An investigation of preschool language delay and reading skill at age 9 years in an Irish childhood cohort

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Growing Up in Ireland
National Longitudinal Study of Children

ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

Trinity College Dublin
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An Roinn Leanaí agus Gnóthaí Óige
Department of Children and Youth Affairs

"An investigation of preschool language delay and reading skill at age 9 years in an Irish childhood cohort"

Background

Methodology

Results

Conclusions

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01
Literacy (reading skill) underpins functioning in society

02
Language is central to literacy and learning

03
NB early identification and management of children at risk

The more that you read, the more things you will know. The more that you learn, the more places you'll go. –Dr. Seuss

Difficulties acquiring age appropriate language skills can occur during the preschool years:
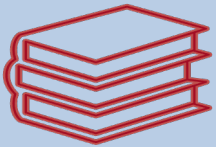
6% (Law et al., 2000)

15% (McLeod and Harrison, 2009)

Reading is a language-based skill / language is core to reading proficiency

Language delay = increased risk of literacy, academic, social-emotional difficulties and later unemployment

(Conti-Ramsden et al., 2009; Duff et al., 2015; Law et al., 2009; Yew and O'Kearney, 2013)

Majority of children will outgrow their difficulties

(Law et al., 2000)

However……..many 'resolved' children perform lower in later childhood and adolescence RE language and literacy (Rescorla, 2009)
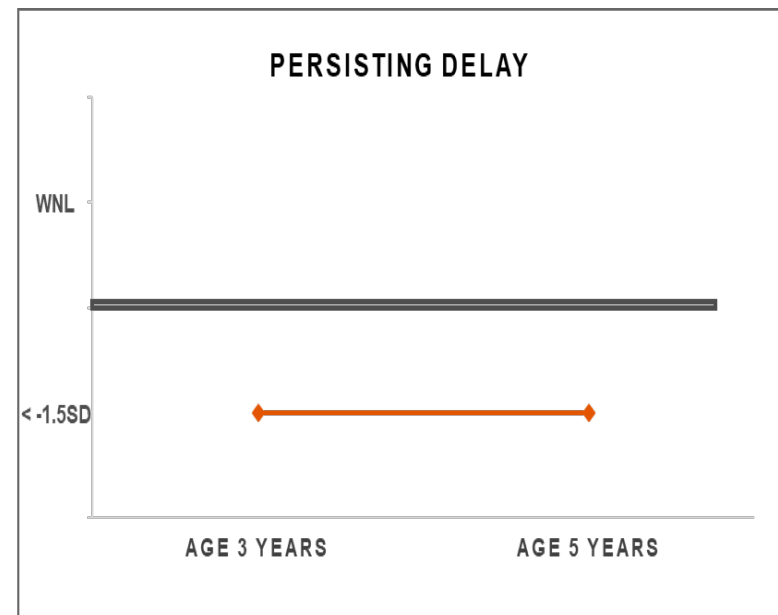
Clinical and Educational implications:
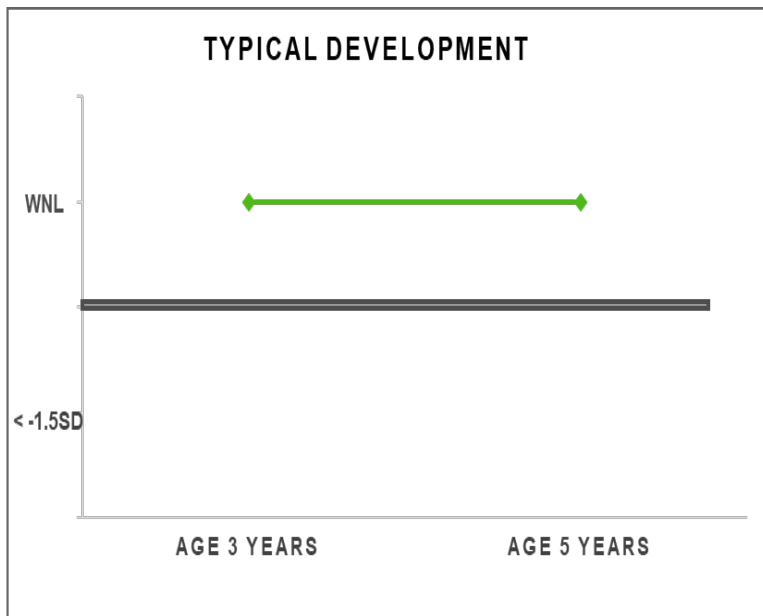
Which children are at high risk of poor longitudinal language and reading outcomes?
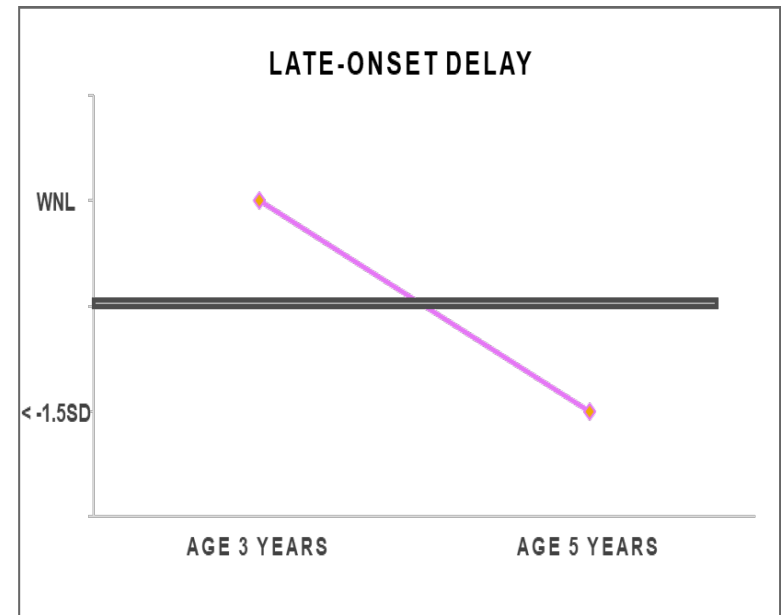
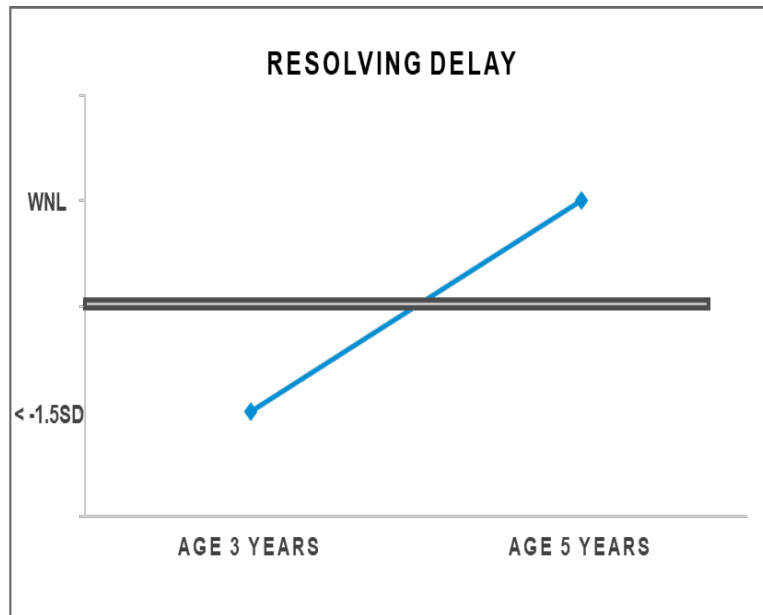- **4 patterns** of language development in preschool years

  (Law et al., 2012; Heinrich's et al., 2011; Jin et al,. 2020; Zambrana et al., 2014)

TYPICAL DEVELOPMENT

PERSISTING DELAY

What are the needs of these two groups?

Research Question

GUI study (O'Toole et al., 2019) **identified these patterns in Irish context**

Few studies investigate longitudinal group outcomes on later reading skills (Jin et al., 2020)

How do children identified with language delay in the preschool years perform on assessment of their reading at age 9 years compared with children with typical language development?
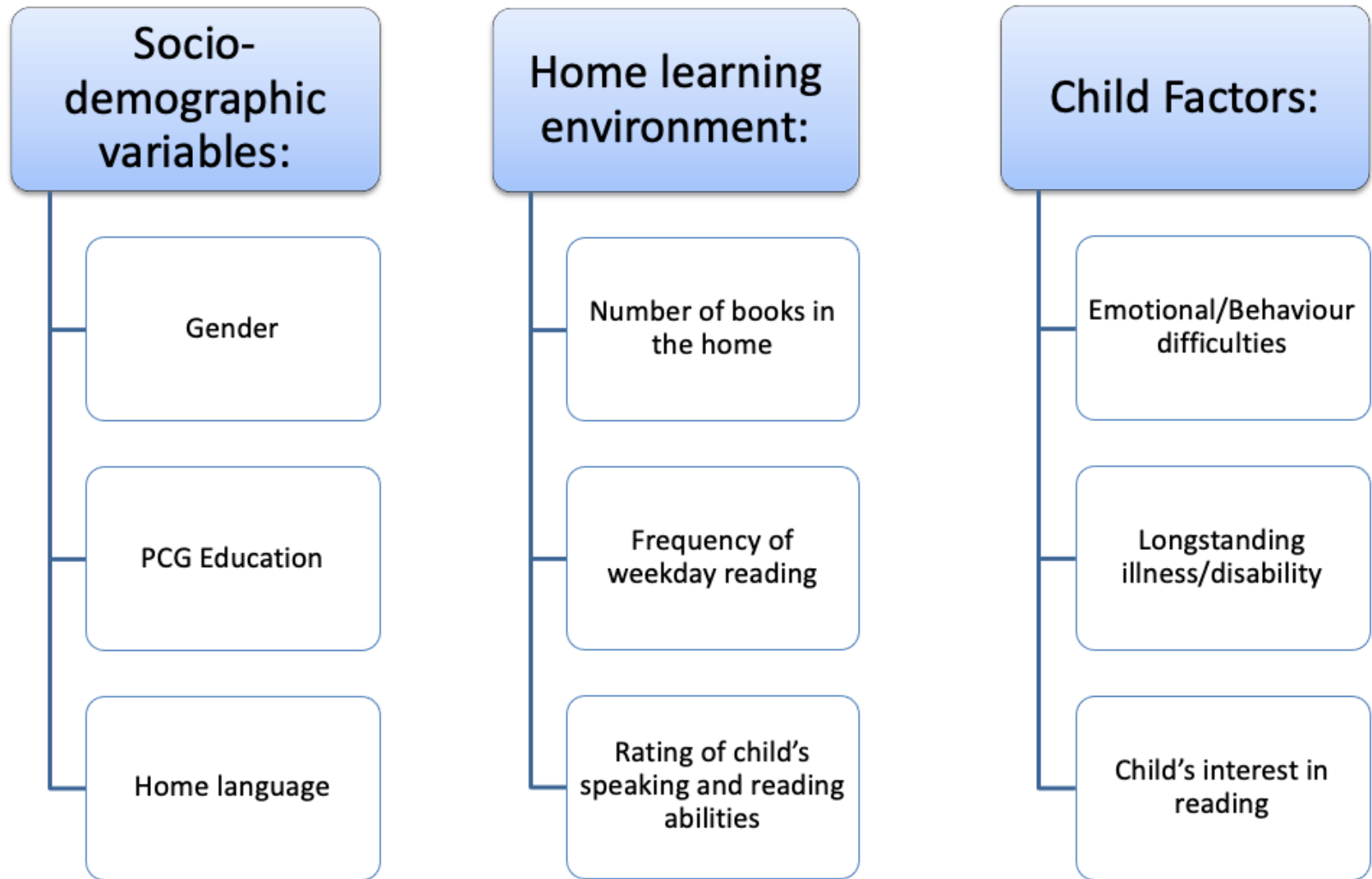
Explore the relationship of reported risk factors (e.g. gender, primary caregiver education, English as a second language) with language and reading skills

Outcome variables

- **Naming Vocabulary Subtest of the British Vocabulary Scales** (Elliot 1996):
  - Administered at age 3 years and age 5 years (Waves 2 and 3)
  - Robust measure used in other cohort studies (Law et al., 2012)
  - T-score used in this study, -1.5 SD threshold
  - Not standardised on an Irish population

- **Reading Vocabulary Subtest of the Drumcondra Reading Test** (ERC, 2007):
  - Administered at age 9 years (Wave 5)
  - Adapted version, standardised for the GUI sample
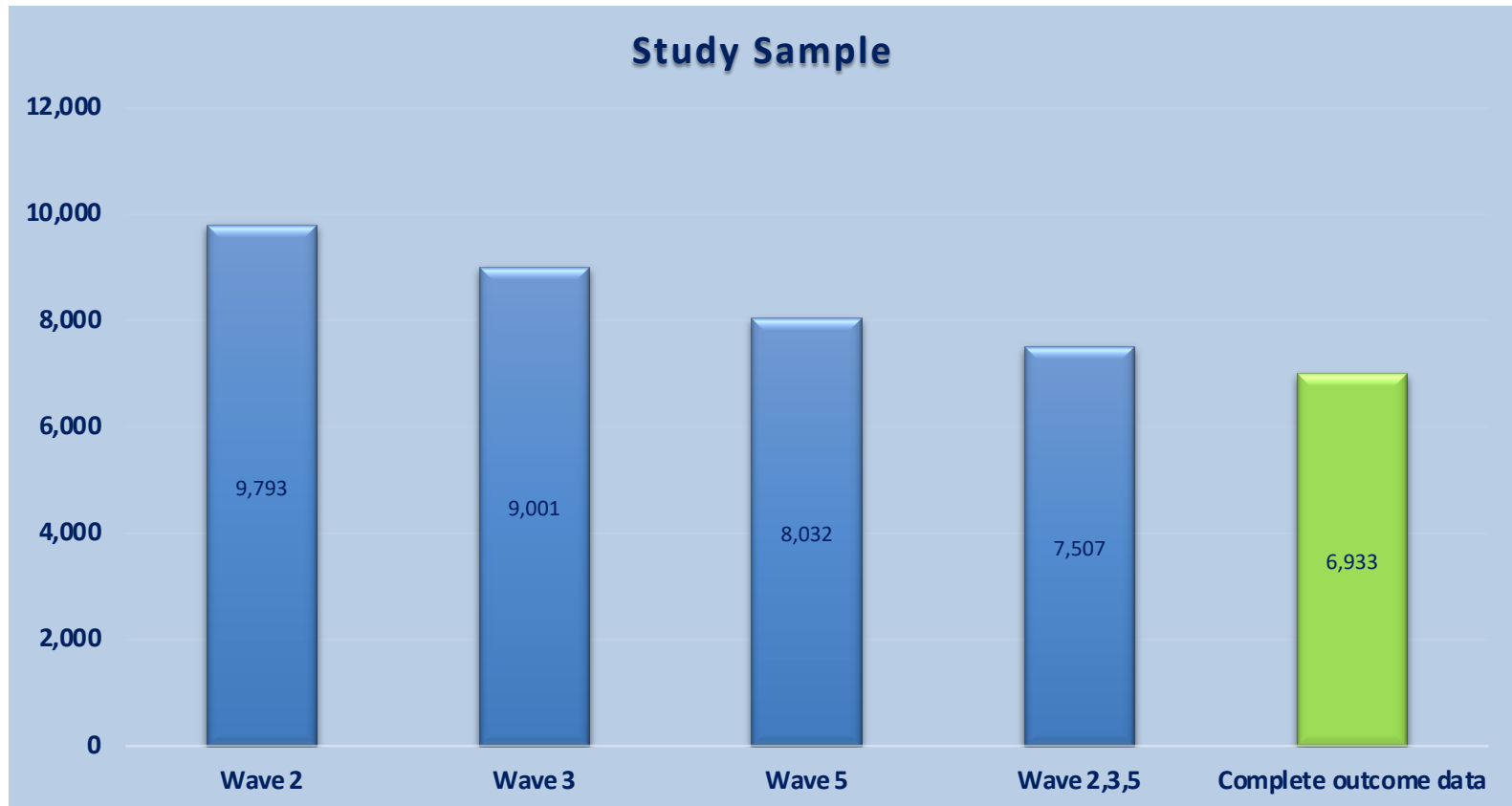 - Logit score used in this study, -1.5 SD threshold

Methodology: Risk factors

Socio-demographic variables:
- Gender
- PCG Education
- Home language

Home learning environment:
- Number of books in the home
- Frequency of weekday reading
- Rating of child's speaking and reading abilities

Child Factors:
- Emotional/Behaviour difficulties
- Longstanding illness/disability
- Child's interest in reading

Methodology: Sample

- Growing Up in Ireland **infant cohort**

Study Sample

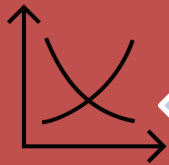| Wave 2	Wave 3	Wave 5	Wave 2,3,5	Complete outcome data
9,793	9,001	8,032	7,507	6,933

- ***Sample Bias:** 574 not included due to lack of available language and reading outcomes were statistically different from the final study sample (increased risk factors for language and reading difficulties)

Descriptive analysis of key covariates

Univariate and multivariable logistic regression adjusting for covariates

6% language delay at 3 years
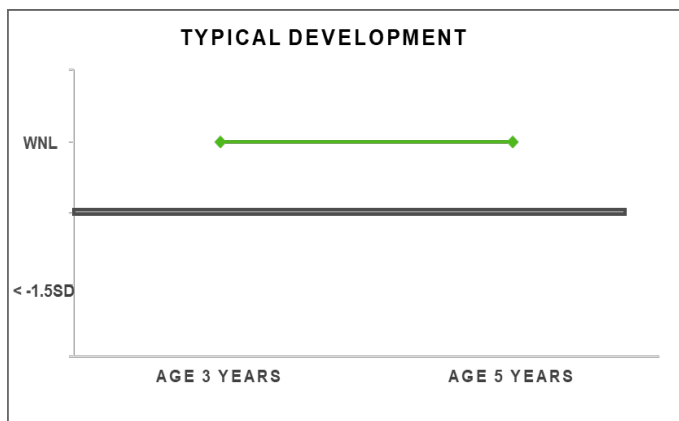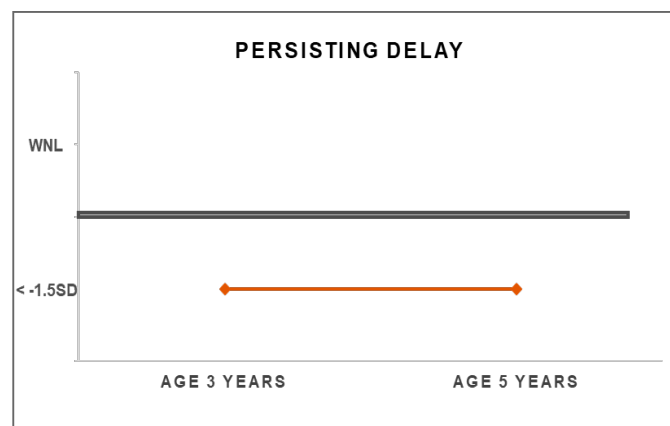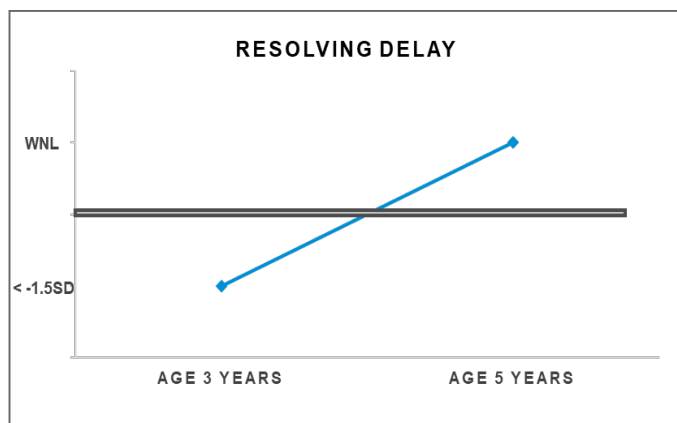
3% language delay at 5 years

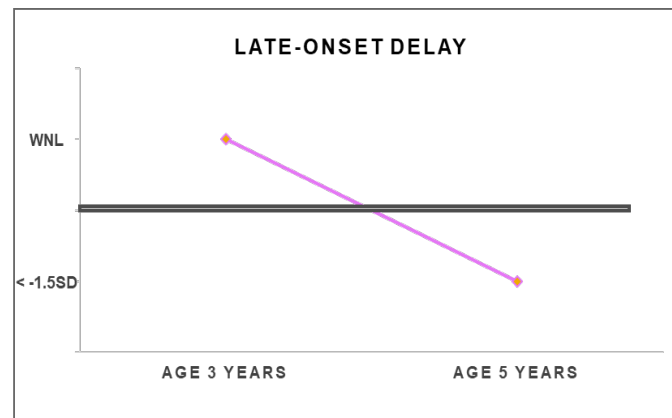3% reading delay at age 9 years

Typical language development: 93%

Persisting delay: 2%

Resolving delay: 4%

Late onset delay: 1%

Results: International comparison

	Current study	Law et al., 2012	Heinrichs et al., 2011	Jin et al., 2020	Zambrana et al., 2014
Typical	93.2%	92.7%	85.2%	90.0%	85.5%
Persisting	1.6%	1.5%	2.6%	1.9%	3.0%
Late Onset	0.9%	1.4%	6.0%	4.5%	6.5%
Resolving	4.3%	4.4%	6.2%	3.6%	5.0%
Participant details	Growing Up in Ireland n=6,933 Age: 3 & 5 years	UK Millennium Cohort n=13,016 Age: 3 & 5 years	Generation R Study, The Netherlands n=3,759 Age: 1½ & 2½ years	Norwegian Mother, Father and Child Cohort Study N=8,731 Age: 3 & 5 years	Norwegian Mother and Child Cohort Study n=10,587 Age: 3 & 5 years

Results: Adjusted Regression Analysis Reading delay

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✓ **Adjusted for 6 covariates:**

• Gender, PCG education, Home language, SDQ Score, Longstanding illness/disability, Number of children's books in the home

✓ **Comparison group:**

• Typical language development

Persisting
Language delay:
8.73 AOR
(95% CI: 4.35-17.50)

Late Onset
Language delay:
7.09 AOR
(95% CI: 3.14-16.03)

Resolving
Language delay:
2.45 AOR
(95% CI: 1.46-4.13)

Results: Other associations

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Gender: Male
1.14 AOR
(95% CI: 0.83-1.57)

Longstanding Illness/Disability:
1.62 AOR
(95% CI: 1.15-2.28)

Less than 10 books
2.14 AOR
(95% CI: 1.32-3.45)

PCG Education: Junior Cert or lower
3.70 AOR
(95% CI: 2.16-6.34)

SDQ Borderline/ Abnormal
1.95 AOR
(95% CI: 1.32-2.84)

Home Language
Irish 4.16 AOR
(95% CI: 1.21-14.34)
Other 0.46 AOR
(95% CI: 0.21-1.01)

Results: Discussion

Preschool years are a **period of unstable** language development

Preschool language delay **increases risk** of reading delay at age 9 years

Delay at age **5 years** is more predictive of reading difficulties than than at 3 years (AOR of 4.89 v AOR of 2.13)

Language delay is **one of strongest predictors** of reading delay

Low level of **PCG education** and reduced **number of books** also identified as increasing risk of reading difficulties

Conclusions: Implications

Children at risk of reading difficulties **can be identified** prior to commencing formal education

Children with apparently 'resolved' early language delay remain **twice as likely** to present with reading delay as typically developing peers

This group are **less likely** to access services

How do we **monitor and support** these children with pre literacy and early literacy development?

Importance of **timely identification** of at-risk children and **preventative interventions**

Thankyou

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Questions?