Language Disorders

Unit 512-927
Child Psychopathology
17th May 2007
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Oral language development

- Allows the use of a symbolic system for communication
- The child can communicate needs, thoughts, feelings, opinions and think in a much more efficient way
- Child can begin to exert more control over the environment

Language impairment

- Delay in speech and language development is the most common developmental disorder in children aged 3-16 years
- There is a high rate of co-morbidity between psychiatric disorders and disorders of speech and language
  - 53% of children seen in psychiatric settings have language problems
- Language impairment often goes undiagnosed (half)
  - Especially receptive language problems

Typical Expressive Language Development

- 3 months
  - Cry
  - take turns vocalising
  - early laugh
- 6 months
  - 4 sounds (vowels and consonants)
  - responsive laugh
- 9 months
  - Babble vowel+ consonant
  - phrases of 3-4 syllables
    - says mama dada
  - imitate speech sounds

Typical Expressive Language Development

- 12 months
  - Says 2 clear words
  - shakes head for no
  - short babble sentences of 6 syllables
  - babbled monologue when alone
- 18 months
  - Tries to sing
  - 4-8 clear words
  - long babbled sentences with some clear words

Typical Expressive Language Development

- 2 years
  - 20-50 clear words
  - 2 clear-word sentences
  - names pictures and objects on request
- 3 years
  - names objects and body parts
  - No echolalia 80% intelligible
  - uses verbs, prepositions, plurals
  - defines things by use
  - gives first name

Typical Expressive Language Development

- 4 years
  - Uses 'I', 'you', 'he', 'she'
  - Names colours
  - holds conversations
  - tells story in past or future tense
  - can repeat back a 10 syllable sentence
  - easily understood by strangers
  - understands psychological states
    - cold, tired, hungry
  - gives first and last name

Typical Expressive Language Development

- 5 years
  - long sensible conversation
  - few grammatical errors
- 6-8 years
  - Similarities and opposites
  - communicates effectively in the classroom, playground social settings

Typical Receptive Language Development

- 3 months
  - Responds to sound
  - searches for sound with eyes
  - responds to mother's voice
- 6 months
  - searches for sound by turning head
  - behaviour change when listening to sound and human conversation
- 9 months
  - responds to own name
  - interactive listening to conversation
  - listens to soft sounds

Typical Receptive Language Development

- 12 months
  - Listens selectively to familiar words
  - understands no
  - understands individual words
    - eg drink
- 18 months
  - points to named pictures
  - follows single commands
- 2 years
  - follows 2 step commands
  - broad receptive vocabulary for objects/pictures (>50)
  - interested in books and stories

Typical Receptive Language Development

- 3 Years
  - Follows 3 step commands
  - knows 2 colours
- 4 years
  - knows colours and shapes
  - understands human constructs
    - eg cold, hungry, tired
  - understands prepositions
    - in, out, beside

Typical Receptive Language Development

- 5 years
  - Understands opposites
  - understands analogies
  - understands prepositions and personal pronouns
  - functional comprehension in pre-school, family and social environments
- 6-8 years
  - Understands within the classroom
  - understands in conversation amongst other children
  - understands more complex grammar

When to be concerned

- No response to sound, no cooing or laughing by 6 months of age
- Child is not babbling by 12 months
- No meaningful words by 2 years
- Not understood by the family at age three
- Not understood by strangers at age four
- If the child does not have reasonable speech - clear, fluent, and relatively complex, when starting school.

Consequences of poor language skills

- Hinders the child's ability to think and reason
- Hinders development of social relationships
- Hinders ability to solve problems
- Associated with difficulties in reading and spelling
- Associated with behaviour problems

Long term impact of Language and communication difficulties

- General
  - Young children are at risk for continued communication problems
  - Cognitive difficulties
  - Academic difficulties
  - Behaviour/social/emotional problems
  - Children with articulation problems only fare better

Long term impact of Language and communication difficulties

- **Social and behavioural problems**
  - Frustration, peer rejection, lack of confidence in communicating
  - Problems increase over time (Redmond and Rice, 2002)
- **Withdrawn behaviour**
  - Less likely to initiate conversation
  - Playing alone
  - Less liked by others in the class
  - Shyness in younger children
  - Low self esteem in older children
  - Higher rates of anxiety disorder especially social phobia
- **Crime**
  - Young offenders have high levels of language and communication difficulties

Long term impact of Language and communication difficulties

- **Aggressive behaviour**
  - Higher prevalence in children with SLI (Carson et al 1998)
  - Behaviour disorders common especially ADHD
- **Difficulty relating to others**
  - Less likely to be chosen by peers (Hooper et al., 2003)
  - Targeted by bullies (Conti-Ramsden and Botting, 2004)
- **Learning Difficulties**
  - Comprehension
  - Reading problems

Domains of language development

- **Phonology**
  - ability to produce and discriminate specific sounds of a language
- **Syntax (Grammar)**
  - underlying rules that organise a language
- **Semantics**
  - study of meaning - vocabulary is a good predictor of school succes
- **Pragmatics**
  - use of language in social interaction

A disturbance at any of these levels can result in language impairment

Aetiology of language impairment

- **Not a consequence of acquired brain damage**
- **Genetic factors strongly implicated**
  - LI clusters in families
    - Higher in fathers, brothers and sisters than mothers
    - More important than the home environment
- ? **Abnormality in early neurological development**
- **Perceptual limitations**
  - Not secondary to hearing problems
- **Generally not due to impoverished language environment**
  - 5-10 hours a week is sufficient

Associated characteristics

- Social background
  - Parental educational level sometimes associated with SLI ? Due to influence of shared genes
  - SES
- Other developmental difficulties
  - Motor co-ordination is often poor in children with SLI
  - Visual perception of shapes
  - Memory for spatial arrays
  - Behaviour problems are common in children with poor comprehension
  - ADHD

Hart and Risley (1995)

Conducted a longitudinal study of 42 families (10 months to 3years)

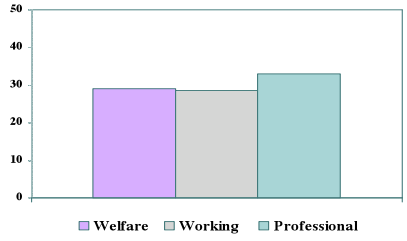
- Professional families
- Working-class families
- Families on welfare

Cumulative Monthly Expressive Vocabulary of 3 year olds

- Children from professional families:1100 words
- Children from working class families:700 words
- Children from welfare families:500 words

Interactions

The mean number of interactions initiated per hour in each of the three groups (Hart & Risley, 1996).



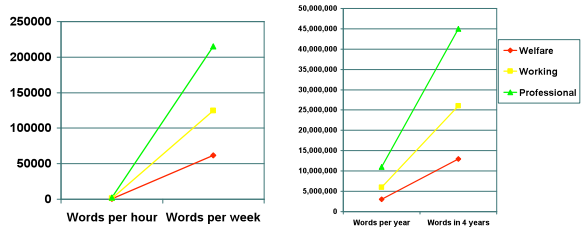
Interactions

Mean number of minutes of interaction per hour in the three groups (Hart & Risley, 1995) .

Quality of words heard
(Hart & Risley, 1995)

- Professional: 32 affirmations,5 prohibitions
- Working Class: 12 affirmations, 7 prohibitions
- Welfare: 5 affirmations, 11 prohibitions

Words heard per hour, week, year, 4 years



Associated characteristics

- Gender
  - 2-3 times more common in boys
- Birth order
  - First born children develop language faster than later born children (effect is small)
    - One-to-one attention
    - Adult speech

Receptive and Expressive language

- Expressive language problems
  - involve difficulty with the production of grammatically correct sentences
- Receptive language problems
  - comprehension difficulties
    - Most children with expressive language problems also have receptive language deficits (Bishop, 1997)

- **Pragmatic language Problems**
  - problems in social communication eg turn taking, eye contact, communicative intent and meaning, nonverbal communication - common in autism spectrum disorders

Prevalence

- Whitehurst and Fischel (1994)
  - 9 -17% in 2 year olds
  - 3 - 8 % in 3 year olds
  - 1 - 3% in 5 year olds
- Tomblin (1997)
  - 7.4% in 4-5 year olds
    - 8% in boys
    - 6% in girls
- Beitchman (1996)
  - 3 - 6% in adolescence

What is language impairment?

- Specific language impairment (SLI) is a term used to describe a child whose language development fails to follow a normal developmental course for no apparent reason
- Definitions …..

DSM-IV

- Expressive language disorder
  - A The scores obtained from standardised individually administered measures of expressive language development are substantially below those obtained from standardised measures of both nonverbal intellectual ability and receptive language development. The disturbance may be manifest clinically by symptoms that include having a markedly limited vocabulary, making errors in tense, or having difficulty recalling words or producing sentences with developmentally appropriate length or complexity
  - B The difficulties with expressive language interfere with academic or occupational achievement or with social communication
  - C Criteria are not met for Mixed Receptive Expressive Language Disorder or a Pervasive Developmental Disorder
  - D If Mental Retardation, a speech-motor or sensory deficit, or environmental deprivation is present, the language difficulties are in excess of those usually associated with these problems

DSM-IV

- **Mixed Receptive-Expressive Language Disorder**
  - A The scores obtained from a battery of standardised individually administered measures of both receptive and expressive language development are substantially below those obtained from standardised measures of both nonverbal intellectual capacity. Symptoms include those for Expressive Language Disorder as well as difficulty understanding words, sentences, or specific types of words, such as spatial terms
  - B The difficulties with receptive and expressive language significantly interfere with academic or occupational achievement or with social communication
  - C Criteria are not met for a pervasive Developmental Disorder
  - D If Mental Retardation, a speech-motor or sensory deficit, or environmental deprivation is present, the language difficulties are in excess of those usually associated with these problems

ICD-10 diagnostic criteria

- Language skills, as assessed on standardised tests are below the 2 standard deviations limit for the child's age
- Language skills are at least one SD below nonverbal IQ as assessed on standardised tests
- There are no neurological, sensory, or physical impairments that directly affect the use of spoken language, nor is there a pervasive developmental disorder
- A distinction is made between *receptive* language disorder, where comprehension is more than 2SD below age level, and *expressive* language disorder, where only expressive language is this severely affected, and where understanding and use of nonverbal communication and imaginative language functions are within the normal range.

Specific Language Impairment

- Failure of oral language development despite normal intelligence, no known hearing, physical, or emotional problems, and an adequate learning environment (Bishop, 1992)
- Criteria for SLI (Leonard, 2000)
  - **Language test score**
    - **1.25 standard deviations or more below the mean**
  - **Nonverbal IQ**
    - **Performance IQ of 85 or greater**

Severe Language Disorder

- Criteria for funding 2007
  - A score of three or more standard deviations below the mean on two tests of expressive and/or receptive language
  - Nonverbal IQ at/above minus one standard deviation from the mean
  - A statistically significant difference between VIQ/PCI and PIQ/PRI
  - Demonstrated critical educational needs

Problems with funding criteria for language disorder

	WISC IV Mean scores		**WPPSI III Mean scores**	
	VCI	**PRI**	**VIQ**	**PIQ**
Receptive Expressive LD	78	87	83	85
Expressive LD	83	92	90	93

Importance of assessment

- Refer for assistance
  - special educational placement
- Diagnose the kind of impairment and associated psychological factors
  - Other areas of functioning in which the child is having difficulty that might impact on language

Importance of assessment

- Inform parents teacher and other professionals
  - Understanding - so deficits in language will not be misattributed to other factors such as lack of motivation or behaviour
- Evaluate treatment
  - progress
  - deterioration

Importance of assessment

- Pervasive developmental Disorders
  - eg Autism, Asperger's, PDDNOS
- Specific Learning difficulties
  - eg dyslexia
- Emotional and behaviour problems
  - eg ADHD, ODD, Anxiety
- Selective mutism

Pervasive developmental disorders

- Many children with SLI have 'autistic features' especially pragmatic language problems
- Bishop 2001 - Scores > 2SD below mean on the Children's Communication Checklist

Autism	Asperger's	PDDNOS	ADHD	SLI
100%	58%	68%	68%	44%

- Social language problems alone cannot be equated with autism.
- Diagnosis should be made on the whole clinical picture - deficient social communication and social interaction, and restricted interests/behaviour

Specific or pervasive developmental disorder?

Ned 5y 3m

- CELF Preschool
  - Receptive Language score = 85
  - Expressive Language score = 69
- WPPSI
  - VIQ=98 PIQ=116
- Poor eye contact
  - - looks away when about to speak

Ned

Now -

- Reading and maths excellent, top of grade but language scores have not changed (3 years later)
- Very sociable and popular
- No stereotypic behaviour/language
- Restricted interests

CCC2 –

- General Communication Competence 1st percentile
- Pragmatic language - characteristic of SLI

Emotional/behaviour problems

- Receptive language problems are often missed
  - Focus is on the externalising behaviour
- Expressive language problems more easily detected
  - Associated with anxiety and withdrawal
  - Some resort to physical action rather than verbal communication

Benasich et al (1993)

- Longitudinal study on children with SLI
  - assessed at age 4 years then at age 8 years
    - Controls matched for age, race, SES and Nonverbal IQ
- CBCL total behaviour problem scores within in the CLINICAL range increased from 11%-32%
  - Controls 2%-9%

Beitchman - 7 year follow-up

- **Poor overall language children**
  - Children had more problem behaviours than any other group also impaired on social competence and adaptive functioning measures
- **Poor comprehension children**
  - Showed an increase in problem behaviour over time (ADHD)
  - Impaired on social competence and adaptive functioning
- **Children with poor articulation**
  - Showed little evidence of behaviour problems
- **Children with high overall language**
  - Few behaviour problems
  - Scored high on social competence and adaptive functioning and this increased over time

Beitchman's - 14 year follow up

- Language impaired children are more likely to develop anxiety disorders in young adulthood
  - Social phobia
  - Males had significantly greater rate of Antisocial PD
- A category of pure receptive disorder (not in DSM - IV) is justified
  - ?masked by behavioural problems
  - Receptive language impairment is a strong predictor of psychosocial impairment at age 19
- 43% of the the sample with LI at age 5 years had a psychiatric diagnosis at age 19 years

But...

Now known that …

- Children referred to mental health settings for emotional and behaviour disorders are also likely to have co-existing language deficits

Cohen et al., 1993

- 53% of 399 psychiatric outpatients aged between 4-12 years met criteria for language deficits
  - > 2 SDs below the mean in one area of language,
  - or > 1 SD below than mean in two areas of language
  - Most children had both receptive and expressive deficits
  - Children with LI rated higher on the Self Destructive and Inattentive Subscales of the ACBCL

Giddan et al. 1996

- Found at least one language deficit in 35% of 55 inpatients of a psychiatric hospital aged 3-12 years
  - Tests
    - CELF
    - PPVT
    - Expressive Vocab Test
- 25% had deficits in at least one of these tests

Benner, Nelson and Epstein (2002) - a review of 26 studies

- 66% of children (4-19 years) referred to Mental Health settings for emotional or behavioural Problems had clinically significant language deficits
  - (IQ, Age, sex, SES)
  - Receptive 54%
  - Expressive 58%
  - Pragmatic 55%

Preschoolers with language impairment

McCabe, 2005 - 150 preschoolers 3-5 years with SLI

- Rated lower in social competence
- Higher in behaviour problems

Problems

- Task orientation (attention to and completing tasks)
- Assertiveness
- Peer social skills
- Frustration tolerance
- More likely to be dependent and isolated

Conclusions…

- Children with language problems are at risk for emotional and behaviour problems
- Children with emotional and behaviour problems are at risk for language problems
- Co morbidity rates for children with behaviour problems and language impairment are 50-70%
  - Literacy difficulties in middle childhood increase risk of adolescent
- Language difficulties at 5 years were predictive of symptoms of hyperactivity, anxious/ passive symptoms and level of social competence at 13 years

Does a language impairment put children at risk for learning problems?

- Reading is related to language ability
  - Children with SLI have a high incidence of reading problems.

But SLI and dyslexia are not the same thing…

- Dyslexic children generally have normal language
  - Use language skills to bootstrap word recognition and comprehension
- SLI children often have OK decoding skills
  - Cannot use language skills to aid word recognition and comprehension

Language and reading

Language impaired	Reading impaired
Poor word knowledge and grammatical skill OK decoding	Normal language poor decoding skill
↓	↓
No compensation from language skill	Language skill compensation
↓	↓
Word recognition and comprehension declines with age	Word recognition and comprehension does not decline with age

Language and learning

- There is an interaction between language and literacy development
  - Poor language compromises reading development
- Most children DO NOT grow out of language problems
  - If a child still has language problems at age 5.5 then the child is at risk for learning problems

Selective Mutism

- SM is characterized by the DSM-IV as failure of the child to speak in at least one setting while speaking normally in others (Criterion A)
- Which causes significant interference with educational, occupational, or communicative functioning (Criterion B)
- Lasts for at least 1 month (Criterion C).
- Limited proficiency in the required language (Criterion D), is one of the exclusion criteria.

Selective Mutism

- SM in children learning a second language can be suspected when:
  - Mutism is prolonged
  - Disproportionate to second language knowledge and exposure
  - Present in both languages
  - Concurrent with shy/anxious or inhibited behavior (Toppelburg at al 2005).

Selective Mutism

- A significant number of children with SM also have expressive language disorders
- Many come from bilingual environments

These factors may also add to a child's vulnerability to SM.

Selective Mutism – Risk factors

- **Anxiety is a major factor of the mutism**
  - But language difficulties may make the child even more self conscious about his or her speaking skills and thus may increase his/her fear of being judged by others.
- **A genetic risk of anxiety, plus a bilingual environment or a speech disorder, increases the chance of SM**
- **A stressful environment may also be a risk factor**
  - there is NO evidence that the cause of Selective Mutism is related to abuse, neglect or trauma.
  - studies have shown that children with SM are no more likely to have suffered any abuse or trauma than the average child. This misconception is often very harmful to families seeking help.

Psychological assessment of children with language problems

Developmental context

- Milestones - motor, language
- Intelligence
  - WISC IV, WPPSI III
- Language
  - Receptive , expressive, pragmatic tests
- Social/emotional behavioural functioning
  - Checklists eg BASC, CBCL, Conners

Psychological assessment of children with language problems

Environmental Context

- High heritability for specific language impairment
- Family history
  - Speech and language
  - Learning
  - Intellectual disability
  - Psychosocial functioning including family functioning
  - Parental Psychiatric history

Language tests useful for psychologists

- **CELF 3 Screen**
  - A criterion score below 0 indicates risk of language impairment
- **Peabody Picture Vocabulary Test**
  - For receptive vocabulary
- **Test of Reception of Grammar**
  - For grammatical understanding
- **Expression, reception and recall of Narrative Instrument ERRNI**
  - Ability to relate, recall and comprehend a story from pictures
- **Children's Communication Checklist**
  - Social use of language

Verbal memory

- **Immediate auditory memory**
  - Eg digit span
- **Sentence recall tests**
  - Measure the child's grasp of grammar and syntax as an aid to immediate memory
  - Most children with SLI perform poorly on this task
- **Listening comprehension tests**
  - eg story memory subtests of WRAML or CMS
  - A measure of ability to use context and meaning - semantic memory

Phonological processing

- Alphabet knowledge
- Phonological Processing
  - Children's Nonword Repetition test
  - Phonological awareness

The Report

- **Background information**
  - Risk factors for language
- **Overall intellectual level of development**
  - Strengths/ weaknesses
  - Report verbal and performance scales separately if there is a significant difference between the two.
- **Results of language, academic achievement and memory tests**
- **Interpretation of the results in light of the child's developmental level.**

A statement about eligibility for funding if applicable

The Report

- **Inform parents of the social/emotional behavioural risks of language impairment so they understand and can advocate for their child**
- **Liaise with teachers so the difficulties the child will experience in the school setting are accommodated and minimised**
  - Academic - reading, spelling, writing
  - Emotional - anxiety, withdrawal
  - Behaviour- aggression, frustration
  - Social - peer relationships, bullying
  - Attentional - listening, comprehending

What can be done …

Recommendations

- Phonological deficits require remediation by a special educator with expertise in phonographics eg THRASS Multilit (Learning Difficulties Centre RCH)
- If the child has problems with receptive or expressive language then referral to a Speech Language Pathologist is required
- If the child has pragmatic language problems then autism assessment or social skills training could be considered

Conclusions…

- **The WISC/ WPPSI are not (necessarily) good indicators of language ability.**
  - specific measures of language need to be used to identify the possibility of language deficits.
- **Developmental and current history is important.**
  - Milestones
  - Motor skills
  - School history - Absenteeism
- **Recommendations need to be tailored to the findings**
  - Ben needs phonological awareness training, alphabet knowledge, and letter-sound instruction
  - Tom requires a language assessment and phonological awareness training and possibly an OT assessment

Implications...

- Awareness and understanding of the interrelationships between language, reading and socio-emotional functioning is crucial for clinical psychologists
- Language development should be assessed in all children presenting to a psychology/mental health setting????