



how language impairment at school entry affects social, behavioural and academic progress

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early language development is the
foundation for later scholastic
achievement, self-regulation and
social well-being

children who have difficulty learning
their native language are therefore
at high risk of adverse outcome

overview

- what is language disorder and what factors are associated with poor language development?
- what is the relative age effect?
- the Surrey Communication and Language in Education Study (SCALES): key questions and methods
- PRELIMINARY ANALYSES: what factors are associated with teacher rating of poor communication in reception?

what is language disorder?

- child's **language abilities** are **below chronological age expectations**
 - phonological skills
 - vocabulary
 - grammar
 - narrative and conversation
- language deficits are **not explained by other developmental concerns** such as sensory impairment, autism, extreme deprivation, head injury, global developmental delay
 - although language impairment is frequently associated with other developmental concerns
- language impairments **interfere with everyday life** at home or at school

how common is 'specific' language disorder?

- Tomblin et al. (1997). EPI-SLI study of 7200+ kindergarteners in Iowa, USA
- key findings
 - ~7% of children at school entry had language delays based on standard tests of vocabulary, sentence processing and narrative skill
 - these children were followed through to adulthood
 - at higher risk for literacy difficulties, social difficulties, and attention/behavioural problems

but...

- of 7% identified, fewer than half met diagnostic criteria for language impairment a year later
 - not 'improvement' but problems with severity criteria for initial diagnosis and/or measures included in diagnostic algorithms
- of 7% identified by research team, only 1/3 had been identified by parents and teachers as having difficulties
 - some 'hidden' difficulties
 - no measure of IMPACT on education or daily life

associated developmental concerns

- increased rates of co-occurring difficulties in cognition, motor development, attention control, social skills, literacy and other academic attainments
- some evidence for increased psychiatric disturbance by adolescence
 - typically in clinically referred samples (Berkson's bias)
- longitudinal studies have generally NOT measured associated concerns at school entry
 - co-occurring problems with similar underlying causation?
 - or consequence of navigating school with language/communication difficulties?

language disorder and later behaviour problems

- population studies are less susceptible to Berkson's bias
- two previous studies (Beitchman et al. 1996; Tomblin et al. 2000) suggest:
 - behaviour problems in language disorder only apparent in those who also having reading problems
 - behaviour problems arise as a consequence of school failure and low self-esteem

does the age at which children start school matter?

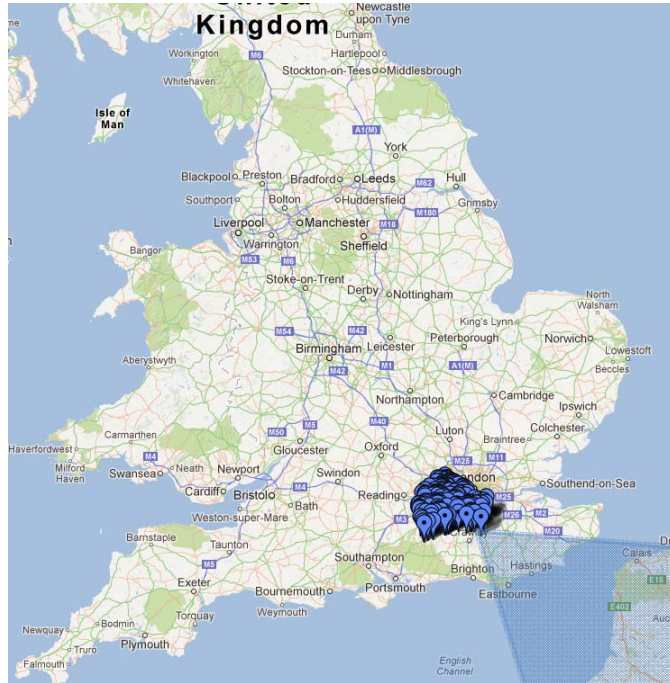
- in the English education system, **summer born** children are the youngest in the class
 - children start school in the academic year in which they turn 5 (with 1st September as the cut-off)
 - children with birthdates on 31st August thus start school at 4, and are 12 months younger than those born in September

youngest children in a school year group are:

- less likely to be top academic achievers (Cobley et al. 2009)
- are more likely to be identified as having special educational needs (Wilson, 2000)
- are more likely to be identified as having SLCN (Dockrell et al. 2012)
- are more likely to be diagnosed with ADHD (Morrow et al. 2012)
- are at increased risk of behaviour and psychiatric disorder (Goodman, Gledhill & Ford, 2003)

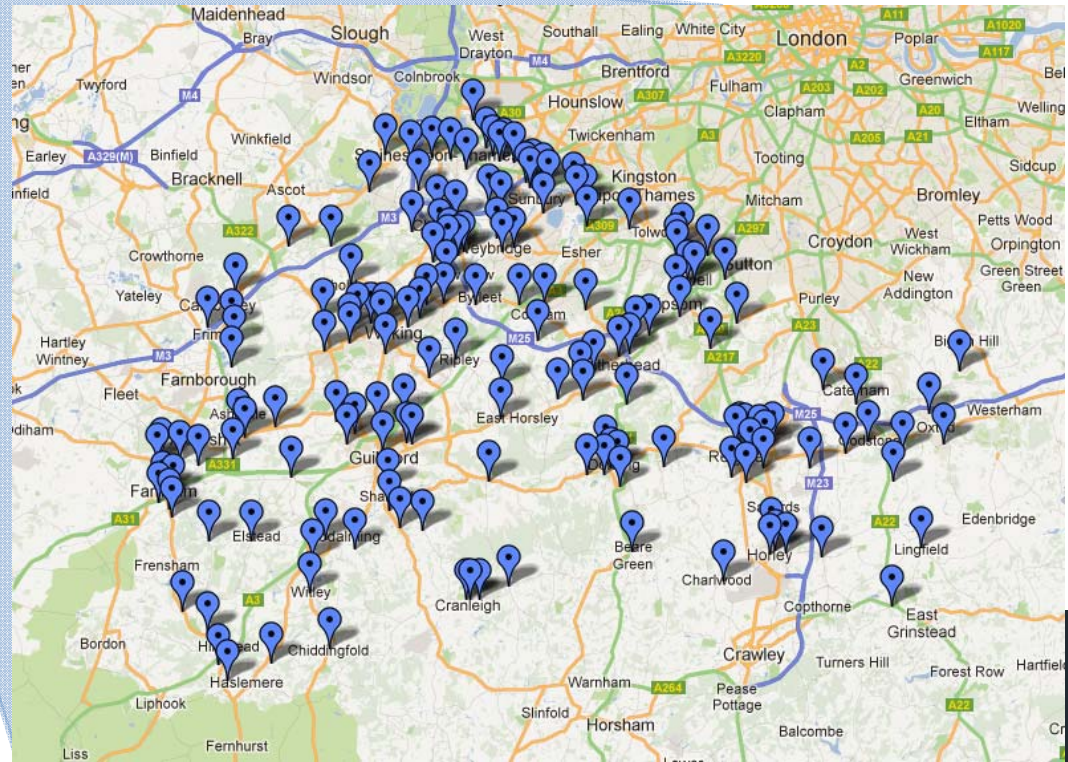
immediate questions:

- how does age at which children start school influence teacher ratings of communicative competence?
- are communication difficulties and behavioural problems associated:
 - within a population sample?
 - at the beginning of formal schooling?



SCALES

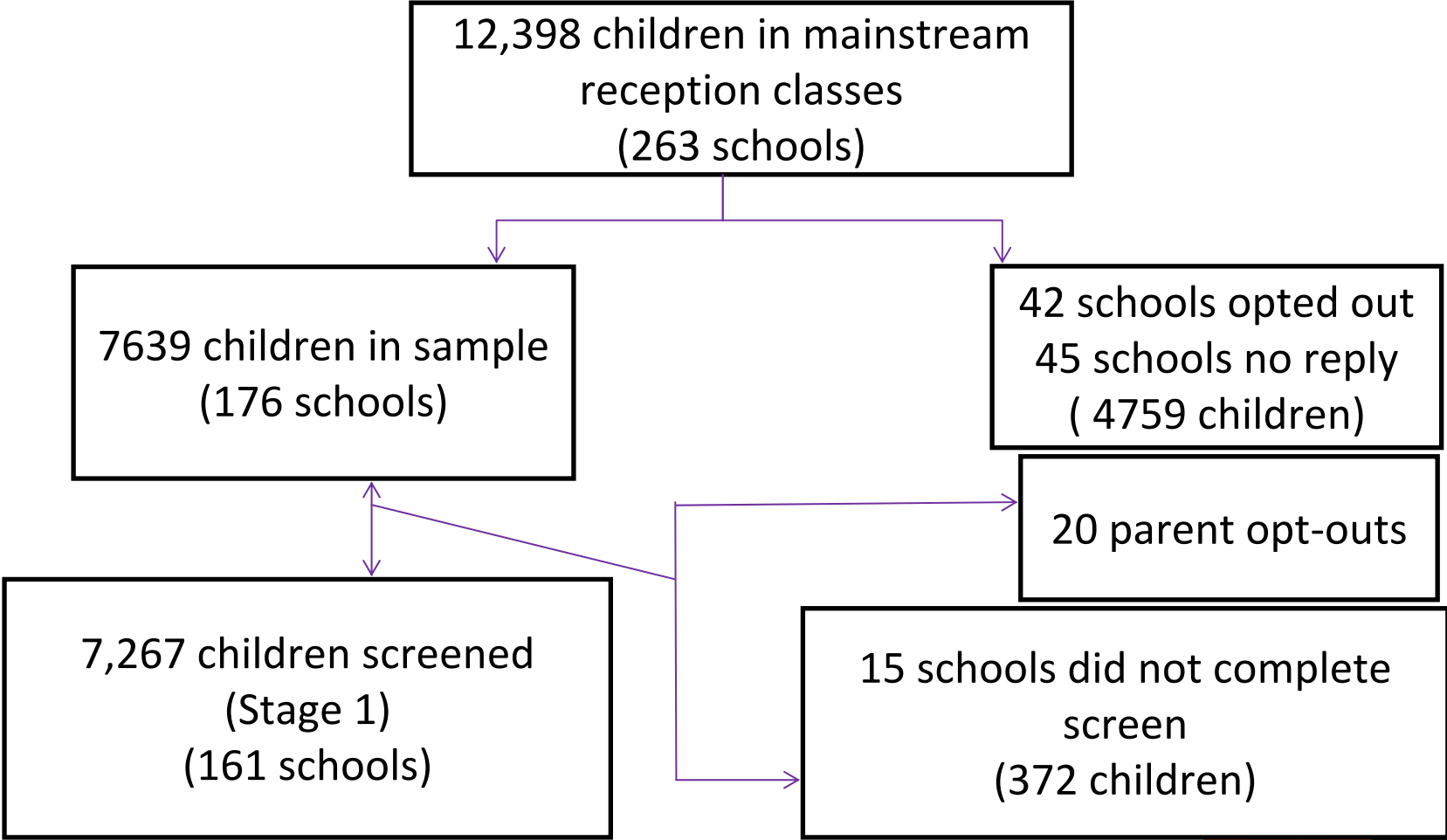
Surrey Communication and
Language in Education Study



questions we are trying to answer

- if children start school with language delay, what other developmental concerns are present?
- are particular patterns of language difficulty associated with particular co-occurring deficits?
- which patterns of language and co-occurring deficit have the greatest impact on academic achievement?
- how do these patterns of language/communication impairment and co-occurring deficit change over time?
- how many children are actually starting school in the UK with significant language and communication needs?

Stage 1: Screening for language/communication 'risk'



Stage 1: Screening for language/communication 'risk'

- ~281 teachers completed an on-line screening questionnaire for every child in their reception class (!)
- screening questionnaire included:
 - background information on child ethnicity, home language, SEN status, any existing diagnostic information, teacher concerns
 - Children's Communication Checklist-Short (Bishop, 2003)
 - Strengths and Difficulties Questionnaire (Goodman, 1997)
 - New Early Years Foundation Stage Profile

CCC-S questions: negative

- Forgets words s/he knows, e.g. instead of 'rhinoceros' says 'animal with horns'
- Uses pronouns (he, she, it) without making clear who is being talked about
- Misses point of jokes/puns
- Leaves past tense –ed or other endings off words
- Takes in just 1 or 2 words of a sentence
- Gets sequence of events muddled up when telling a story

CCC-S: positive

- Talks about future events
- Can have enjoyable, interesting conversation
- Can produce long and complicated sentences
- Uses words that refer to whole classes of object (e.g. 'furniture' or 'fruit')
- Speaks clearly with accurate speech sounds
- Explains past events
- Provides right amount of information (not too vague or overly precise)

Strengths and Difficulties Questionnaire (Goodman, 1997)

- Five sub-scales, each with five items:

- Emotion problems
- Conduct problems
- Hyperactivity
- Peer problems

Summed to form a
'total problems'
score (max 40)

- Pro-social behaviour

Three outcomes:
a. Typical behaviour
b. Borderline behaviour
problems
c. Abnormal behaviour

Early Years Foundation Stage Profile

- 17 academic targets rated as: emerging (not met); expected; exceeded
- 12 key targets are summed to form 'good level of development' covering curriculum areas:
 - Personal, social and emotional development
 - Physical development
 - Communication and language
 - Numeracy
 - Literacy

- Personal, social and emotional development
 - children talk about how they and others show feelings, talk about their own and others' behaviour, and its consequences, and know that some behaviour is unacceptable.
- Physical development
 - children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully
- Communication and language
 - children express themselves effectively, showing awareness of listeners' needs. They use past, present and future forms accurately when talking about events that have happened or are to happen in the future. They develop their own narratives and explanations by connecting ideas or events.
- Numeracy
 - children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns.
- Literacy
 - children read and understand simple sentences. They demonstrate understanding when talking with others about what they have read

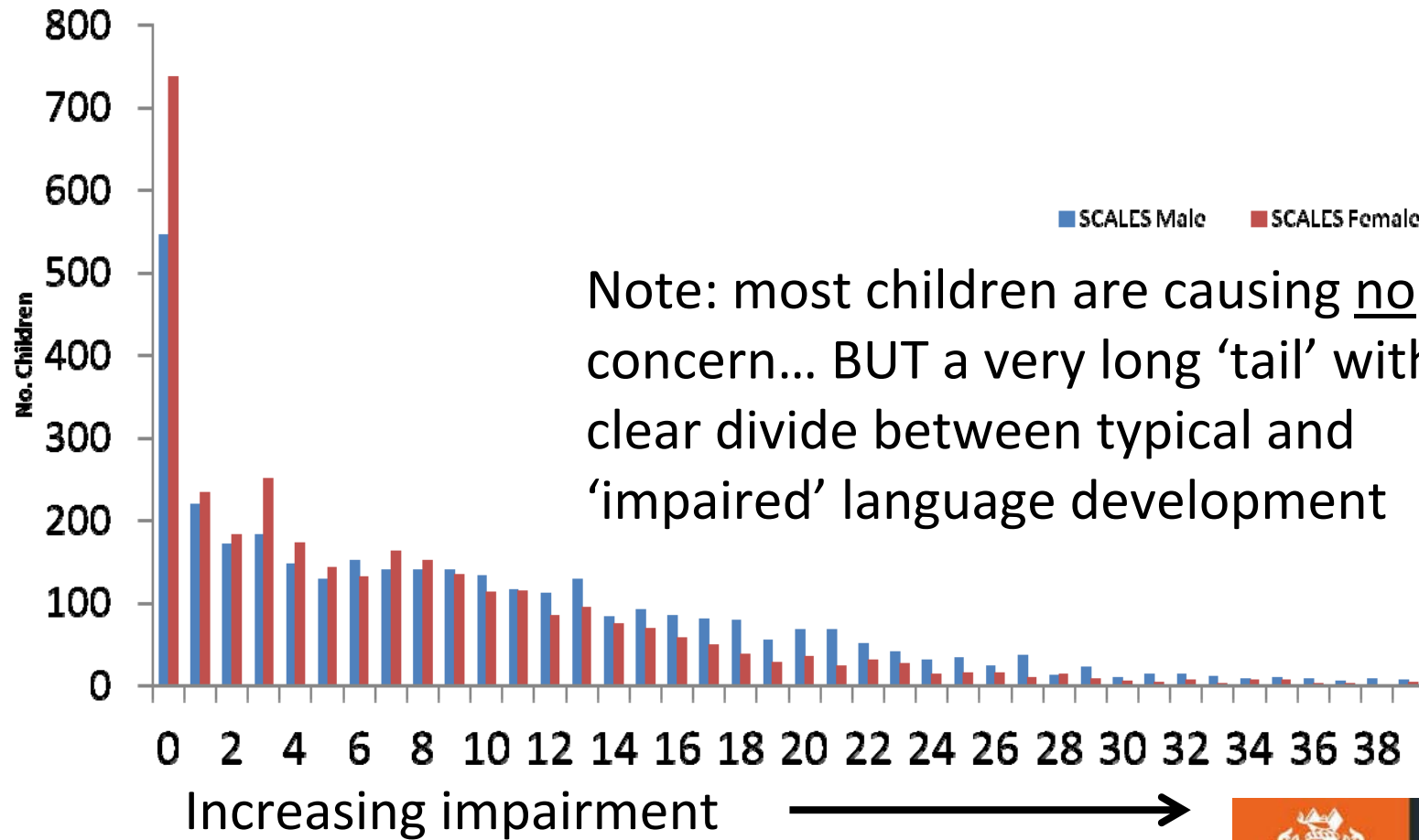
Stage 1: population characteristics (n = 7267)

- *Age*: all children aged between 4;9 and 5;10
- *Gender*: 51% boys and 49% girls
- *Ethnicity*: 5959 children (82%) of white British ethnic origin (83% England; 83% Surrey)
- *English as additional language*: 797 (11%) were rated as having English as an additional language (17% UK total; 10% Surrey)
- Wide range of economic backgrounds

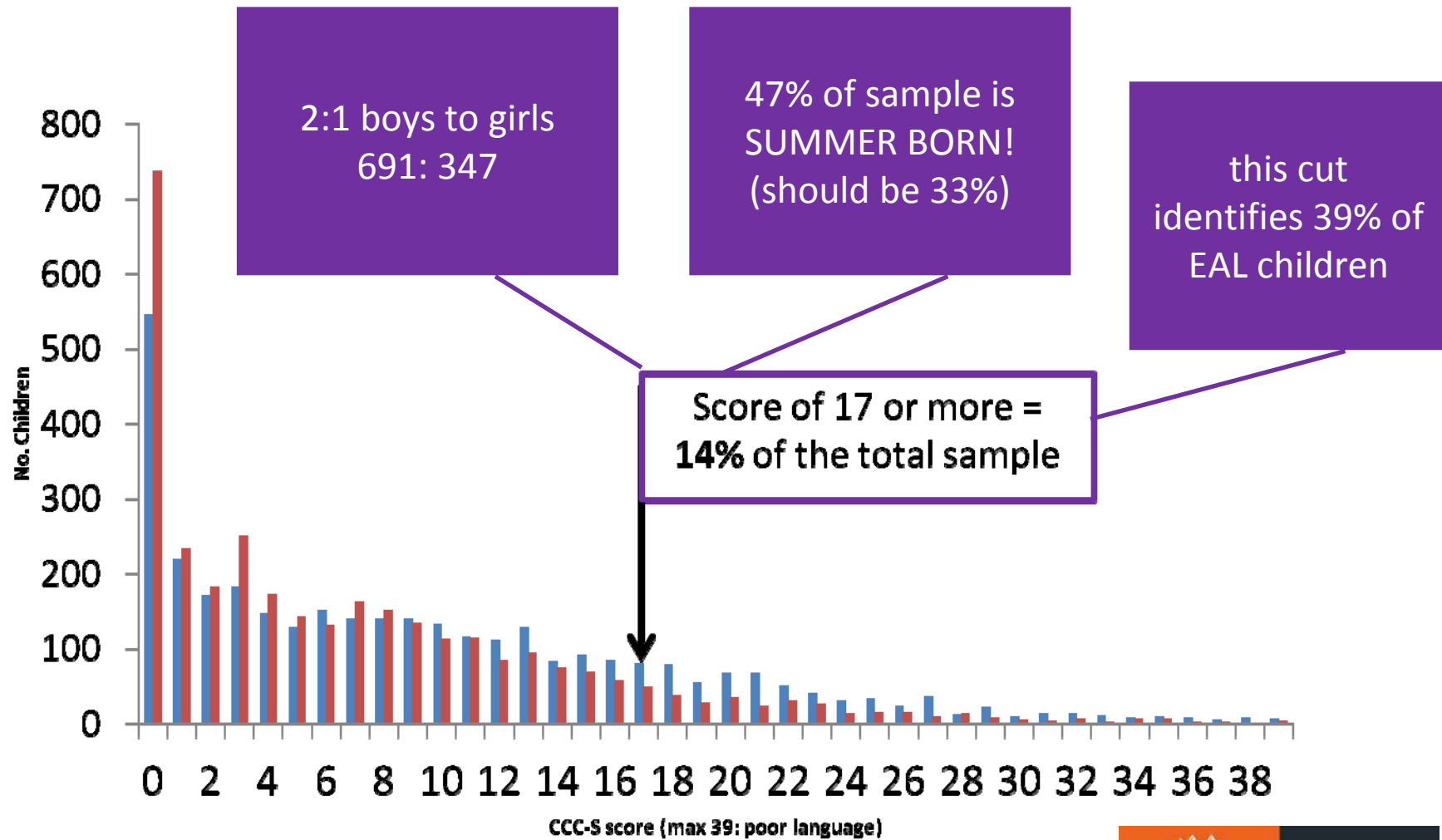
Stage 1: population characteristics

- First CCC-S Q:
 - Is the child combining words into phrases or sentences?
YES (go through 13 items); NO (questionnaire not completed and maximum score entered)
- No Phrase Speech:
 - teachers reported that 1% (n = 90) of children were NOT speaking in sentences by the end of reception!
 - 62 boys: 28 girls
 - 70 (78%) were in mainstream schools (!)
 - 23 children had no existing diagnosis
 - 21 had statements and were in special classes
 - 10 were not receiving any specialist support at school level (i.e. were not on school action or school action plus) – could be errors

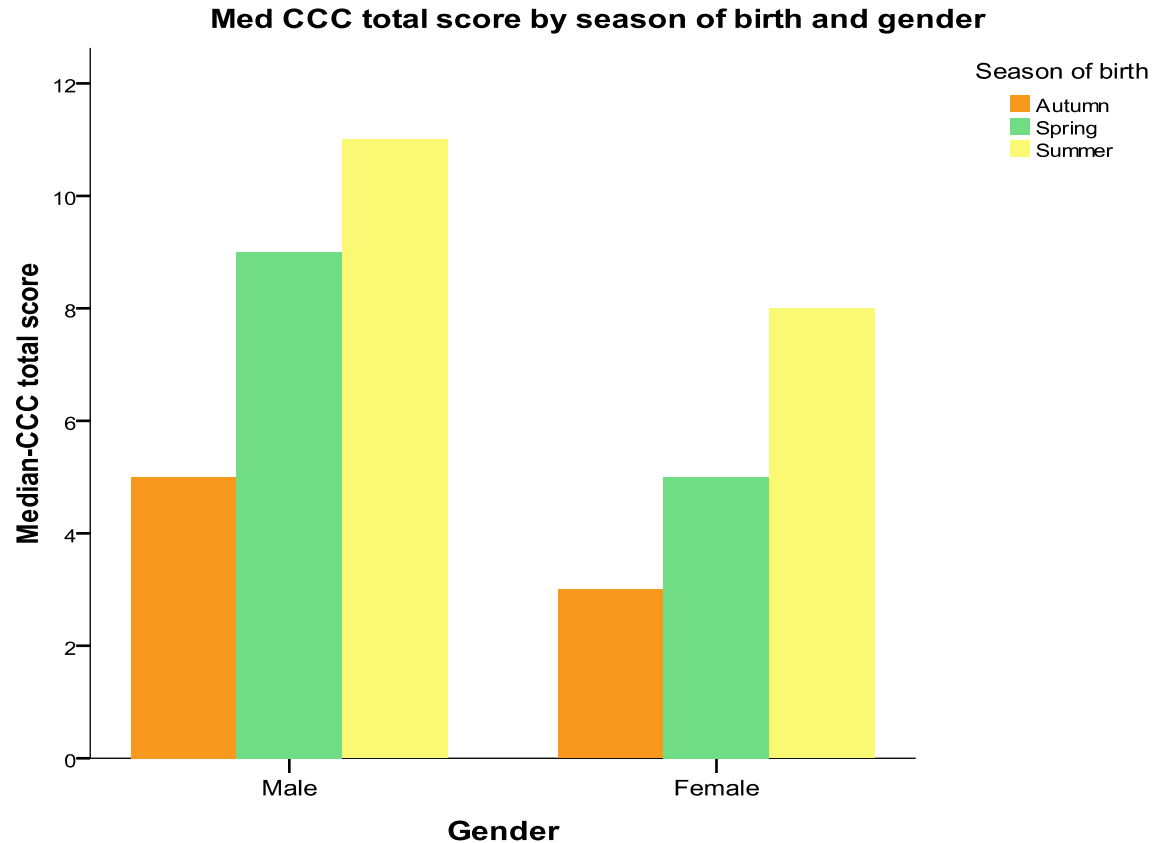
distribution of scores on the CCC-S



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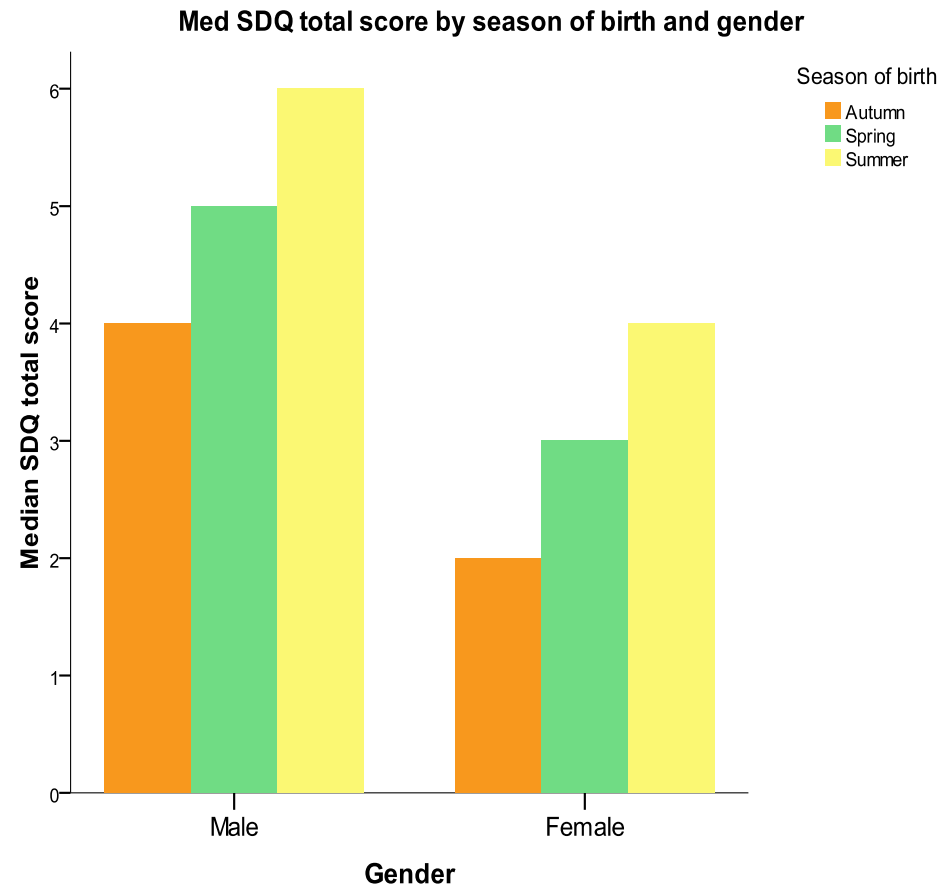
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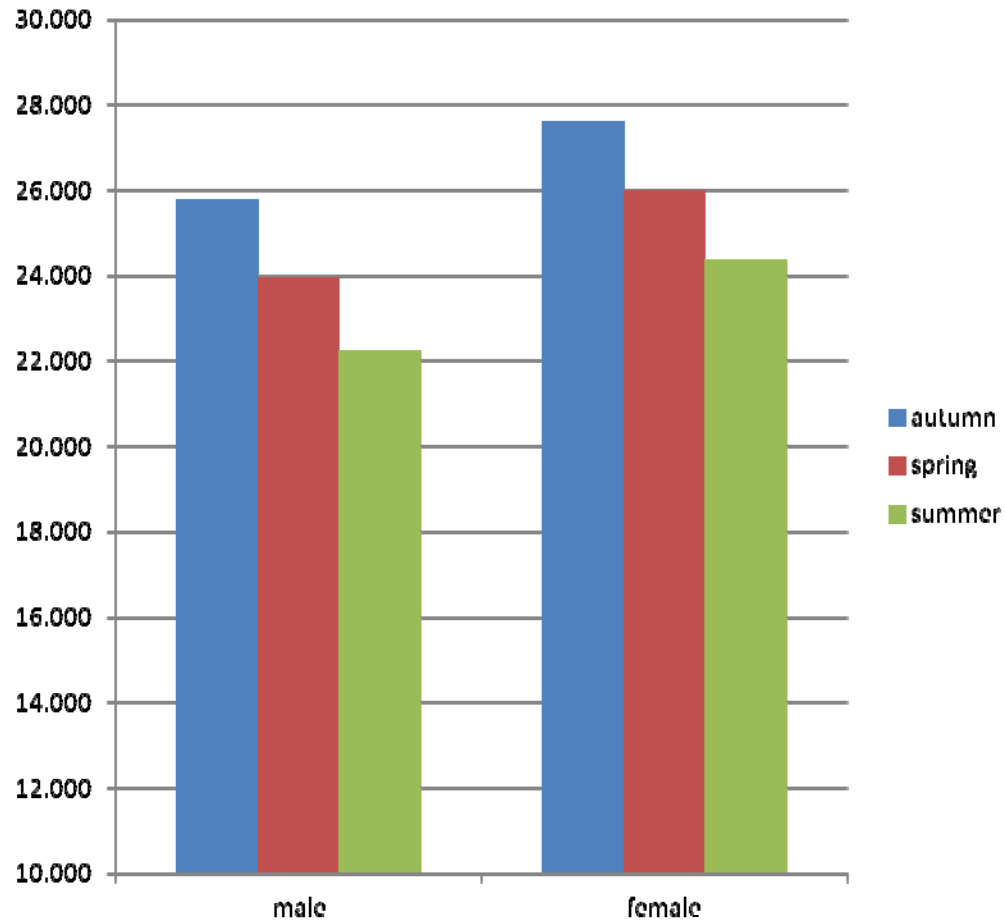
relative age effect
apparent for each gender

Strengths and Difficulties Questionnaire (Goodman, 1997)

- exactly the same issues of gender and season of birth
- moderate relationship with CCC-S



new EYFSP



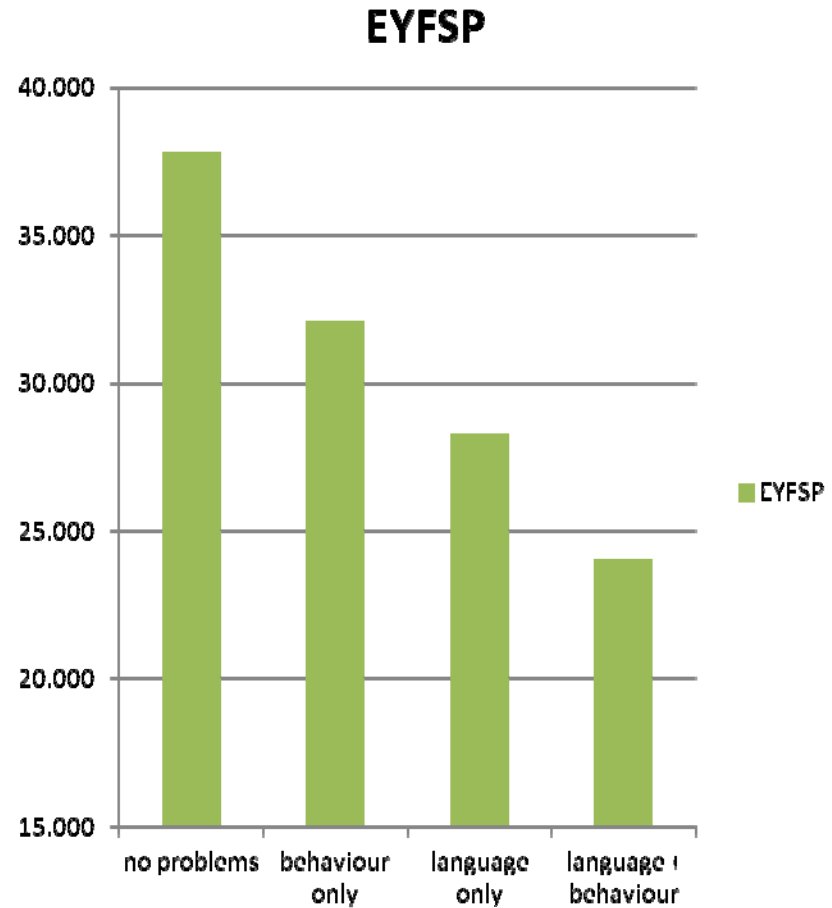
- similar issues of gender and season of birth
- Strong relationship correlation with CCC-S

what increases risk of poor teacher ratings?

- Being autumn born is a PROTECTIVE factor.
- Risks:
 - Born in summer (i.e. young when starting school)
 - Economic disadvantage
 - Male
 - Exposure to more than one language
 - Behaviour problems
- Overall, risks are small but significant

co-occurring language and behaviour problems

- twice as many children with co-occurring difficulties were born in the summer (n= 235) versus the autumn (n= 111)
- Only 1.3% of those with co-occurring difficulties achieve a 'good level of development' on EYFSP at end of reception (5% language only; 20% behaviour only)



Is 4 too young to start school?

- fundamental conflict:
 - Psychology: what are appropriate *developmental* expectations?
 - Education: what are pre-specified *targets* that all children must meet (regardless of age)?
- what is outcome if younger children perceived to be more 'problematic' or 'less-able'?

why does relative age matter?

- children starting school aged four have insufficient language/communication skills to
 - meet demands of the National Curriculum
 - intergrate with older and more socially mature peers
 - use language to regulate own and other behaviour
- thus may be perceived by teachers as being less capable (even if actual abilities are within expected range for age)

accumulation of disadvantage

- ‘streaming’ by ability is common practice in UK classrooms
 - thus older, more ‘able’ children have increased learning opportunities
 - younger children more likely to experience school ‘failure’
- Denmark and Finland do not have relative age effects in international assessment results
 - start school later (age 6/7)
 - do not stream by ability

possible strategies

- raise school entry age?
- delay start for summer born (boys)? (red-shirting)
 - associated with economic disadvantage – may compound other problems
- highlight youngest children in year group?
 - organise form entries by season of birth
 - take register by birth date, with youngest first

focus the early years curriculum on developing language and communication skills!

Language for learning

Language for socialising

Language for managing own / other
behaviour

decisions about cohort for Stage 2

- random selection of 600 (allowing for no consent)
 - we stratified by both gender and season of birth, taking the bottom 14% in each of those cells as ‘high risk’ (39% high risk; 3.5% low risk)
- preliminary exclusion criteria (n = 871)
 - already attending SLD school
 - no phrase speech
 - English as additional language

} Ability to access test battery
Ability to answer questions about ‘specific’ language impairment
- oversample girls
 - gender differences in rates of co-morbidity/prognosis

Stage 2: in-depth, longitudinal assessment of language/communication and associated developmental skills

- invited all no-phrase speech children (NPS)
- piloted assessment in EAL (invited 60 children)
- actually assessed 600 children in detail by research team in Years 1
 - 336 monolingual high-risk (including 45 NPS)
 - 206 monolingual low-risk
 - 58 EAL children (32 high-risk, 12 of whom NPS)
- We are seeing them all again now, in Year 3 (September 2014).

Stage 2: diagnostic criteria

Receptive One Word Picture Vocabulary Test	Expressive One Word Picture Vocabulary Test
TROG (short form)	SASIT-E32
ACE Narrative (bespoke questions)	ACE Narrative (information units)

vocabulary
composite

grammar
composite

narrative
composite

comprehension
composite

expression
composite

Stage 2: additional assessments

Developmental area	Assessment
Hearing	Pure tone audiometer screen
Non-verbal reasoning	WPPSI Block Design WPPSI Matrix reasoning
Clinical language 'markers'	Past tense task (Conti-Ramsden et al. 2011) Non-word repetition
Speech	DEAP articulation screen Diadokokinetic rate
Literacy	YARC Letter Sound Knowledge YARC Phoneme Deletion CastlesColtheart-2: regular, irregular, non-word reading Teacher questionnaire
Speed of processing	WISC Coding Visual search Rapid automatic naming

Stage 2: additional assessments

Motor skills	Go task (reaction time) Coin posting Bead threading Developmental Co-ordination Disorder- Questionnaire
Attention/executive control	Go no-go task Visual search Self-ordered pointing tasks (Cragg & Nation, 2009) SWAN Questionnaire
Social understanding, interaction and communication	Theory of Mind experimental battery (Wellman & Liu, 2004) Social Responsiveness Scale Children's Communication Checklist-2
Learning tasks	Serial Reaction Time task Implicit associative learning task



watch this space!



summary: what have we learned so far?

- 1% of the children were reported to have no phrase speech at the end of reception
- in our screening sample: boys, summer born children and children with EAL were much more likely to be identified as 'high-risk'
- children in the high-risk group were more likely to have broader behaviour problems and were struggling more at school relative to low-risk peers

SCALES investigators



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Thank you for listening!

Contact:

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www.scalestudy.co.uk (lab website)

www.scalesstudy.wordpress.com (blog about day to day running of project –though needs updating!)

THANK YOU FOR LISTENING!!

