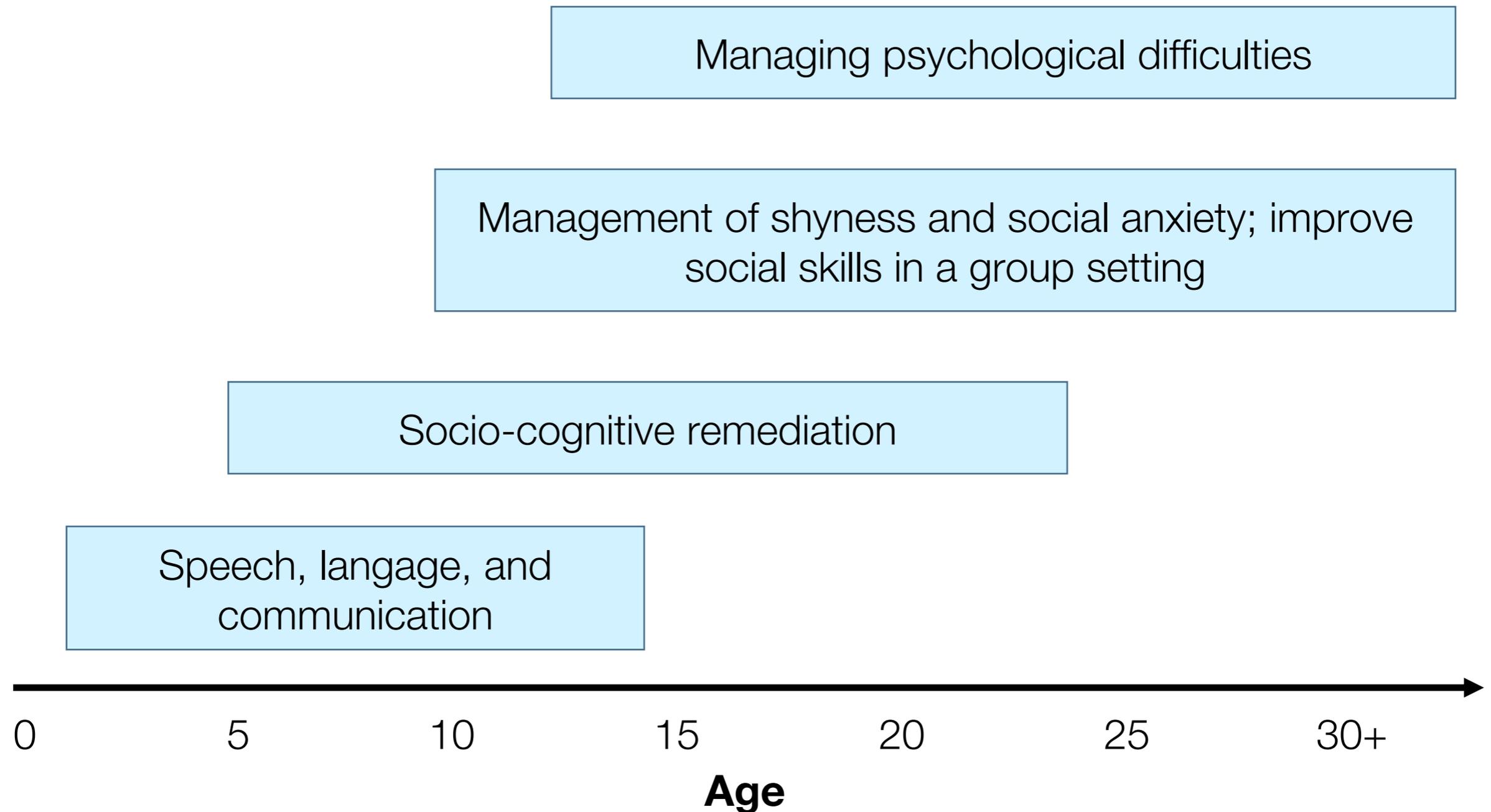
The subgroup of individuals with an atypical development of the pituitary gland over time is characterized by

- more stress reactivity
- increased social difficulties
- more symptoms of psychopathology

How to promote socialization in 22q11DS?

How to promote socialization in 22q11DS

Different approaches at different developmental periods...



Speech, language and communication

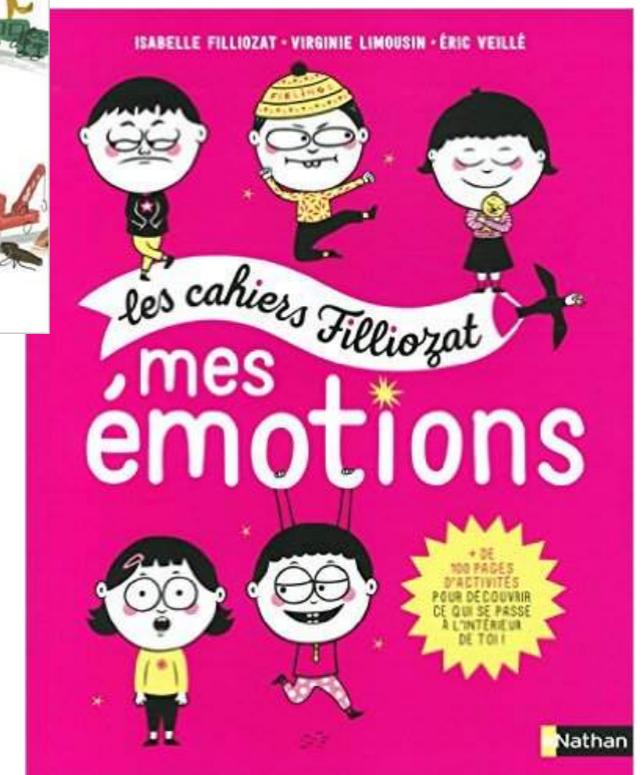
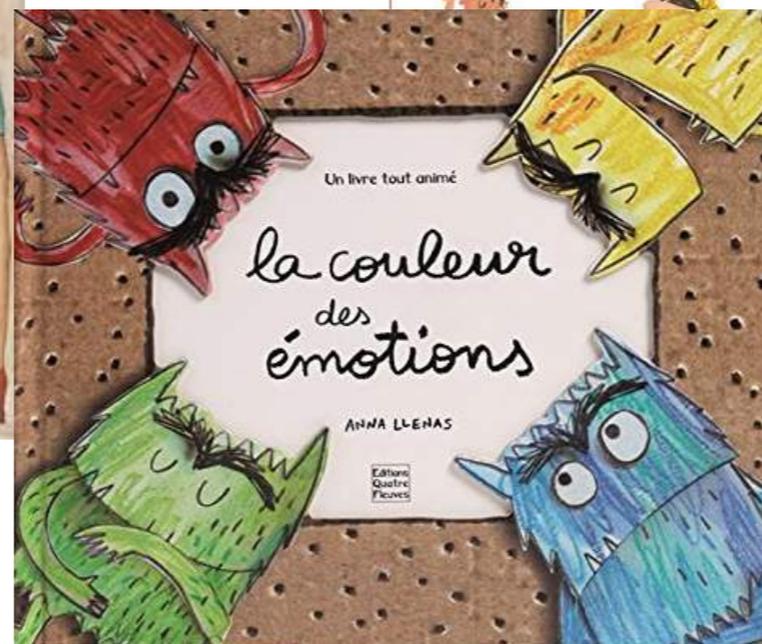
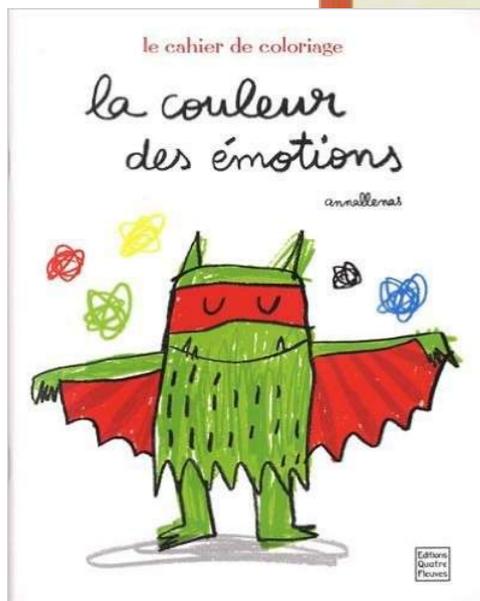
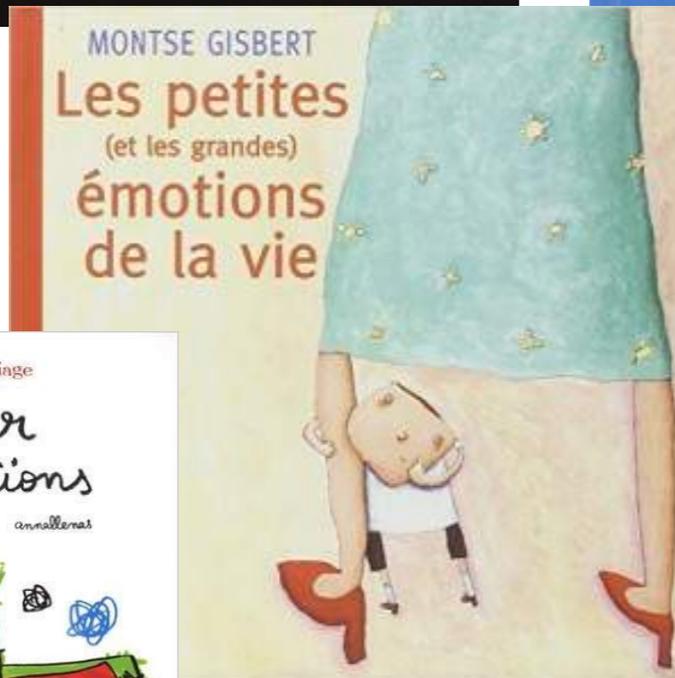
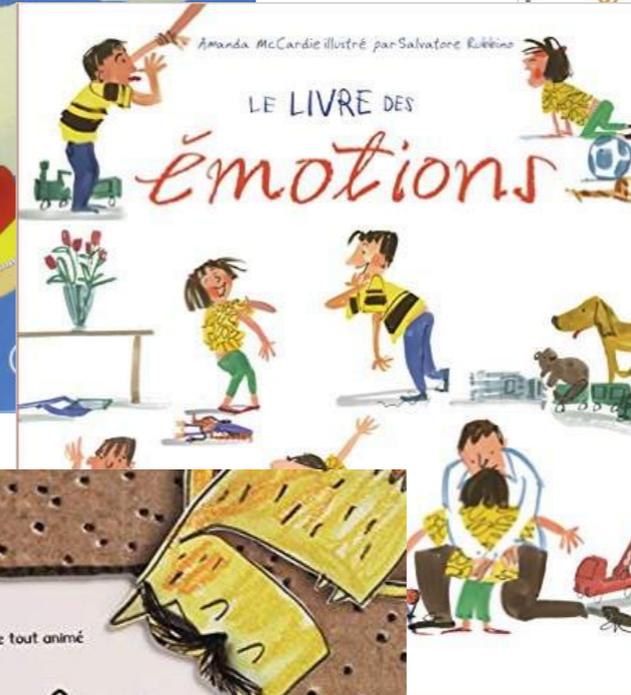
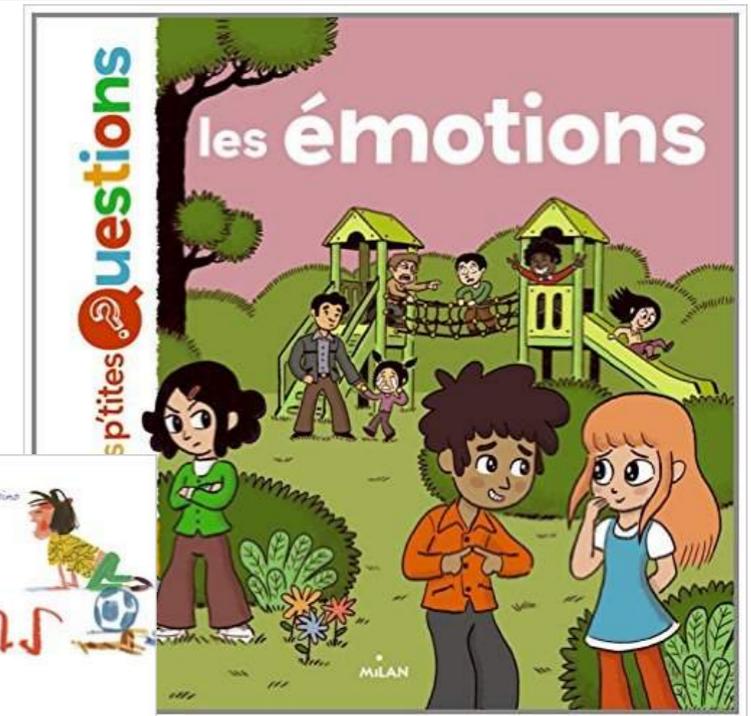
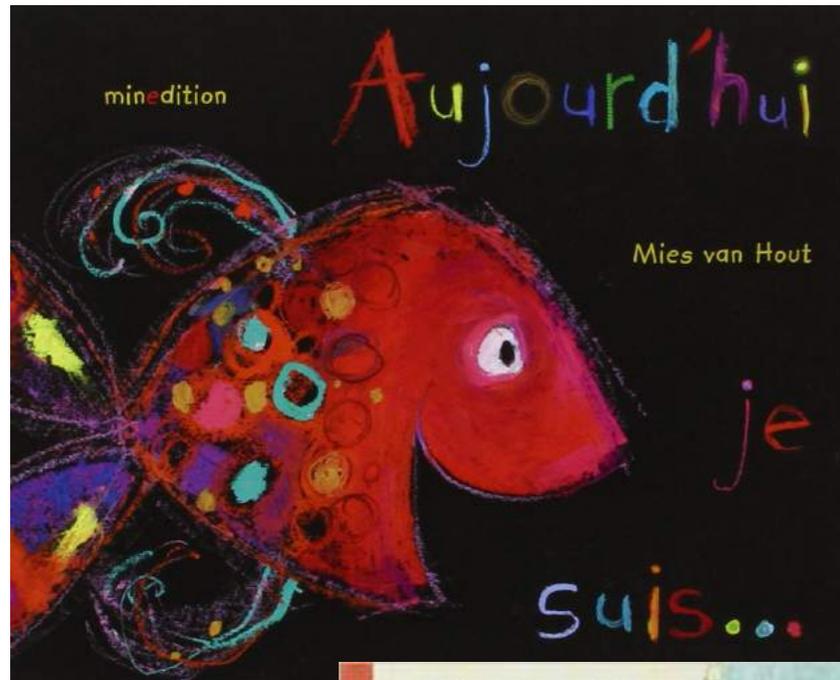
Articulation



Communication

- Articulation difficulties can be a source of embarrassment and shame, especially during adolescence
- These difficulties can be exacerbated by a stressful social situation (e.g. speaking in front of an audience)
- They can contribute to increase social difficulties and confidence to approach others
- The development of language and communication provides tools to the children to understand and share their needs and feelings
- Learning to put words on internal states begins early during childhood!

Speech, language and communication



Socio-cognitive remediation

Example: « *Vis-à-vis* » (Dr. Bronwyn Glaser)

<http://visavis.unige.ch>



12 consecutive weeks
 4 sessions/week, 25 mn/session
 9 games in 3 domains
 Increasing level of difficulty

Teaching module

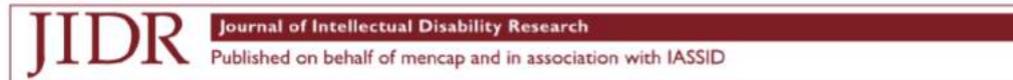
Working memory

Emotions in their context

Focus on the eyes

	Lun	Mar	Jeu	Ven
Teaching module				
Working memory				
Emotions in their context				
Focus on the eyes				

Improve social skills in a group setting



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Social cognitive training in adolescents with chromosome 22q11.2 deletion syndrome: feasibility and preliminary effects of the intervention

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³ Department of Psychiatry, Harvard Medical School, Boston, Massachusetts, USA

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- 6 month group training
- Program tested on 13 adolescents aged between 12 and 17 years
- High level of participation and satisfaction
- Increased performance on a measure of emotion recognition
- No significant change in terms of social or adaptive functioning



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Online Social Skills Group Training for Adolescents and Young Adults with 22q11.2 Deletion Syndrome (22q11.2DS)

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- 3 month online group training
- Program tested on 20 adolescents and young adults between
- High level of participation and satisfaction
- Decrease of social difficulties (reported by the parents)
- No significant change in terms of anxiety

Thank you for your attention!

Thank you to the families for their participation!!



L'UPCSH: Clémence Feller, Charlotte Dubois

Le DIP lab (PI: Stephan Eliez): Marco Armando, Farnaz Delavari, Lydia Dubourg, Fiona Journal, Johanna Maeder, Valentina Mancini, Eval Micol, Léa Moreau, Virginie Pouillard, Corrado Sandini, Joëlle Van der Molen, Daniela Zöller

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Relais 
Syndrome de microdélétion 22q11.2

 **GÉNÉRATION22**
VIVRE AVEC LA MICRODÉLÉTION 22q11.2

 **synapsy**
bringing together brain research and psychiatry
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