Autism in Deaf Children

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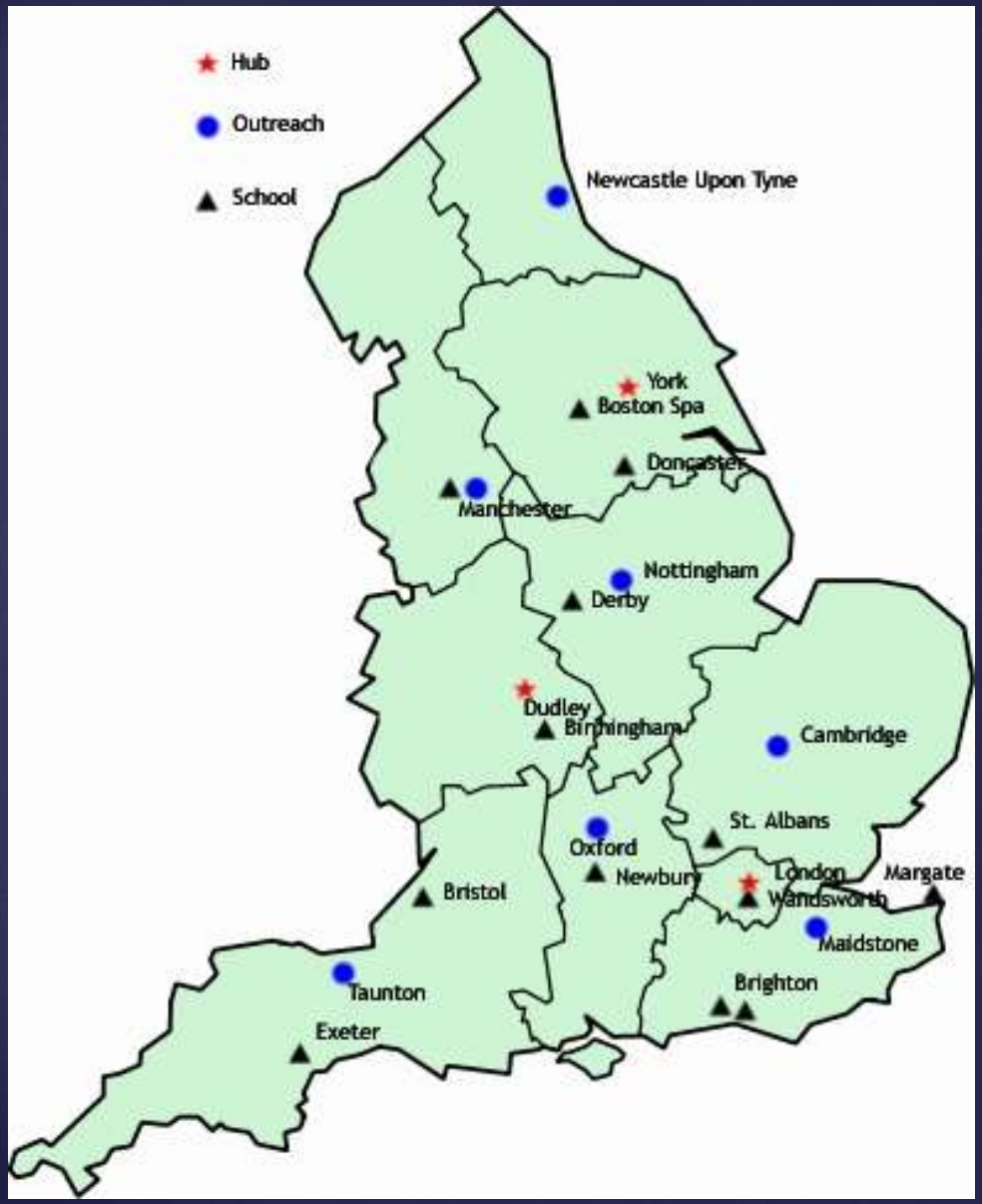
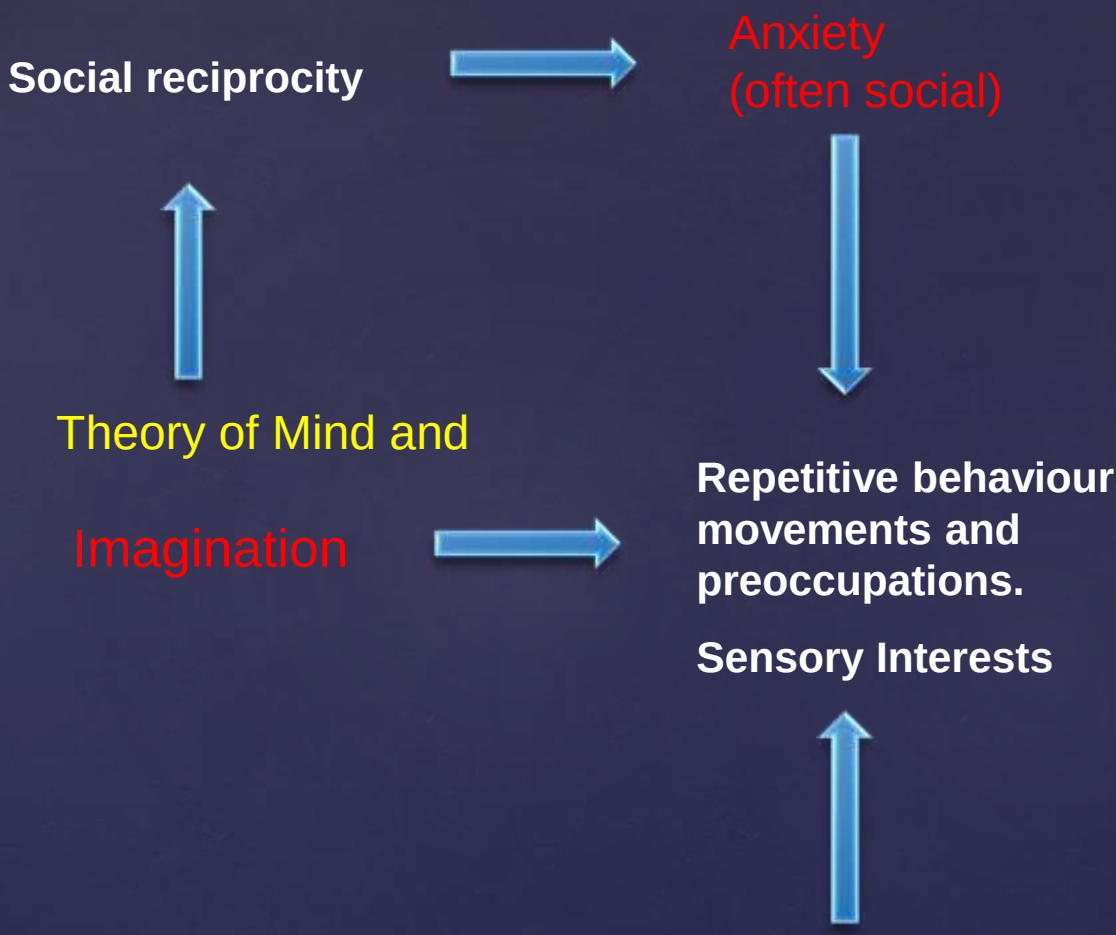


Autism Spectrum Disorder

Autism occurs in about 1.9% of deaf children in US (2013)

(Compared to approximately 1% in hearing children)

Diagnosis is often late in deaf children (Roper et al, 2003)



Many children have additional problems (co-morbidities)

Syndromes
Brain injury
Learning Disability
Neurological problems including Epilepsy
Attentional problems
Family adjustment and attachment

Variability in temperament and personality

Clinicians lack in confidence assessing deaf children for ASD

Brenman et al, 2017

Issues around assessment

- Problems with
  - Autism Diagnostic Inventory (ADI-R)
  - Diagnostic Interview for Social and Communication Disorders (DISCO)
  - 3Di

Examples of problems with assessment in Deaf children

- Problems with
  - Screening
    - Modified Checklist for Autism in Toddlers (MCHAT) screening instrument
    - 23 questions (Baron-Cohen)

      - Does your child respond to his/her name when you call?
      - Does your child ever seem oversensitive to noise?
      - Does your child make unusual finger movements near his/her face?
      - Have you ever wondered if your child is deaf
      - Does your child understand what people say?

Examples of problems with assessment in Deaf children

- ADOS

(Autism Diagnostic Observation Schedule)

  - Play based assessment
    - Turning to call of name
    - Checking gaze after prompt: ‘oh look!’
    - Telephone play
    - Radio with no battery

MRC study (DIADS) Assessment Tools for Deaf Children

Goals:

- Modify existing screening tool and assessments
- Translation
- Validate screening tool and assessments

This will give more accurate diagnoses for deaf children/young people who may have Autism.

Deaf families will be able to access the screening tool as it will be translated into BSL.

MRC study (DIADS) Assessment Tools for Deaf Children

260 children

130 deaf children without autism spectrum disorders

65 deaf children with autism spectrum disorders

50 hearing children with autism for comparison

SRS2 –ADS

ADOS2 –ADS

ADIR-ADS

(with BSL scripts/questions as appropriate for professional, parent and child accessibility)

- Challenges related to causes of deafness

- Challenges related to language delay and being born in a hearing family not expecting a deaf child
- Challenges where differences are seen between signed and spoken language
- Challenges related to the deaf experience

Symptoms related to causes of deafness

Repetitive and unusual behaviours

Odd movements

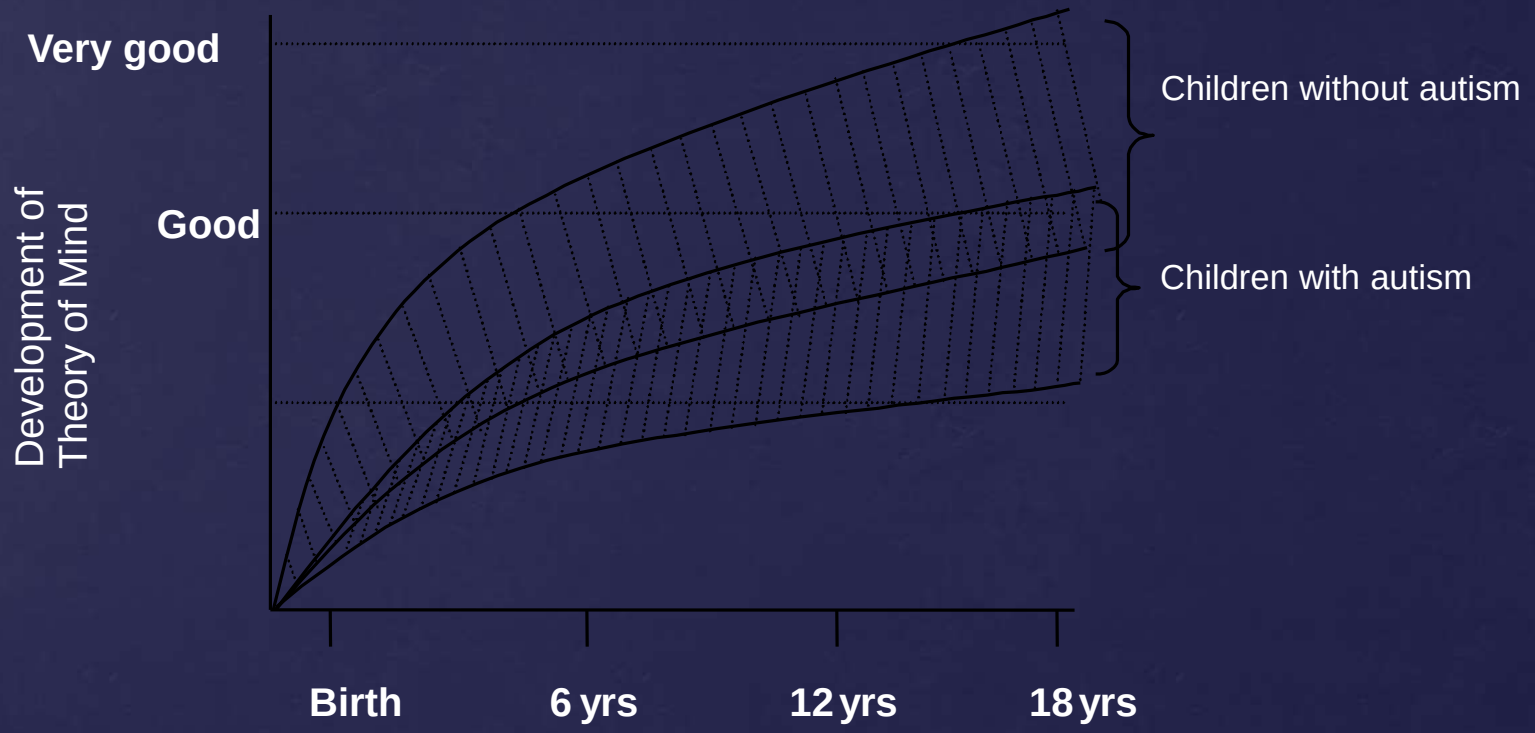
- Children with autism
  - Spinning, rocking, hand flapping, running up and down
- Children who are deaf
  - Cultural differences (facial expressions and signs may be misinterpreted by inexperienced professional)
- Deaf children with autism
  - Spinning, rocking, hand flapping, running up and down

Symptoms related to language delay and being born in a hearing family not expecting a deaf child

Theory of mind in deaf children and in autism

- **Theory of Mind** = Being able to see things from another's perspective and make accurate guesses about other's thoughts, attitudes, beliefs and feelings.

Development of ‘Theory of Mind’



Theory of Mind

- Delayed in deaf children in hearing families (Woolfe et al, 2002; Schick et al, 2007)
- Average 3 years behind hearing children (Lundy, 2002).
- 40% of 13-16 year olds pass an theory of mind test that 80% of 3-5 year old hearing children pass (Russell et al, 1998)

Theory of Mind

More likely to be delayed if

- Profound hearing loss
- Hearing parents
- Limited early life communication

- BSL children in BSL families do better
- Good language early helps
- Lots of socio-emotional family interactions help

Theory of Mind

- Still behind if test in child's first language (British Sign Language) (Steeds et al, 1997)
- Behind if task non-verbal (Figueras-Costa & Harris, 2001)
- Behind when linguistic abilities are controlled and tasks are deaf friendly (Woolfe et al, 2002).
- Not delayed in BSL using deaf families (Courtin & Melot, 2005)

Theory of Mind

- Delayed in children – not delayed in older teenagers (Rhys-Jones & Ellis, 2000; Marschark et al, 2000)
- Some delay in cochlear implanted children but not if parents include lots of conversation about feelings and people (Peters et al, 2009)
- Learning programmes for emotional understanding helpful (Dyck & Denver, 2003).

Theory of Mind

- Why delayed in deaf children?

- Reduced exposure to social and emotional conversations in everyday life (incidental learning)
- Reduced social learning (fund of knowledge)
- Language delay (Cutting & Dunn, 2003)

Theory of Mind

- Also delayed in
- Institutionalised children (Yagmurlu et al, 2005),
- Maltreated children in foster care (Pears & Fisher, 2005)
- Children with language delay (Cutting & Dunn, 2003)
- Early life neglect (Mukaddes et al, 2000; Rutter et al, 2003; Scheeringa, 2001)

Social

- Sharing and turn taking
  - Children with autism
    - Limited
  - Children who are deaf
    - Good
    - Can be limited if overprotected or delayed theory of mind
  - Deaf children with autism
    - Limited

Language and communication

- Conversation (give and take)
  - Children with autism
    - Little two way conversation
  - Children who are deaf
    - Good if access to good communication
    - Can be poor if no access to good communication
  - Deaf children with autism
    - Little two way conversation

Symptoms where differences are seen between signed and spoken language

Language and communication

Pronominal Reversal not present in BSL children with ASD

76% deaf children described as pointing frequently to show to others. This is 17% in hearing children with ASD but 31% in deaf children with ASD.

Sign reversal is more common (Shield, 2012)

Dr Aaron Shield's work in US 2010-2012

Language and communication

Prosody

- Children with autism
  - Intonation
  - Monotony
- Children who are deaf
  - Voice in children who use spoken English
- Deaf children with autism
  - Problems in those with spoken English (paucity)
  - Reduced prosody in sign language
  - Limited facial expressions in BSL

Language and communication

Echolalia/Palilalia and Odd use of language

- Children with autism
  - Repetitive language
  - Odd language

- Children who are deaf
  - Good if access to good communication
  - Can be a problem if no access to good communication

- Deaf children with autism
  - Repetitive language/signs
  - Less description of the actions of others
  - Less adverbial mouth patterns
  - Less feeling signs (other people's feelings)

Social

- Understanding the perspectives of others
  - Deaf children with autism
    - Less role shifting in BSL

Social

- Understanding the emotions of others
  - Children with autism
    - Delayed
  - Children who are deaf
    - Deaf children in healthy deaf families – Good
    - Deaf children in hearing families – often delayed
  - Deaf children with autism
    - Very delayed
    - Less understanding emotional expressions on faces (Denmark et al, 2011)
    - But use of facial expression linguistically remains

Social

- Range of facial expressions used to communicate
  - Children with autism
    - 90% have problems with use or understanding of facial expression
  - Children who are deaf
    - 23% have problems with use of or understanding of facial expression
  - Deaf children with autism
    - 78% have problems with use or understanding of facial expression

Symptoms related to the deaf experience

Social

- Eye contact and gaze
  - Children with autism
    - Poor eye gaze
    - When looking at faces chaotic or look at mouth
    - Less turning to social noise
    - 10% described as normal
  - Children who are deaf
    - Lip reading so eye contact often different from hearing children
    - Visual skills develop well
  - Deaf children with autism
    - Poor eye gaze. (Symanski reports linguistic eye contact may be partially preserved)
    - When looking at faces chaotic
    - 18% described as normal

Social

- Peer relationships
  - Children with autism
    - Few
    - 40% responsive to approach from other children
  - Children who are deaf
    - Can be very good
    - Varies
    - Can be isolated if only deaf child or large communication issues or overprotected or bullied
    - 20% responsive to approaches of other children
  - Deaf children with autism
    - Few
    - 5% responsive to approaches of other children

Language and communication

- Development of language
  - Children with autism
    - Delayed (except Asperger syndrome)
  - Children who are deaf
    - No delay if access to good communication
    - Delayed if not access to good communication
  - Deaf children with autism
    - Delayed

Repetitive and unusual behaviours

- Sameness and routine
  - Children with autism
    - Like sameness and routine
  - Children who are deaf
    - Full range of differences
    - Some children in mainstream get very anxious when routine changes. Like to know what is happening.
  - Deaf children with autism
    - Like sameness and routine

Repetitive and unusual behaviours

- Sensory interests
  - Children with autism
    - Common (smells, touch, taste, visual)
    - 80% have some sensory interests or fears
  - Children who are deaf
    - Visual awareness differences
    - 45% have some sensory interests or fears
  - Deaf children with autism
    - Common (smells, touch, taste, visual)
    - 75% have some sensory interests or fears

Similar to hearing children

Social

- Social smiling
  - Children with autism
    - Poor
  - Children who are deaf
    - Good
  - Deaf children with autism
    - Poor

Imagination

- Imagination

(social imagination, role playing,
symbolic play, abstract understanding)

  - Children with autism
    - Delayed
    - Large difficulties with abstract understanding
  - Children who are deaf
    - Development of imagination fine
    - Cultural differences in way it is expressed in Deaf culture
  - Deaf children with autism
    - Delayed

Repetitive and unusual behaviours

- Odd interests
  - Children with autism
    - Examples: pylons, drains etc
  - Children who are deaf
    - May be shaped by experience or culture
    - More visual interaction with their environment
  - Deaf children with autism
    - Examples: water, sand, blue tac

World Health Organisation 12 main symptoms

Social

1. Don't use and read body language the same way (e.g. eye contact, facial expression)
2. Social and friendship interactions different
3. Struggle to guess how others think or feel (empathy)
4. See things mainly from their own point of view (affects sharing and collaborating)

Language, Communication & Imagination

1. Language often delayed with less initiation of communication
2. Struggle with chat
3. Repetitive or unusual language
4. Imagination delays

Behaviour

1. Very Strong or unusual Preoccupations
2. Compulsions and liking for sameness
3. Unusual or repetitive movements
4. Sensory interests

World Health Organisation 12 main symptoms

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Different prognosis for

deaf children without autism
hearing children with autism
deaf children with autism

Interventions

Parent support

Understanding routines

Structure
Routine
Explanation
Preparation
Visual timetables
First/Then cards

Promoting communication

Keeping the language centres active

Encouraging initiationof communication (e.g. PECS)

Visual comunication methods (e.g. visual timetables, First/Then cards etc)

Managing anxiety

Understanding anxiety
Communication Environment
Structure
Routine
Motivators
Calmers

Social Understanding

Proactive provision of information

Theory of mind learning

Social Stories

Social Interaction skills

LEGO based therapy
or similar with any shared task
e.g. cooking

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Any Questions?