#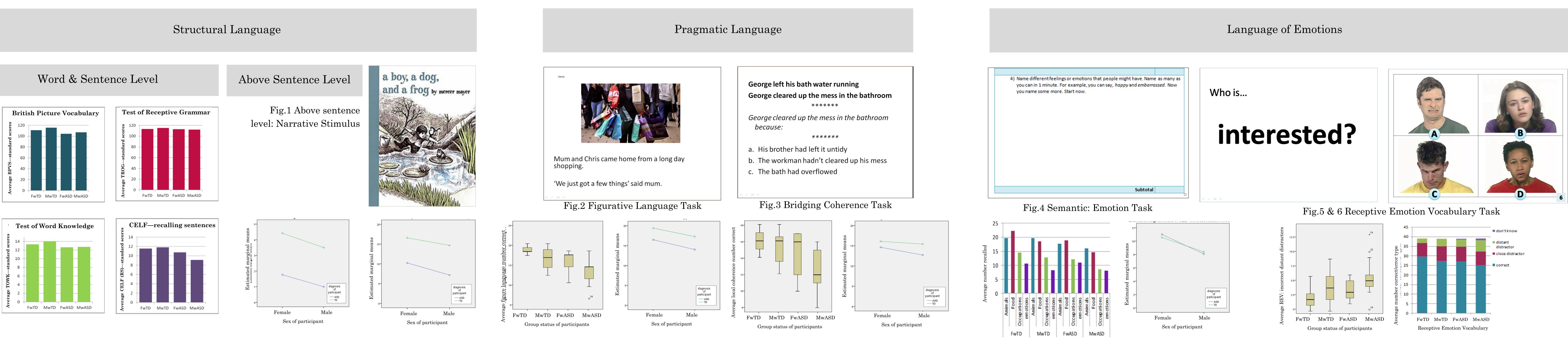 Speaking the same language? A comparison of the language and communication profiles of girls and boys with high functioning autism

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Background

Young females with Autism Spectrum Disorder (FwASD) present with more subtle impairments in social interaction (Lai et al 2011) and restricted interests (Mandy et al 2012) than male peers (MwASD). This may impact negatively on correct diagnosis of ASD in females (Kopp and Gillberg, 2011) which in turn reduces access to suitable services. Less is known about gender differences in communication for young people with ASD, especially high-level language/discourse. There is some evidence that gender differences are found in both functional communication (Park et al 2012) and social impact of communication deficits (Sedgewick et al, 2016). This study will consider the profile of females from the most under-diagnosed group: those in childhood with high functioning intellectual ability. Detailed investigation into subtle gender differences in language/discourse skills could support understanding of the female phenotype of autism and indicate areas of particular interest for this group; causal factors of poor well-being, appropriate diagnosis and bespoke therapy provision.

Aims

To provide a thorough analysis of language and discourse skills for FwASD. To investigate receptive, expressive and semantic skills across language domains: structural language (word/sentence and above sentence level), pragmatic and language of emotion. To create a profile of skills for FwASD and compare skills sets with MwASD and typically developing females (FwTD) and males (MwTD).

Methods

Measures of structural language and functional communication were compared between 13 female and 13 male children (aged 8.11-11.06) with Autism Spectrum Disorder and measures of performance intelligence (PIQ) within normal range. Equal numbers of typically developing children (TD) were matched for age and gender. Subtle differences in PIQ were controlled during analysis. Participants were recruited through autism charities, National Health Services and participant data bases. Assessments included: Standardised and experimental measures of word, sentence level and discourse level processing; Experimental pragmatic and semantic measures of non-linguistic communication, non-literal interpretation of spoken language and complexity of narratives; Novel experimental tasks of receptive and expressive emotion vocabulary. All assessments were conducted by clinical specialists, in school or at home. Analysis was undertaken using a 2 (Gender) x 2 (Group) analysis of variance (ANOVA), controlled for PIQ.

Structural Language

Word & Sentence Level

British Picture Vocabulary

Test of Receptive Grammar

Test of Word Knowledge

CELF—recalling sentences

Above Sentence Level

Fig.1 Above sentence level: Narrative Stimulus

a boy, a dog, and a frog by mercer mayer

Pragmatic Language

Mum and Chris came home from a long day shopping.
'We just got a few things' said mum.
Fig.2 Figurative Language Task

George left his bath water running
George cleared up the mess in the bathroom
****
George cleared up the mess in the bathroom because:
****
a. His brother had left it untidy
b. The workman hadn't cleared up his mess
c. The bath had overflowed
Fig.3 Bridging Coherence Task

Language of Emotions

4) Name different feelings or emotions that people might have. Name as many as you can in 1 minute. For example, you can say, *happy and embarrassed*. Now you name some more. Start now.
Subtotal
Fig.4 Semantic: Emotion Task

Who is...
interested?
A B C D
Fig.5 & 6 Receptive Emotion Vocabulary Task

Results

(1) Overall results showed that female ASD would outperform male ASD on a range of pragmatic and semantic tasks. However, they performed worse on these measures than female TD. (2) TD children had consistently better scores than ASD children in above sentence level tasks (although not in measures of word or sentence level grammar where groups achieved similar scores). (3) Female ASD performed similarly to female TD on some language of emotion measures (receptive and semantic category naming) and better than male TD or ASD. These may represent relatively spared skills compared to gender norms.

Conclusion

Outcomes indicate a specific profile of language and communication strengths/weaknesses for female ASD. They support the theory of a distinct female phenotype of ASD already identified in social skills and repetitive behaviours. They may indicate why female ASD fail to meet criteria for current diagnostic schedules, but also why they struggle to match communicative expectations of their female TD peer group. They may contribute to difficulties the group describe in terms of maintaining friendships and managing well-being. A more bespoke speech and language intervention programme focussing on higher level language and communication skills might therefore be beneficial for this group. Results from this study have clinical implications for diagnostic services and speech and language intervention.

Key points

. Female ASD perform better than male ASD in a range of pragmatic language and semantic tasks. However, they perform worse than female TD.

. Female ASD perform similarly to female TD on some language of emotion measures (receptive and semantic category naming) and better than male TD or male ASD. These may represent relatively spared skills compared to gender norms.

. Females with ASD appear to perform worse than females with TD when using spontaneous vocabulary of emotion in narration. In this respect they perform similarly to male ASD.

. Female ASD show subtle deficits in higher level structural language tasks (expressive language in narration) when compared to TD controls (female and male). Male ASD have a similar profile in this language domain.

. Female ASD have similar expressive and receptive word and sentence level language to males ASD and TD controls.

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