Background

- Disruptive, aggressive and hyperactive behaviours in ASD have become a focus of recent research with a review in 2013 estimating that one in four children with ASD meet diagnostic criteria for either Oppositional Defiance Disorder or Conduct Disorder (Kaat and Lecavalier, 2013).
- This work was specifically designed to explore the relative strength of the relations between the core and associated features of ASD, a question that is overlooked in the literature.

Previous findings:
- Overall maladaptive behaviours are significantly positively correlated with ASD symptom scores and appear to be more prevalent in individuals diagnosed with Autism Disorder compared to PDD-NOS (e.g. Matson et al., 2009).
- One theory for the expression of problem behaviours in children and adolescents is that they are due to an individual’s inability to competently express his or her needs and therefore he or she uses problem behaviours to mediate communicative interactions (e.g. Durand, 1993).
- Strong relations between maladaptive and repetitive behaviours have also been proposed; for example repetitive and restricted behaviours independently predict maladaptive behaviours in children and adolescents with severe intellectual disabilities (e.g. Oliver et al., 2012).
- Previous research also highlights the relationship between maladaptive behaviours and other associated features such as sleep, emotion and sensory behaviours (e.g. Sikora et al., 2012).

No study has assessed the predictive power of both the core and associated features of ASD to account for a range of maladaptive behaviours. This paper reports on a study of 200 individuals with ASD referred to tertiary and university based specialist units for a variety of reasons including Autism Spectrum Disorder and Intellectual Disability.

Methods

- The DISCO (Diagnostic Interview for Social and Communication Disorders) was used in this study. The DISCO (Diagnostic Interview for Social and Communication Disorders) has been shown to have excellent reliability and validity (e.g. Oliver et al., 2012).
- Data from DISCO interviews conducted with 200 individuals with ASD (32 months – 38 years) referred to a tertiary referral centre were used.
- Any overlapping items were removed from the scales for maladaptive behaviours, core features or other associated behaviours.


table

<table>
<thead>
<tr>
<th>Variable</th>
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<th>t</th>
<th>df</th>
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<td>2.640**</td>
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<td>.008</td>
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</table>

Results: Predicting maladaptive behaviours in ASD

- The DISCO (Diagnostic Interview for Social and Communication Disorders) has been shown to have excellent reliability and validity (e.g. Oliver et al., 2012).
- The relationship between the core features of ASD and maladaptive behaviours measured using the DISCO (Diagnostic Interview for Social and Communication Disorders) is significant and positive (r = .46, p<.01).
- Overall maladaptive behaviours are significantly positively correlated with ASD symptom scores and appear to be more prevalent in individuals diagnosed with Autism Disorder compared to PDD-NOS (e.g. Matson et al., 2009).

Method

- The DISCO (Diagnostic Interview for Social and Communication Disorders) has two roles in clinical practice:
  - To aid a clinician in making a diagnosis
  - To create a profile of an individual’s strengths and weaknesses across a range of associated behaviours including maladaptive behaviours e.g.:
    - Physical Aggression
    - Lack of co-operation
    - Embracing remarks in public, Destructiveness

The core features of ASD were measured according to ICD-10 DISCO algorithm items, and included:
- Social interaction items (e.g. interaction with age peers)
- Communication items (e.g. use of non-verbal communication)
- Repetitive and restricted behaviour items (e.g. sameness of environment)

Multiple regression analyses also included age, IQ and gender as control variables and other associated features as measured using the DISCO.
- Sensory behaviours
- Motor atypicalities
- Emotion behaviours
- Sleep problems
- Pattern of activities
- Daily living skills

Any overlapping items were removed from the scales for maladaptive behaviours, core features or other associated behaviours.

Results: Sensory mediates maladaptive and core behaviours

- Sensory behaviours were significant predictors of maladaptive behaviours in the DISCO.
- Sensory behaviours are the strongest predictors of maladaptive behaviours in the DISCO (Cronbach’s α = .92, 16 items).
- The maladaptive behaviour items in the DISCO created a reliable scale (Cronbach’s α = .92, 16 items).
- In univariate analyses, the maladaptive behaviours were significantly predicted by scores for all three core features (social interaction, communication and repetitive behaviours) as measured by the DISCO.
- Two hierarchical multiple regression analyses were computed. In both models age, gender and IQ were entered in Step 1:
  - Model 1: core features were entered in Step 2 and associated features in Step 3; the addition of the associated features significantly improved the variance in maladaptive behaviours explained by the model (ΔR² step 3 = .164 (F(6,176) = 7.751, p<.001).
  - Model 2: associated features were entered in Step 2 and core features in Step 3; the addition of the core features did not significantly improve the variance explained by the model (ΔR² step 3 = .012 (F(3,176) = 1.143, p>.333, n.s.).

- Step 3 for both models is shown in the table. When all variables are entered, the strongest predictors of maladaptive behaviours were an individuals pattern of activities, sensory behaviours, sleep problems and daily living skills.

- Follow up mediation analyses are shown in the box below.

Conclusions

- The mediation (PROCESS) analyses reveal that sensory behaviours mediate the effect between maladaptive behaviours and both repetitive behaviours and social interaction (but not communication score); as shown in the table the c path was significant, the direct effect was not and in both cases the indirect effects through the sensory behaviours were significant.

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