

TRACKING SPEECH INTELLIGIBILITY DEVELOPMENT IN FRENCH- SPEAKING CHILDREN WITH AND WITHOUT SPEECH SOUND DISORDERS: *A LONGITUDINAL STUDY*

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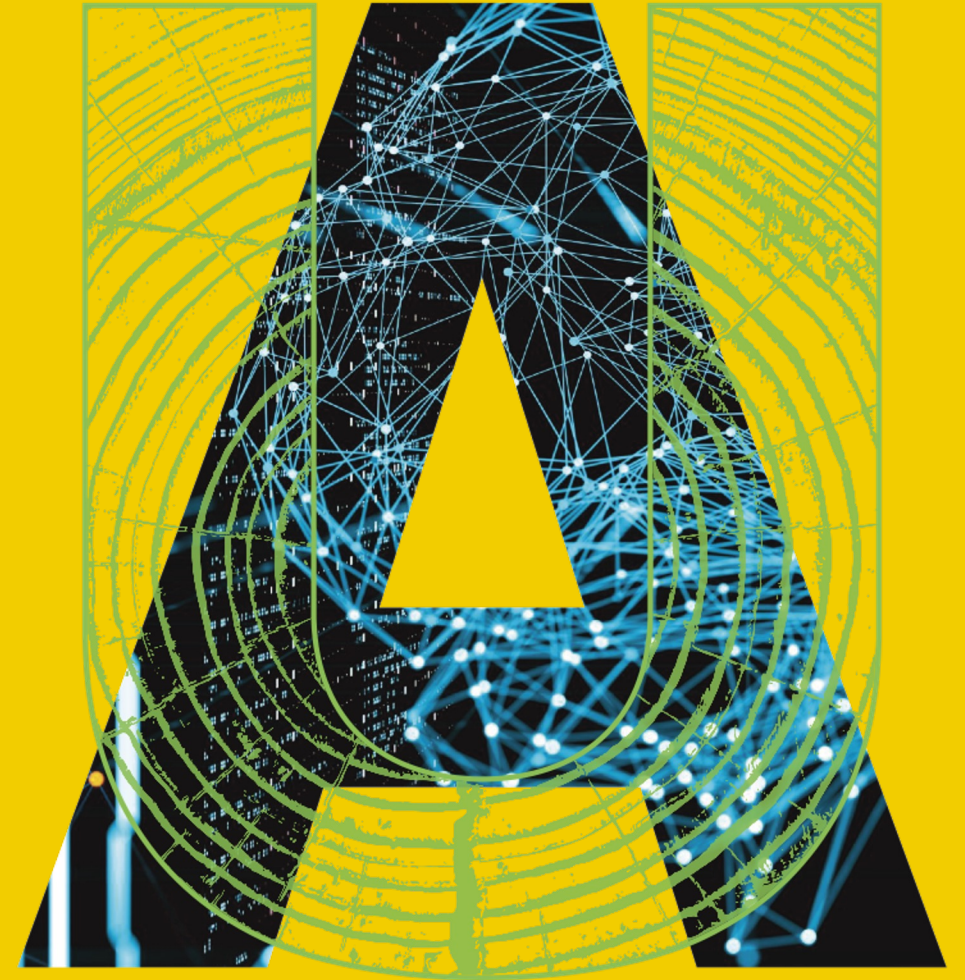
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Speech Sound Disorders (SSD) in preschoolers

Prevalence

3–15.6% in preschoolers

1/3 to 1/2 of pediatric SLP caseloads

Impact

More speech errors than peers

Less intelligible than expected for age

Challenge expressing needs (functional impact)

Current Challenge (European French Context):

Lack of normative data on typical/atypical speech development

Difficult to track development or identify risk of SSD

LONGITUDINAL STUDY

Can draw how speech develops over time = **TRAJECTORY**

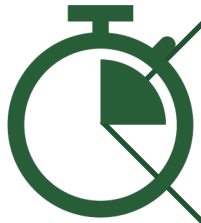
Reliable way to have normative data

Scarce !

0/13 longitudinal speech study has included children with SSD

Objectives

Our longitudinal study aims to:



track intelligibility development in French-speaking children with and without SSD

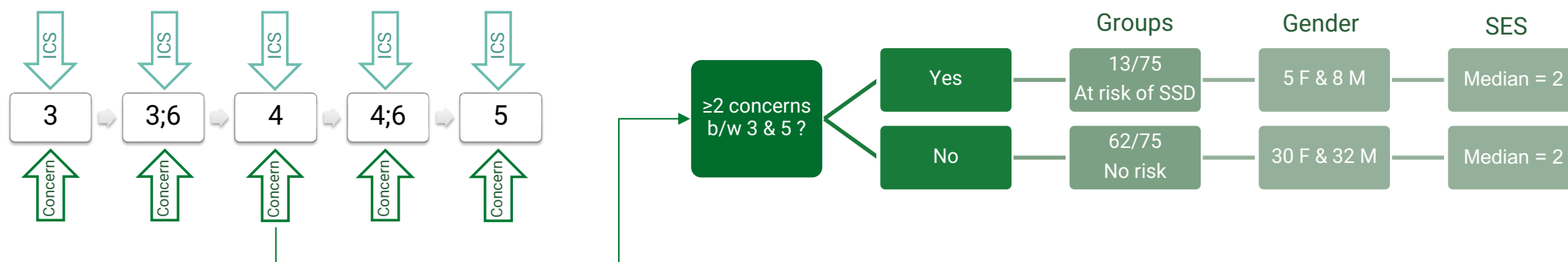
- Between ages 3 to 5 (= sensitive period for speech development)



identify the moment when a child might deviate from the typical path and might become at risk for SSD

Population & materials

- 75 French-speaking children were seen every 6 months from 3 to 5
- Speech measures
 - **functional intelligibility** = ICS (French) = 'intelligibility in context scale'
- Parental concern about speech sound



Analyses

Understanding Multilevel Longitudinal Models (MLMs)

In a nutshell, MLMs

draw **change over time** in each participant — while also modeling how this change **varies between participants**

help us see **individual patterns of change over time**
— not just group averages

Analyses & results

Level 1 – all participants

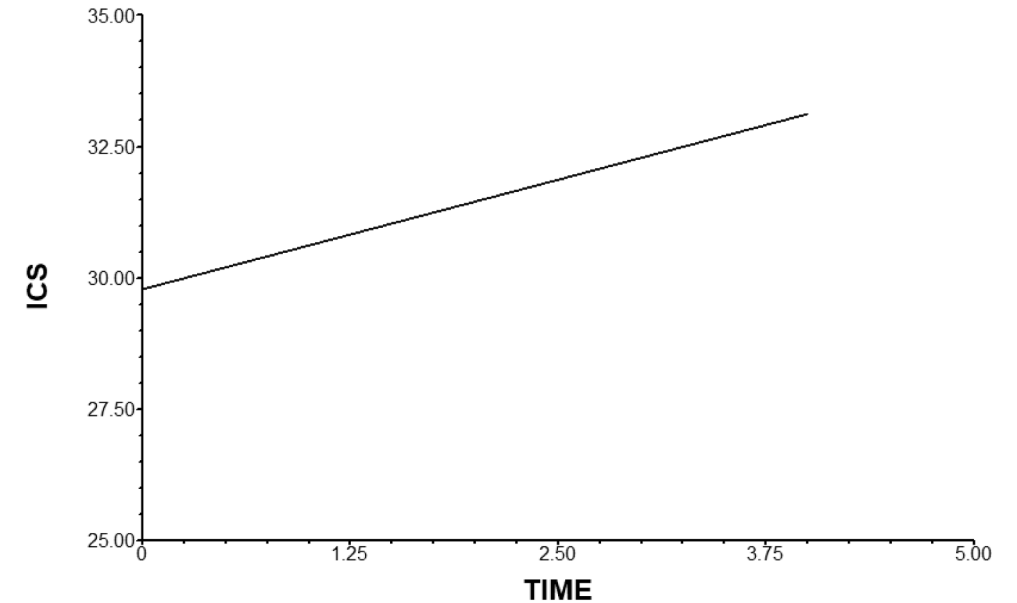
Level 1

How does intelligibility **change over time** for **all participants**?

• = global / linear regression

Level 2

+ factors



Intelligibility improves significantly over time ($p < .001$)

Analyses & results

Level 2 – Each participant = individual level

Level 1

How does intelligibility **change over time** for **all participants**?

• = global / linear regression

Level 2

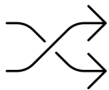
How does intelligibility **change over time** for each participant?

• individual / as a whole group

+ factors



Intelligibility at 3 yo varies significantly b/w children ($p < .001$)
= variations on **intercept**

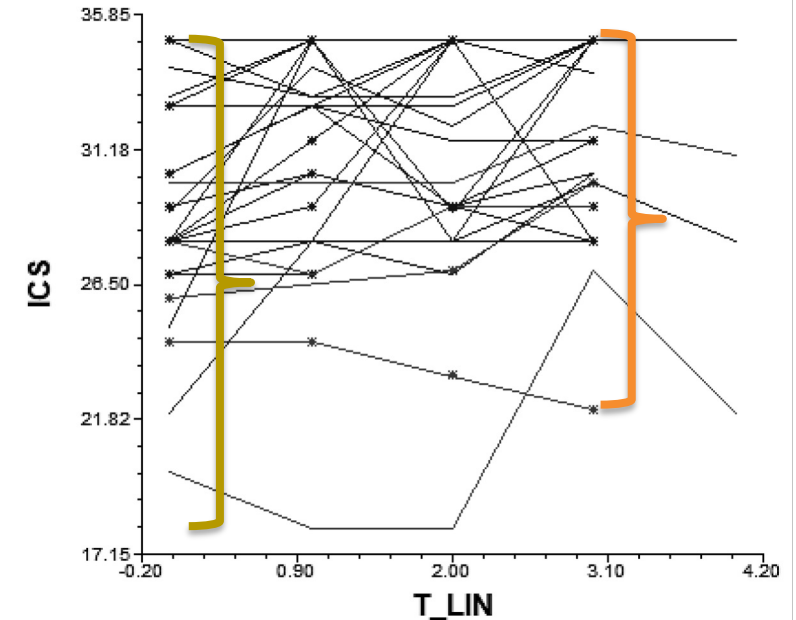


Intelligibility changes \neq over time b/w children ($p = .018$)
= variations on **slope**



Covariance **intercept** & **slope** = -0.32

→ *The lower/higher a child starts, the more/less room there is for improvement*



Analyses & results

Level 2 + factors

Level 1

How does intelligibility **change over time** for **all participants**?

- = global / linear regression

Level 2

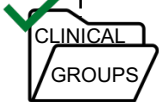
How does intelligibility **change over time** for each participant?

- individual / as a whole group

+ factors

Does intelligibility **change differently over time** for **each participant**, depending on their gender, SES or Clinical Group ?

- = individual / in ≠ groups



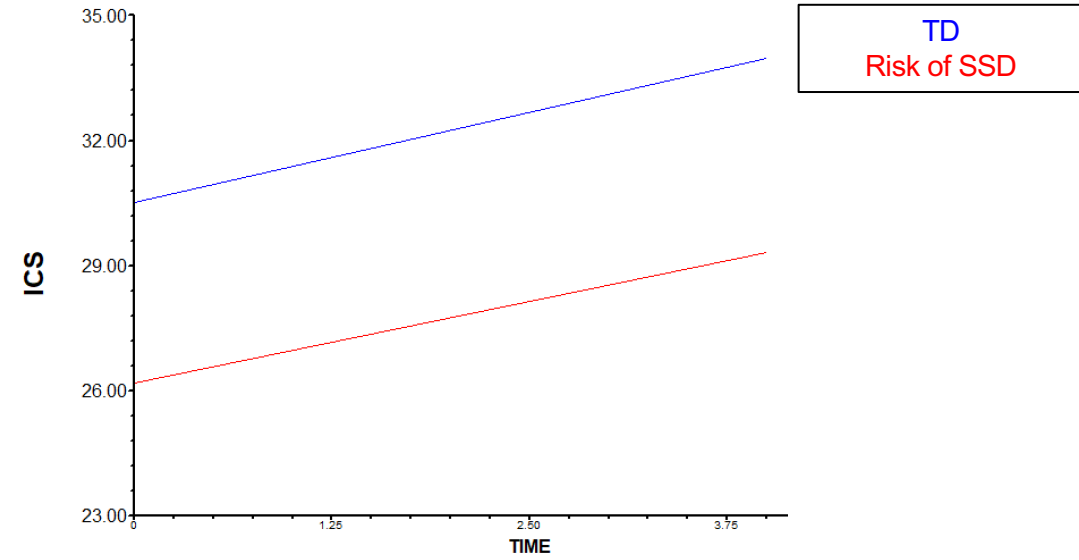
Intelligibility at 3 yo varied significantly b/w **TD** & **SSD** children ($p < .001$)

= variations on **intercept**



Intelligibility increased in a similar way for **TD** & **SSD** children ($p = .75$)

= **NO** variation on **slope**



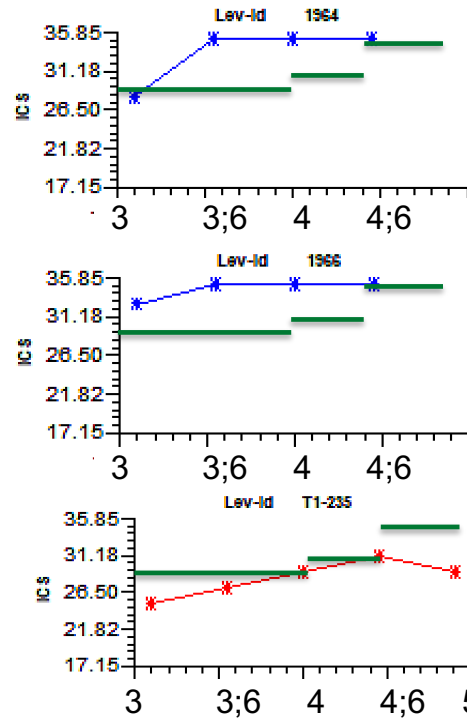
Can we confirm our clinical groups?



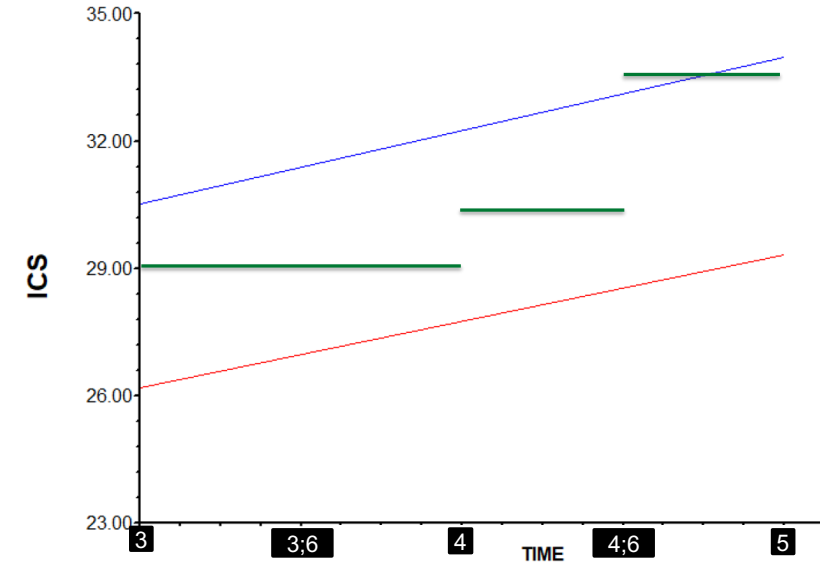
Newly developed normative data for the ICS (French)

3-4 y.o.	29
4 – 4;6 y.o.	30
> 4;6 y.o.	34

→ Can we confirm our suspected group ?
→ **YES**



TD
Risk of SSD



A photograph of a man with a beard and long hair, wearing a blue sweater, helping a young child with blonde hair climb a wooden play wall. The child is wearing a floral shirt, blue jeans, and yellow sneakers. The wall has various colorful handholds. The word 'CONCLUSION' is written in large green letters on a white background, overlaid on the image.

CONCLUSION

Intelligibility increases b/w 3 & 5 in French-speaking preschoolers.

☞ Children already showed **individual differences at 3** :

- TD > SSD
- Such differences explained 28.5% of the variance

☞ Children also showed **individual differences in their progress over time** :

- *children with lower initial intelligibility made the most progress, while those who started higher improved less*
- However, no tested factor explained the individual \neq over time.

☞ When does a child deviate & become at risk for SSD?

- Seems to be from the beginning... **to be continued!**

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Thank YOU !

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