



**Growing Up  
in Ireland**

National Longitudinal  
Study of Children

# The Prevalence of Speech and Language Impairment among a Nationally Representative Sample of Irish Children

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[www.growingup.ie](http://www.growingup.ie)



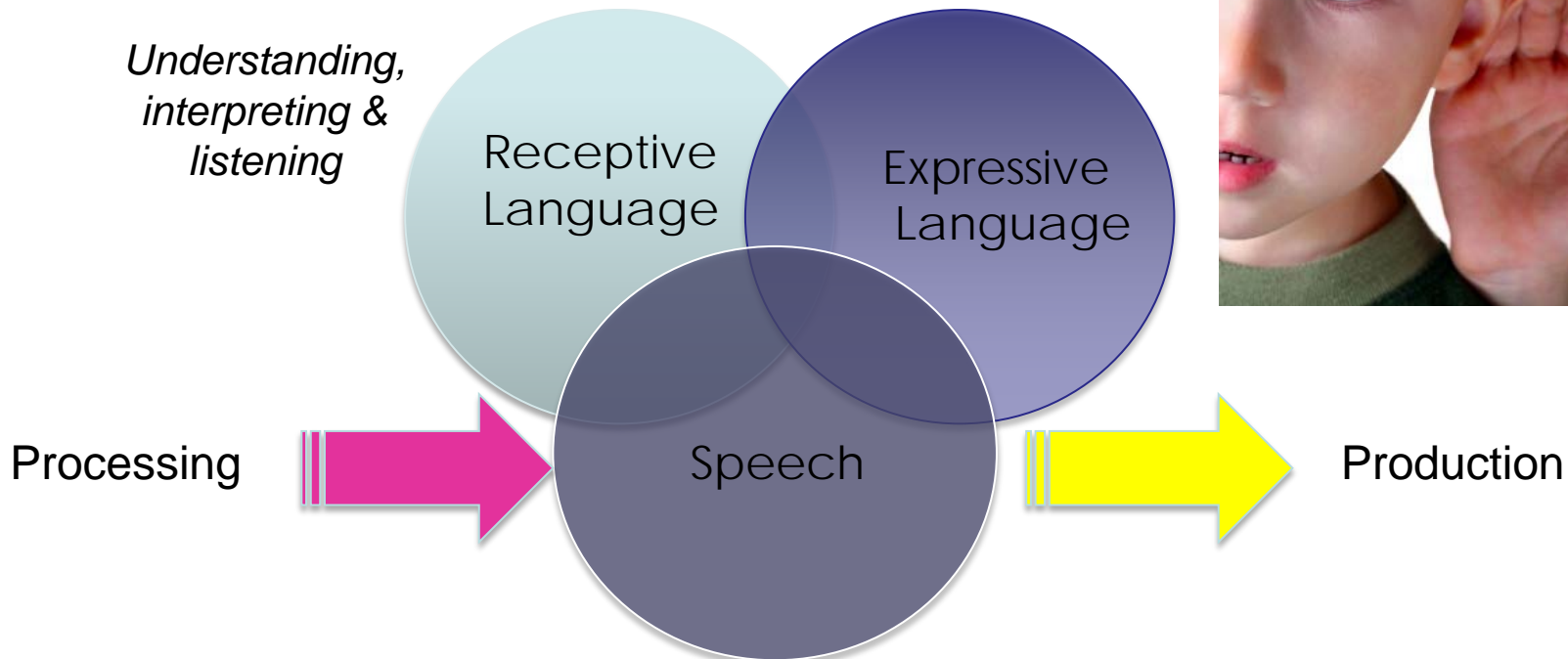
An Roinn Leanaí  
agus Gnóthaí Oige  
Department of  
Children and Youth Affairs



TRINITY  
COLLEGE  
DUBLIN

# Speech and Language Impairment in Childhood

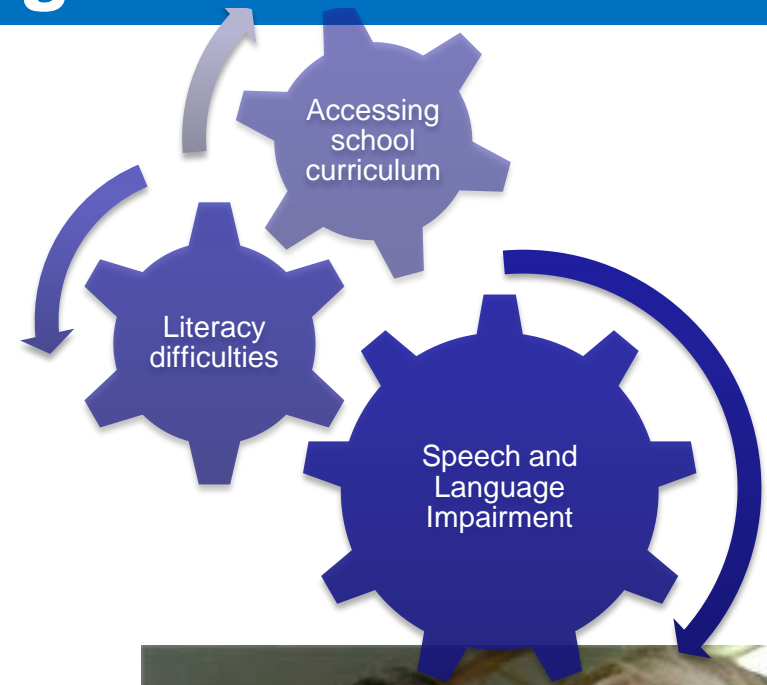
- Heterogeneous population (Broomfield & Dodd, 2004)
- World Health Organization (WHO, 1993), broad classification:



# Impact of speech and language difficulties

## *Far reaching consequences...*

- **Intrinsic to literacy development: spelling** (Snowling & Stackhouse, 1983; Leitao & Fletcher, 2004), **reading comprehension & accuracy** (Catts et al, 2008; Fraser & Conti-Ramsden, 2008)
- **Accessing school curriculum/ depressed academic achievement** (Nathan et al, 2004b; Snowling et al, 2011)
- **Managing behavior** (Lindsay et al, 2007; Botting & Conti-Ramsden, 2000)
- **Relating to peers** (Conti-Ramsden & Botting, 2004; Knox & Botting, 2003)





# Prevalence

“The proportion or percentage of cases in a population at a specified time” *Law, Boyle, Harris, Harkness & Nye (2000)*

✧ Paramount in identifying margins between typical vs atypical development;

✧ Judging viability of current service provision to meet needs

*(Mcleod & McKinnon, 2007; McKinnon et al, 2007)*



# Prevalence

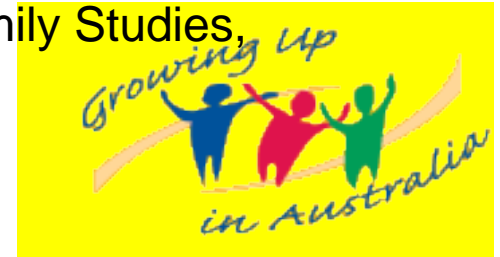
- Considerable variability in literature- age group, methodology in data collection and criteria for determining impairment (Hull et al, 1971)
- Systematic review (Law et al, 2000) : 5.95% (range = 2.28 – 6.68%)

McLeod & McKinnon, (2007)	Pinborough-Zinnerman et, al (2007)	Jessup et al, (2008a)	McKinnon et al, (2007)
12.4%	6.34%	14.3%	1.51% (Speech impairment <u>only</u> )
5-18 years Teacher identification & Direct assessment	8 years Multiple source health and educational record review	5;4-6;10 Direct assessment	5-12 years Teacher report & Direct assessment



# McLeod & Harrison, (2009)

- Preschool cohort - 'Growing Up in Australia: The Longitudinal Study of Australian Children' (LSAC: Australian Institute of Family Studies, 2007) ~ *Contemporary of GUI*
- Multiple sources:



	Teachers	Parental Concern	Direct Assessment (Adapted Peabody Picture Vocabulary Test)
Expressive speech/language	<b>22.3%</b> "less/much less competent"	<b>25.2%</b> concerned for how child talks and makes speech sounds	
Receptive Language *strong relationship (medium-large effect size)	<b>16.9%*</b>	<b>9.5%</b> concerned about child's understanding	<b>14.7%*</b> more than one standard deviation below mean

✧ *Brofenbrenner's (1979) ecological model*: need for context-specific information

✧ Ireland a unique context



✧ Need for a cogent evidence base in literature- do complementary trends exist in Australian vs. Irish data?



# Research Aims...

1. Prevalence estimates according to three informants: primary caregivers, teachers, direct assessment
2. Rate of diagnosis
3. Proportion of children receiving in-school resources
4. Degree of correspondence between three primary informants







# Methodology

- Primary caregiver main questionnaire:

Screeners: *“Do you have concerns about how your child talks and makes speech sounds?”*

- Subtypes of impairment

Screeners: *“Do you think the Study Child has a Specific Learning Difficulty, Communication or Co-ordination Disorder?”*

- Nature of difficulty (Speech & Language Difficulty)
- Received diagnosis?



# Methodology

- Teacher-on-child questionnaire:

Ratings of academic performance in '*oral communications*' and '*comprehension*'

Children "*limited by speech impairment*" & whether they receive in-school help/resources

- Drumcondra Test of Reading Vocabulary:

Reflect proficiency in oral speech and language, underlying links between word-reading and speech-sound knowledge (Hogan et al, 2005); and reading comprehension and expressive/receptive vocabulary (Wise et al, 2007)

- Logit scores



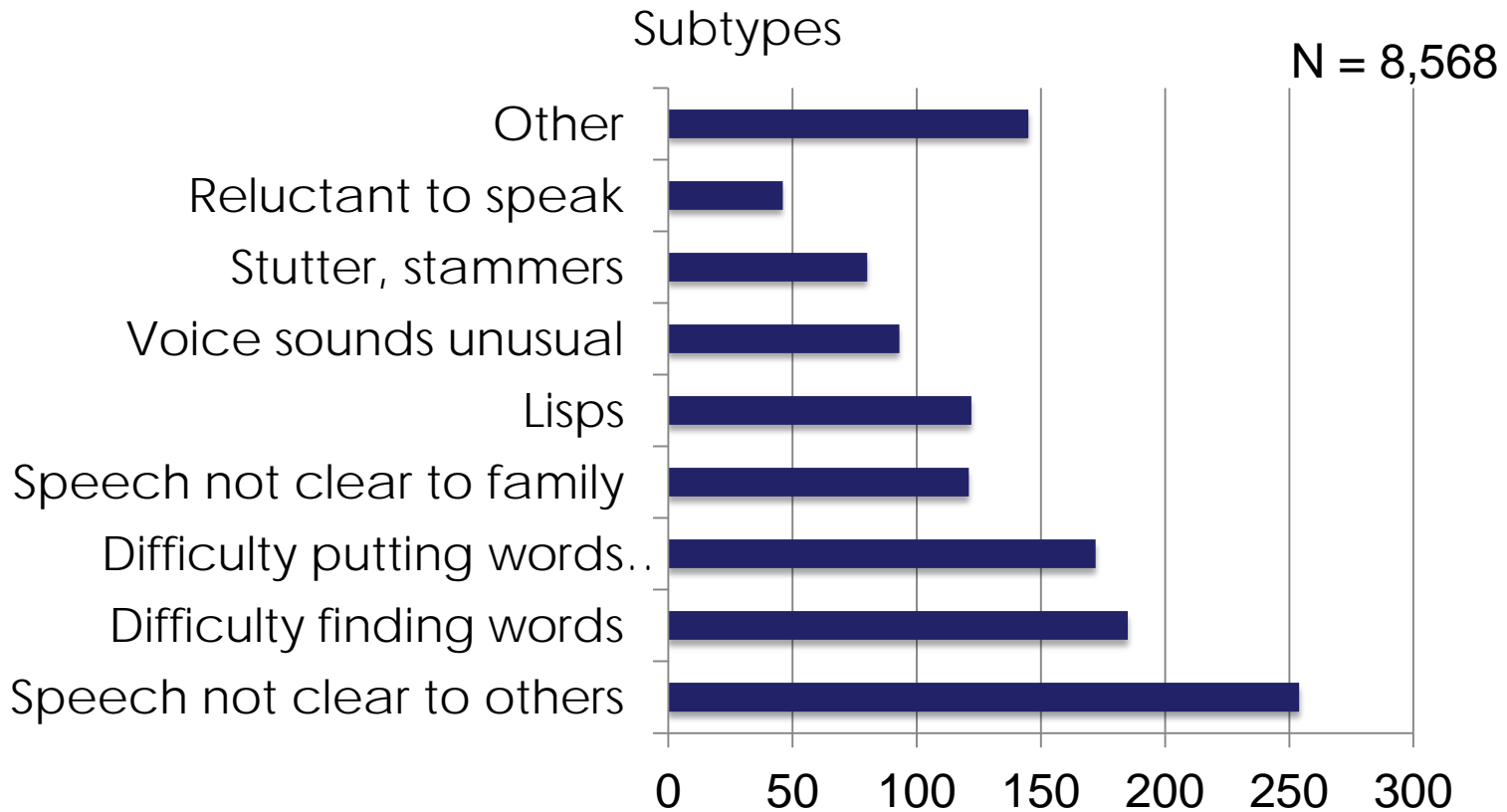
# Data Analysis

1. Descriptive Analysis
2. Cross-tabulation: proportions
3. Chi-Square analysis: relationship between parent concerns and teacher ratings of speech/expressive language
4. One-way ANOVA tests of linearity: correspondence between parent/teachers and direct assessment



# Findings...

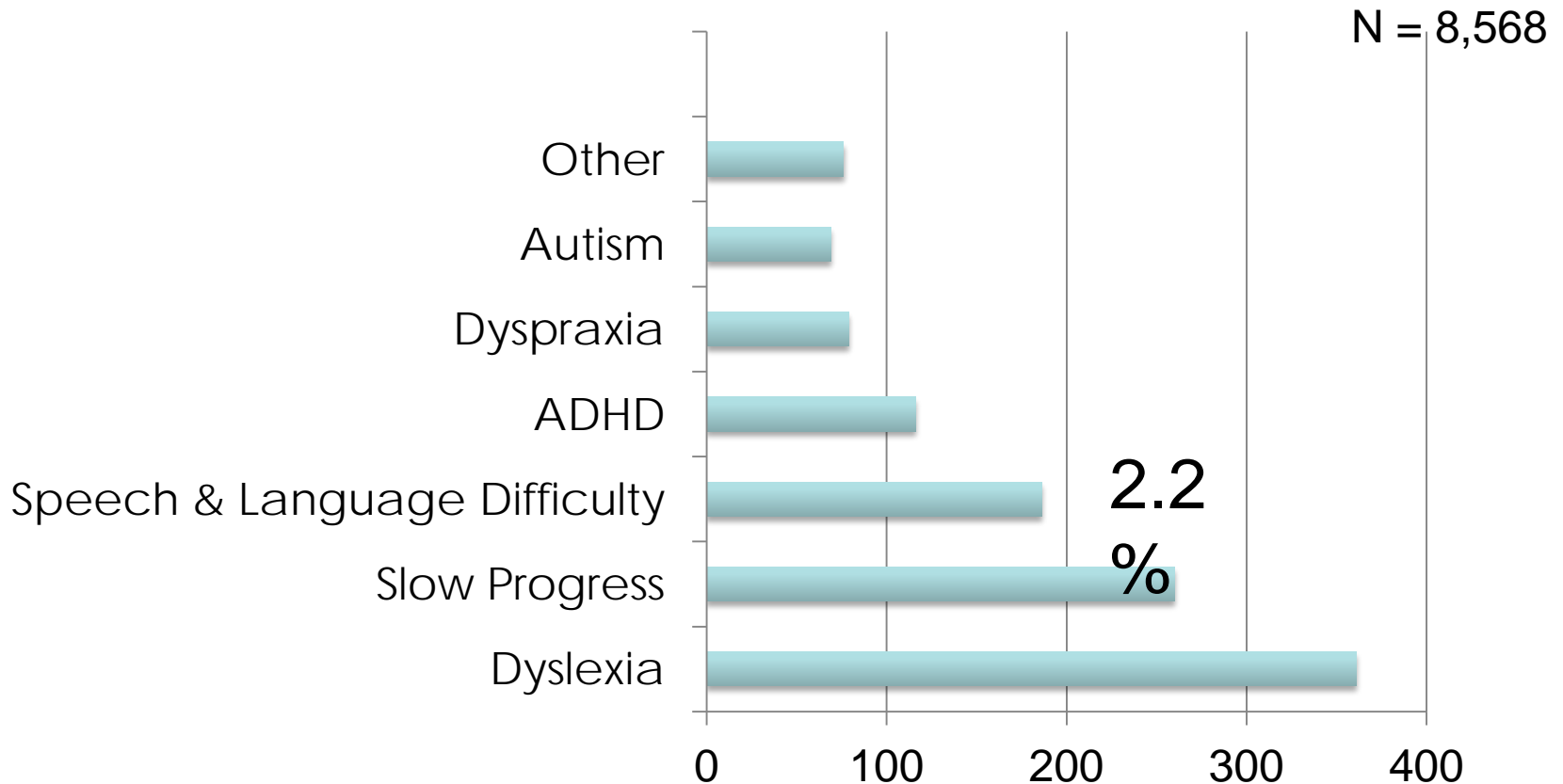
- ❖ Prevalence according to parents...
- ✧ **7.8%** concerns (6.4% a little, 1.4% a lot)





# Findings from primary caregiver reports...

- ✧ Speech and Language Impairment in comparison to other specific learning difficulties/ developmental disorders:





# Findings...

- Vast majority identified as having 'Speech and Language Difficulty' also reported receiving a professional diagnosis
- Nature of question- more clinical, contingent on professional opinion
- Smaller subset of children- different picture of prevalence

**Table 7. Proportion of children reported by primary caregiver as having speech and language difficulties who were diagnosed by a professional (n=186) [N=8,568]**

	Caregiver report of diagnosis by professional	
	Yes	No/ Awaiting consultation
Caregiver report of speech and language impairment	166 (89.2%) [1.9%]	20 (10.8%) [97.8%]



- Time of diagnosis

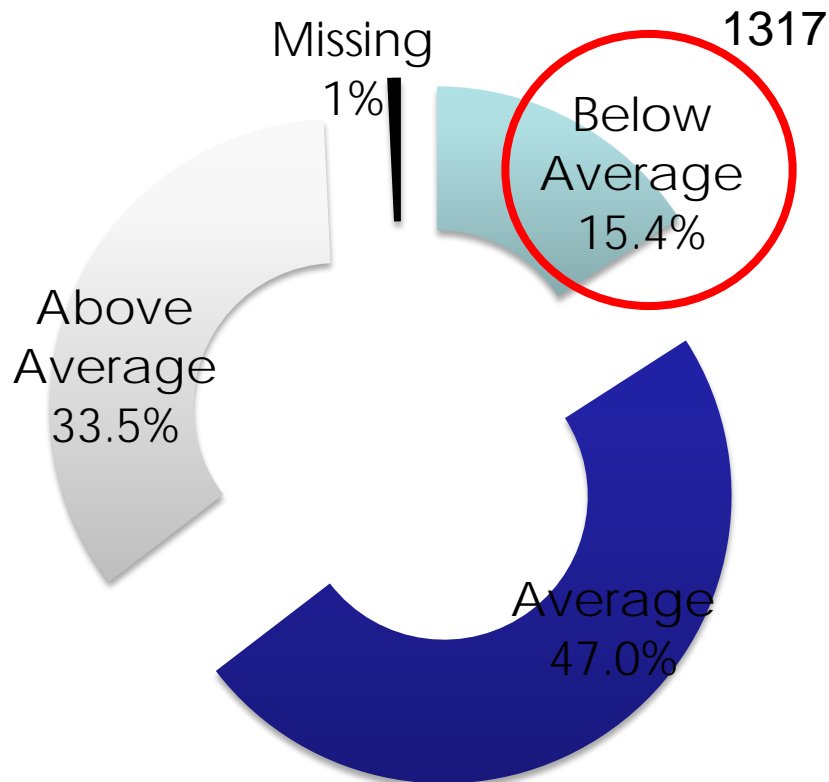
**Table 8. Distribution of children with diagnosis of Speech and Language Difficulties according to time elapsed since diagnosis was received, based on Primary Caregiver report**

	<b>Question</b>			
	<i>How long ago was it diagnosed?</i>			
<i>Caregiver report of Speech and Language Difficulty diagnosed by a professional</i>	<b>Last 6 months</b>	<b>6-12 months</b>	<b>1-2 years</b>	<b>Longer than 2 years</b>
	22 (13.3%)	11 (6.6%)	19 (11.4%)	114 (68.4%)

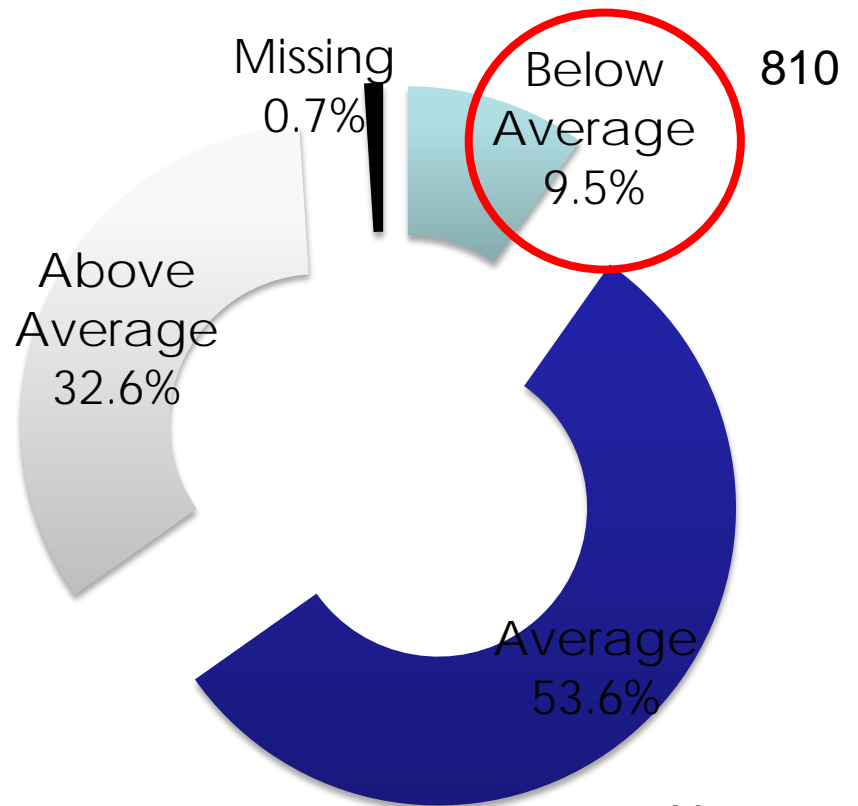
# Findings...

## ❖ Prevalence according to teacher report

### Comprehension



### Oral Communications



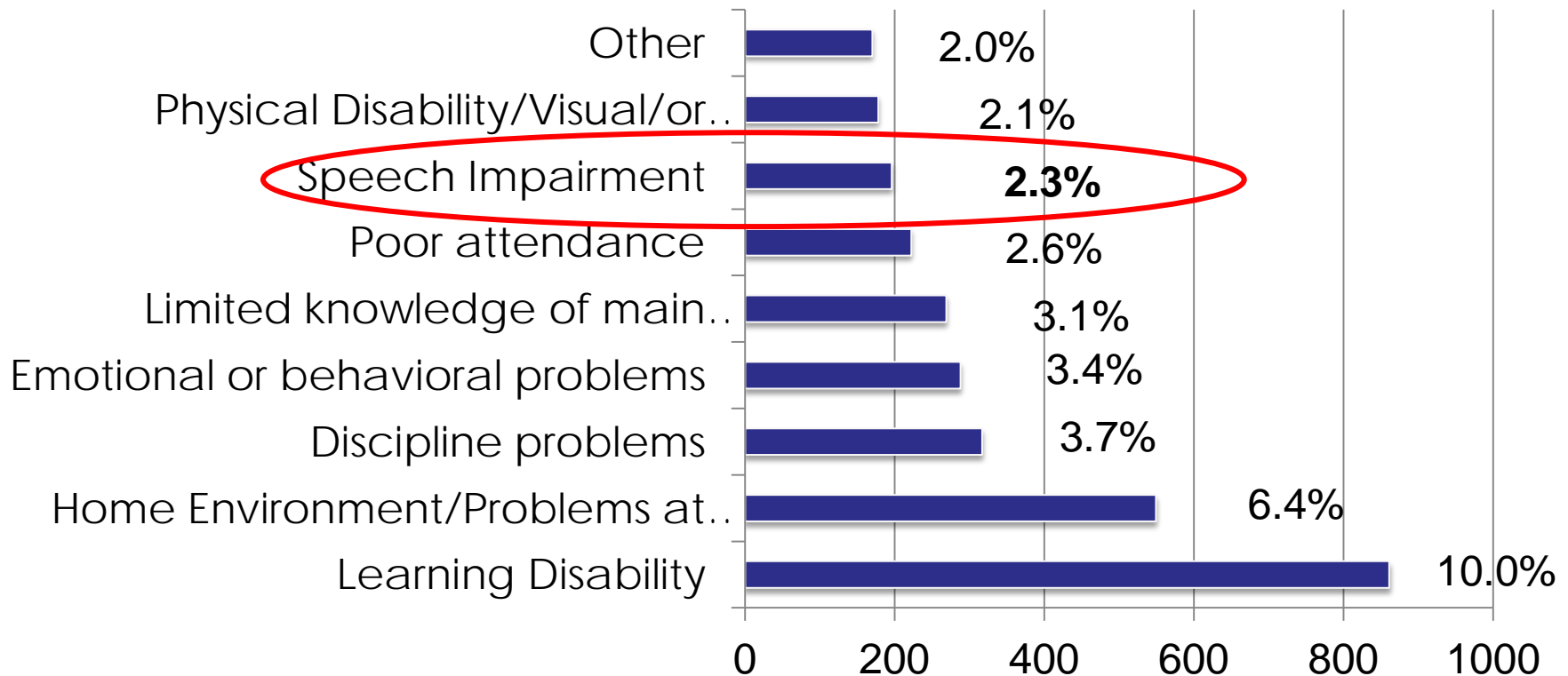
N= 8,568



# Findings...

- ❖ Prevalence according to teacher report- Speech Impairment which limits activity in school

## Barriers to activity





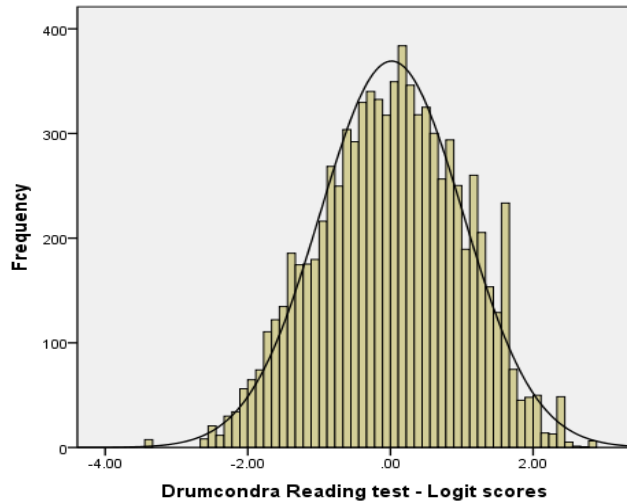
# Findings...

- ❖ Teacher report: proportion receiving in-school help/resources
  - Majority identified as limited are receiving resources, however this is a much smaller subset of children than parents had concerns for...

**Table 6. Proportion of children reported by teacher as having a speech impairment (which limits activity), who receive special help or resources in school. (n=196) [N = 8,568]**

	Teacher report of whether child receives special help or resources in-school		
	Yes	No	Don't know
<b>Teacher report of speech impairment which limits child's activity</b>	146 (74.5%) [1.7%]	40 (20.4%) [0.4%]	10 (5.1%) [0.1%]

❖ Prevalence: Normative scores, direct assessment (Drumcondra)



**Table 7. Proportion of nine year olds with Logit scores below -1.5 and below -2 on the Drumcondra Test of Reading Vocabulary (N = 8,340).**

Logit score cut-off	Proportion of Nine-Year-Olds
<i>Score less than -1.5</i>	595 (6.9%)
<i>Score less than -2</i>	168 (2.0%)

# Findings...

- Correspondance between parent and teacher reported prevalence (Speech + Expressive Language)
- Contingency table/Chi-square analysis -> significant relationship, medium-to-large effect size

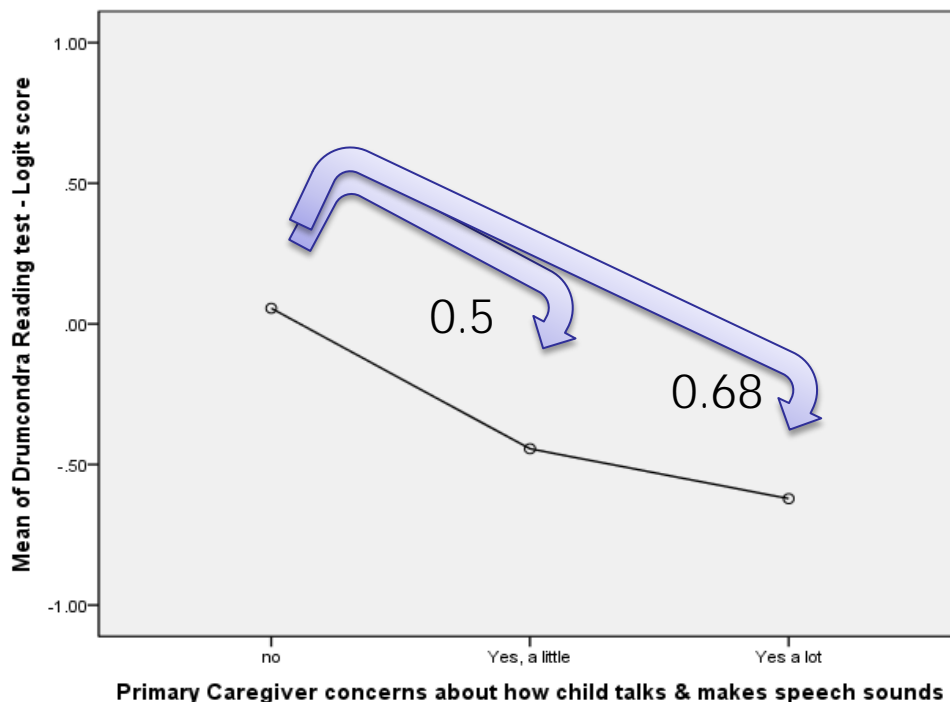
**Table 8. Correspondence between mother and teacher reports of speech and expressive language difficulties (weighted sample for children who received both mother and teacher ratings, N = 8190)**

General area of communication	Caregiver concerns about how child talks and makes speech sounds	Academic performance - oral communications		
		Below average	Average	Above average
Speech and language (expressive)	<i>Yes, a lot</i>	<b>64</b> <b>(56.1%)</b>	34 (29.8%)	16 (14.0%)
	<i>Yes, a little</i>	<b>138</b> <b>(26.3%)</b>	285 (54.3%)	102 (19.4%)
	<i>No</i>	<b>608</b> <b>(8.1%)</b>	4266 (56.5%)	2677 (35.5%)

$\chi^2$  (N= 8,190) = 480.225, p = < .001

# Findings...

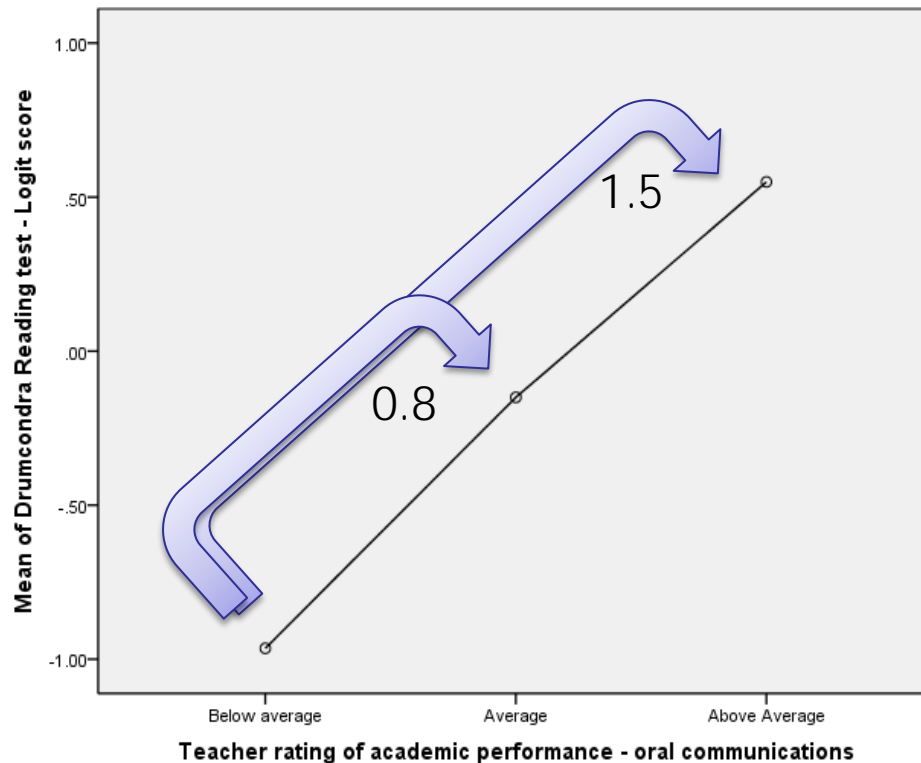
- Correspondance between direct assessment and primary caregiver concerns
- Comparison of means with ANOVA tests of linearity



- Significant relationship-  $F(2, 8330) = 81.484, p < 0.1$
- However, closer inspection: only small-to-medium effect size generated,  $\eta^2 = 0.02$

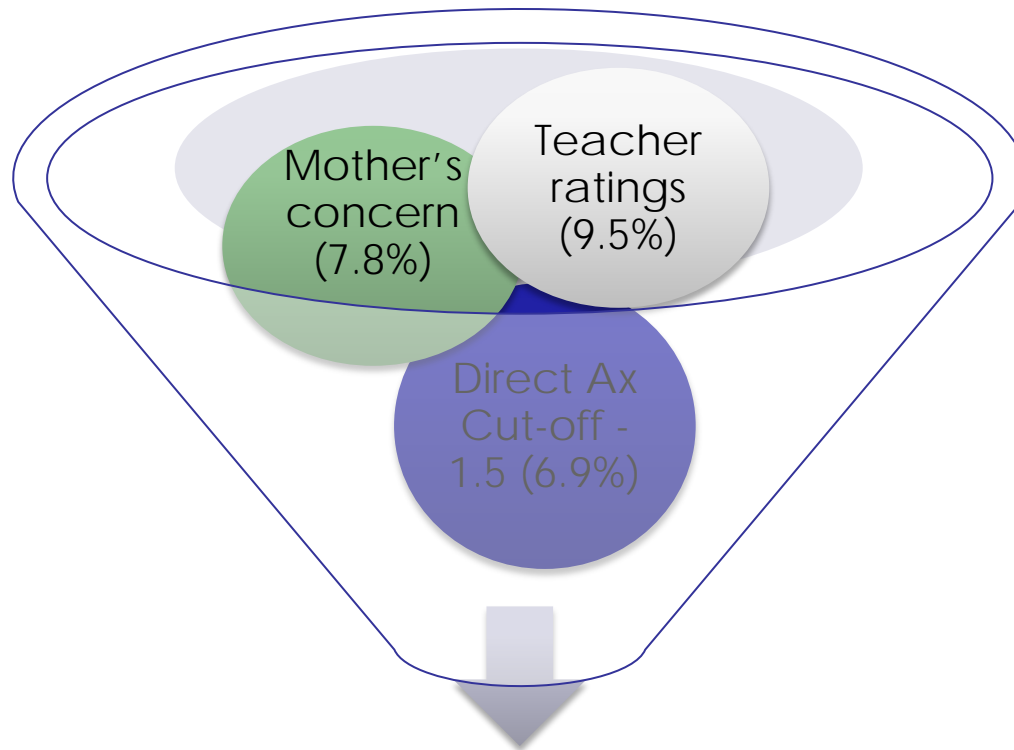
# Findings...

- Correspondence between teacher ratings and direct assessment



- Significant relationship evinced, with larger F value than obtained for primary caregivers,  $F(2, 7994) = 1039.499$ ,  $p < 0.1$
- Effect size similarly larger,  $\eta^2 = 0.2$ , a large effect

# Conclusions...



Similar prevalence rates

- In addition, significant relationships were evinced between all three.



- Lower than findings of Harrison & McLeod (2009) – 25.2% parental concerns, 22.3% teacher ratings
- Nonetheless, higher than median rating for prevalence (5.95%)
- Decreasing prevalence with age? – Results from Scotland (GUS) lend weight to this

		GUI		LSAC		GUS	
Prevalence	Age (years; months)	9	2;10	4;3-5;7	6;10	3;0-4;0	5;0-6;0
			<i>(Taylor, Maguire, &amp; Zubrick, 2011)</i>	<i>(McLeod &amp; Harrison, 2009)</i>	<i>(Taylor et al., 2011)</i>	<i>(Barnes, Chanfreau, &amp; Tomaszewski, 2010)</i>	<i>(Barnes et al., 2010)</i>
	Caregiver report	<b>7.8%</b>	<b>16.8%</b>	<b>25.2%</b>	<b>15.6%</b>	<b>15%</b>	<b>11%</b>
	<i>“Concerns about how child talks and makes speech sounds”</i>		14% (girls) 19% (boys)		21% (boys); 12% (girls)		





# Conclusions

- Middle childhood largely overlooked in literature, however despite a general decline in prevalence with age a high prevalence still pertains to this age group
- Also some children were only diagnosed within the last 1-2 years: increasing linguistic demands (Lindsay et al, 2001)

➤ Suggests importance of **continuing intervention for this age-group** – difficulties that persist past 6 years, particularly vulnerable & “require specialist language-learning opportunities” (McCartney, Boyle et al, 2011)

However...





# Conclusions

- More circumscribed picture of prevalence based on rate of diagnosis (1.9%), receipt of in-school resources/services (1.7%) and more stringent criteria of -2 s.d. below mean on direct assessment...
- This may reflect factors inherent in service delivery – diagnostic criterion
- Points to a need to use standardized testing in conjunction with functional indices of impairment (Bishop & MacDonald, 2008; IASLT, 2007)



# Further Research

- Parent report only available for speech & expressive language
- However, teachers identified a higher proportion of children with receptive difficulties than expressive (15.4%; 9.5%)- Opposite in McLeod & Harrison (2009) (9.5%; 25.2%)
- May reflect pervasiveness of receptive difficulties (Law et al, 1998; Beitchman, 1994)
- Previous studies have stated that teachers are reliable judges of comprehension/listening difficulties (Gilmore & Vance, 2007), however research only carried out on younger children



# Thank you!

## Questions?

