

# Perception of the Duration of time: Developmental Semiology from 2:6 to 13 years, general population versus atypical, and elaboration of a Parental questionnaire assessment

Jean-Marc SCHOLL, Liège Autism Reference Center, University of Liège, Belgium  
Véronique DELVENNE , Queen Fabiola Child’s University Hospital, Free University of Brussels, Belgium

- QUESTIONS:

Is there a Semiology for the Perception of Time?

Is there a semiology for Evaluating the child's perception of Time’s duration?

Does a tool exist for Evaluating it in the Everyday surroundings?

How is the Developmental evolution of the child's Capacity for time-perception?



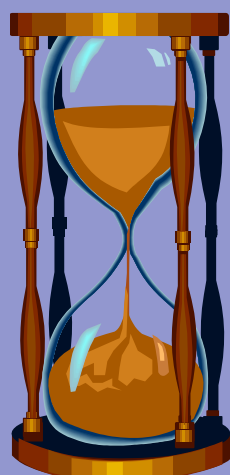
BACKGROUND: The perception of time has a major impact on the child’s ability to manage everyday life. Its deficit affects his or her competences. And yet, clinicians have no useful semiology of time-perception; a semiology of the duration's perception (the passage of time) is still almost non-existent and no Parental questionnaire exist to evaluate it.

## AIM OF THE STUDY:

- > Designed and tested a parental questionnaire focused on everyday behaviors markers for evaluating the child's capacity for time-perception (apprehension of duration and apprehension of temporal sequence).

> Observe the developmental trajectories of the duration's perception and of the sequential time's perception in a general population of children from 2:6 to 13 years (typical population),

> Compare them with an atypical population.



METHOD: Elaboration of a parental questionnaire (25 items, Likert scale); 2 samples from 2:6 to 13 years: 827 in general population and 297 in transnosographic population (with psychological therapy); logistic regression; percentiles curves (P5,50,95).

## RESULTS:

### Example of Developmental Curves:

Q20: Does your child “feel” how long a certain amount of time will last? For example, a period corresponding to 10 minutes, 1 hour, or 2 hours? Is this the case when, say, you tell him or her to wait for 10 minutes before leaving for the pool?

- ☐ never
 ☐ rarely
 ☐ sometimes
 ☐ often
 ☐ always

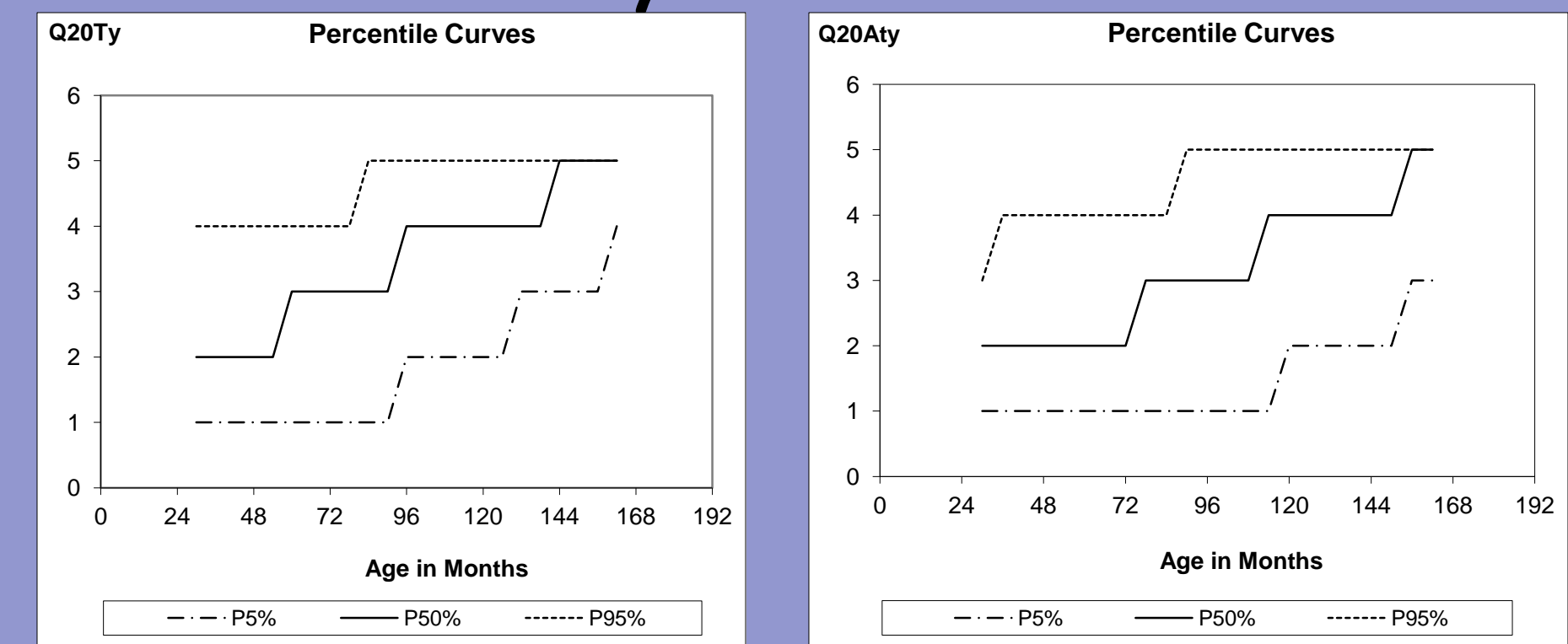


Figure 1. Q20, typical population on the left, atypical population on the right; on the abscissa: the age in months; on the ordinate: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always; from the bottom up: P5, P50 and P95.



Every item was analyzed.

## CONCLUSION:

- I. The duration's perception and the sequential time's perception have two different Developmental evolutions.

II. A. In the general population : 1) the duration's perception is gradually acquired in a continuous and regular fashion during the period between 2:6-12:0 years; by around 9:0 years, the majority of children have full mastery of this capacity, and from 13:0 years on, all children have acquired it, 2) the sequential time's perception begins at an early age and reaches a near maximum at 4:0 years.
 

B. In the atypical population the perception of time develops more slowly : 1) the duration's perception has a developmental lag of about 18 months at P50, while at P95 we find a sub-population of children who even at 13:0 still have significant difficulties, 2) the sequential time's perception has a developmental lag at P50, while at P95 child “often” has difficulty as late as 13:0 years.

III. This questionnaire evaluates a variety of behaviors markers of the perception of time. For example, if the child has a poor perception of the passage of time, he or she repeatedly asks when a planned activity is going to take place, even though the answer has already been given (Q5). He or she also has trouble feeling how long a certain time-period lasts and placing him- or herself within it (Q9). There will be a failure to evaluate the time necessary to carry out an activity (Q11), and so difficulty in choosing an activity suitable to the amount of time available (Q12), or else a tendency to exceed the time allotted (Q13). And if the child is poor at apprehending sequential time, he or she will be lost if there is a change in the day's program (Q4), will forget the proper order in which sequentially performed tasks are to be carried out (Q22), and will mix up the chronological order of events in telling a story (Q23).

LIMITATION: the novelty of our project inevitably entailed reliance on clinical intuition to establish the initial link between the behavioral markers chosen for study and the sense of time they reveal. This reliance is heuristically necessary, but it means that this study is only a first step that needs to be complemented by further research.

