

Online Resources for O’Nions, Gould, Christie, Gillberg Viding & Happé: Features of ‘Pathological Demand Avoidance’ identified using the Diagnostic Interview for Social and Communication Disorders (‘DISCO’).

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**Online Resource 1: Items from O’Nions et al., 2014, JCPP, 55, 758-768 that loaded onto the first eigenvariate with eigenvalues greater than .55, and with endorsement in the PDA group <=66%.**

| EDA-Q item |  | Eigenvalue<br>(1 <sup>st</sup> PC) | Endorsment<br>% PDA<br>iden. |
|------------|--|------------------------------------|------------------------------|
| 1          | Obsessively resists and avoids ordinary demands            | 0.798                              | 94                           |
| 3          | Is driven by the need to be in charge                      | 0.792                              | 90                           |
| 4          | *Finds everyday pressures intolerably stressful            | 0.657                              | 80                           |
| 5          | Tells other children how to behave                         | 0.793                              | 88                           |
| 6          | Mimics adult mannerisms and styles                         | 0.649                              | 74                           |
| 7          | Has difficulty complying unless carefully presented        | 0.720                              | 96                           |
| 9          | Shows little shame or embarrassment                        | 0.559                              | 72                           |
| 11         | Good at getting round others                               | 0.739                              | 82                           |
| 12         | *Unaware of differences between self and authority figures | 0.720                              | 84                           |
| 13         | If pressurised to do things, may have a ‘meltdown’         | 0.768                              | 94                           |
| 15         | Mood changes rapidly                                       | 0.747                              | 92                           |
| 16         | Knows what to do or say to upset specific people           | 0.58                               | 80                           |
| 17         | Blames or targets a particular person                      | 0.678                              | 78                           |
| 18         | Denies behaviour, even when caught red handed              | 0.628                              | 76                           |
| 21         | Outrageous behaviour to get out of doing something         | 0.715                              | 66                           |
| 22         | *Extreme emotional responses to small events               | 0.681                              | 82                           |
| 23         | Social interaction has to be on his/her own terms          | 0.729                              | 94                           |
| 25         | Attempts to negotiate better terms with adults.            | 0.552                              | 84                           |

Endorsement percentages indicate the proportion of parents who rated the item ‘mostly true’ or ‘very true’ for their child. Abbreviations: PC = principle component; PDA iden = group reported to have been clinically identified as having PDA (N=50).

## Online Resource 2: Full descriptions of DISCO items included in the final 11-item list.

| Item description  |
|---|
| <p><b>Lack of co-operation (LACKCOP)</b></p> <p>Does A strongly resist attempts to make her/him join in, learn new things, or to change behaviour; screams, has temper tantrums, scratches, bites, kicks or passively resists, or uses distracting techniques?</p> <p>0 Marked</p> <p>1 Minor</p> <p>2 No problem</p>   |
| <p><b>Apparently manipulative behaviour (MANBEH)</b></p> <p>Does A avoid demands by what appears to be socially manipulative strategies? (e.g. distracting the adult making demands, making an excuse such as "I have to do this first", runs away, hides, removes clothes, uses doll or puppet to make excuse. If all else fails, screams, hits, kicks in a panic).</p> <p>0 Marked</p> <p>1 Minor</p> <p>2 No problem</p> |
| <p><b>Awareness of own identity (CIDENT)</b></p> <p>Is A aware of the age or social group to which he/she belongs? For children ask if A realises he/she is a child. For older children and adults ask about identification with work mates, social class. Does A give adults due respect?</p> <p>0 Marked lack of awareness</p> <p>1 Minor</p> <p>2 No problem</p>   |
| <p><b>Socially shocking behaviour (SHOCK)</b></p> <p>Does A shock other people by unexpected inappropriate actions for no apparent reason? (e.g. tearing up another person's work, pulling off someone's spectacles, taking pants down and urinating on floor, injuring someone else's pet animal).</p> <p>0 Marked</p> <p>1 Minor</p> <p>2 No problem</p>  |
| <p><b>Behaviour in public places (BEHAPUB)</b></p> <p>How does A behave when taken into shops, restaurants, other enclosed public spaces? Is it possible for one parent alone to take A into such places?</p> <p>0 Major problem with outings</p> <p>1 Minor</p> <p>2 No problem</p>  |
| <p><b>Fantatising, lying, cheating, stealing (LYING)</b></p> <p>Does A talk about fantasies as if real, or lie, or cheat, or steal?</p> <p>0 Marked</p> <p>1 Minor</p> <p>2 No problem</p>  |

**Inappropriate sociability (rapid, inexplicable changes from loving to aggression) (CINAPP)**

Does A at first sight appear to be sociable and friendly but can slip from loving to violent behaviour or vice versa for no apparent reason? May show both together, e.g. saying 'I hate you' in a sweet voice while hugging. May hug others too long and too hard.

0 Marked

1 Some problem

2 No problem

-8 No interaction

**Using age peers as mechanical aids, bossy and domineering (CPEERAD)**

Does A use age peers solely as aids in own activities, e.g. to collect materials, to assist in building some construction, to take a specified part in a scenario created by A?

0 Marked, frequent

1 Minor, occasional

2 No problem

**Difficulties with other people (DIFPEOP)**

Does A frequently tease, bully, refuse to take turns, make trouble?

0 Marked

1 Minor

2 No problem

**Repetitive acting out roles (CTROL)**

Does A act out the role of an object, animal, fictional person or real person so that A seems to become the acted role – it is not just pretence? Is this a major part of A's play?

0 Marked

1 Minor

2 No problem

-8 Des not engage in role play.

**Harassment of others (HARAS)**

Does A harass other people? (e.g. writing threatening letters, making verbal threats, stalking, untrue accusations of sexual abuse)

0 Marked

1 Minor

2 No problem

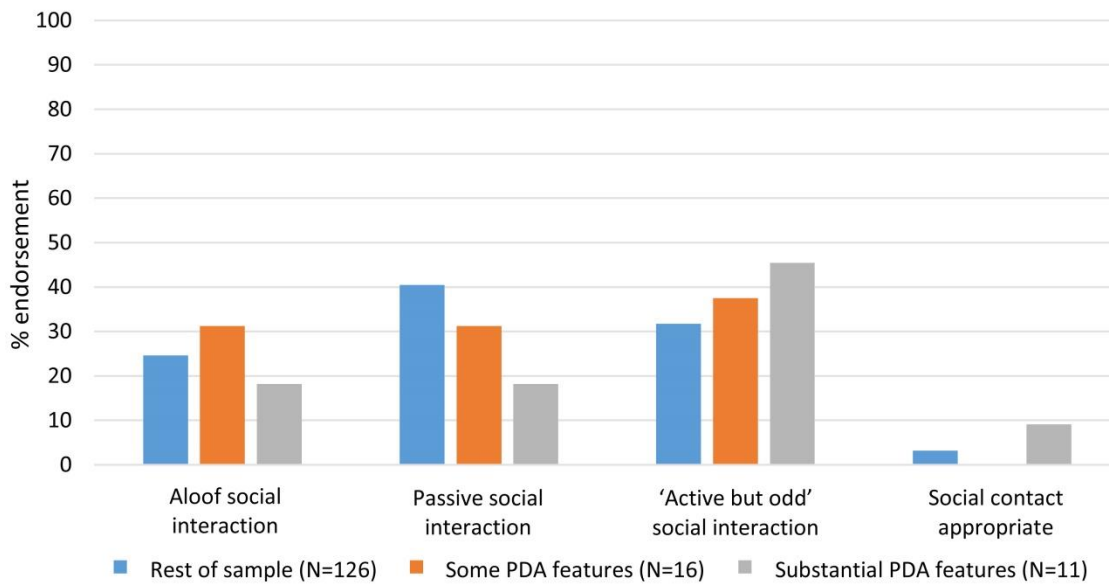
**Online Resource 3: Item total correlations for items in the 11 item measure.**

|   | Corrected Item-Total Correlation (N=62)* | Corrected Item-Total Correlation (N=114)** |
|---|--|--|
| Lack of co-operation  | .514                                     | .559                                       |
| Apparently manipulative behaviour   | .506                                     | .435                                       |
| Awareness of own identity   | .359                                     | .299                                       |
| Socially shocking behaviour   | .442                                     | .444                                       |
| Behaviour in public places  | .261                                     | .305                                       |
| Fantasising, lying, cheating, stealing  | .328                                     | .355                                       |
| Inappropriate sociability (rapid, inexplicable changes from loving to aggression) | .340                                     | .350                                       |
| Using age peers as mechanical aids, bossy and domineering                         | .099                                     | .134                                       |
| Difficulties with other people  | .481                                     | .518                                       |
| Repetitive acting out roles   | .297                                     |  |
| Harassment of others  | .338                                     | .342                                       |

Note: \*N=62 of 153 had full data on all of the items. N=114 had full data on all of the items if the role play item ('Repetitive acting out roles') was omitted.

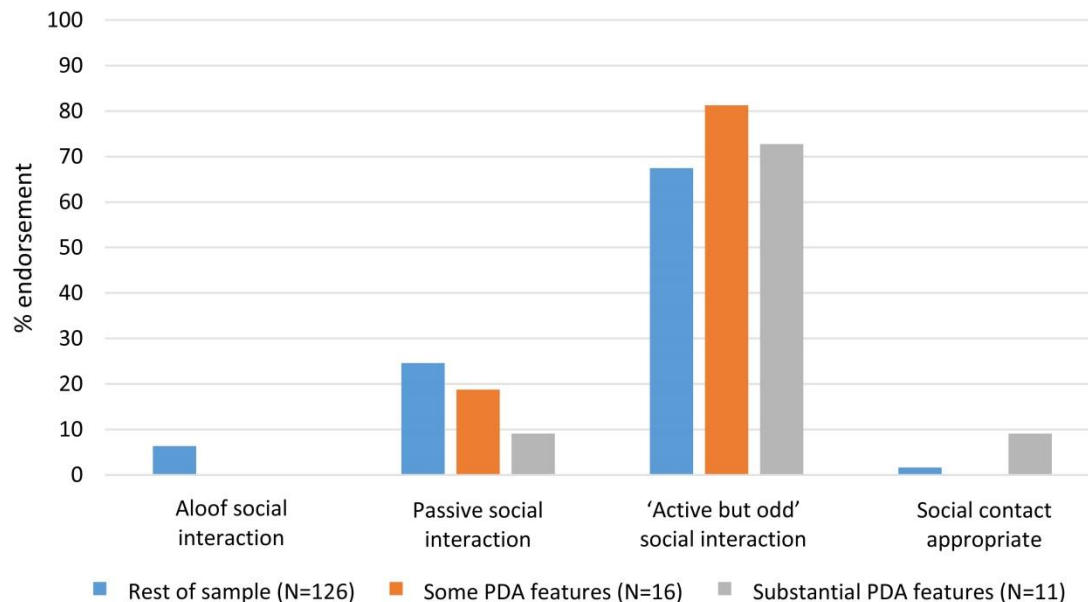
**Online Resource 4: Summary measures of social interaction, social communication, social imagination, and rigid and repetitive pattern of interests and behaviours.**

A: Social interaction stratified by PDA group: ratings of past behaviour.



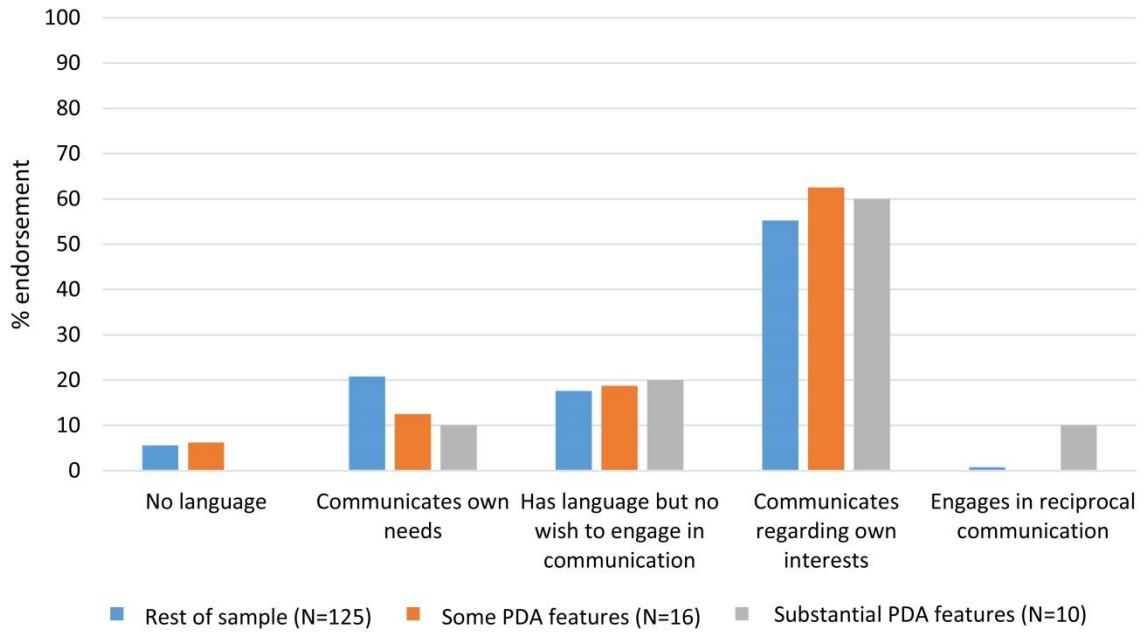
Ratings incorporated into the 'Aloof' interaction are: (1) 'Does not interact', (2) 'Interacts to obtain needs' and (3) 'Responds to physical contact'. For 'Passive' interaction, item is 'Does not initiate but responds to social contact'. For 'Active but odd' interaction, ratings are (1) 'Initiates contact but one sided' and (2) 'Stilted interaction'. There was no significant difference in ratings for the two PDA groups (N=27) vs. the rest of the sample (N=126) (Freeman-Halton extension of Fisher's exact test, two-sided,  $p=.202$ ).

B: Social interaction stratified by PDA group: ratings of current behaviour.



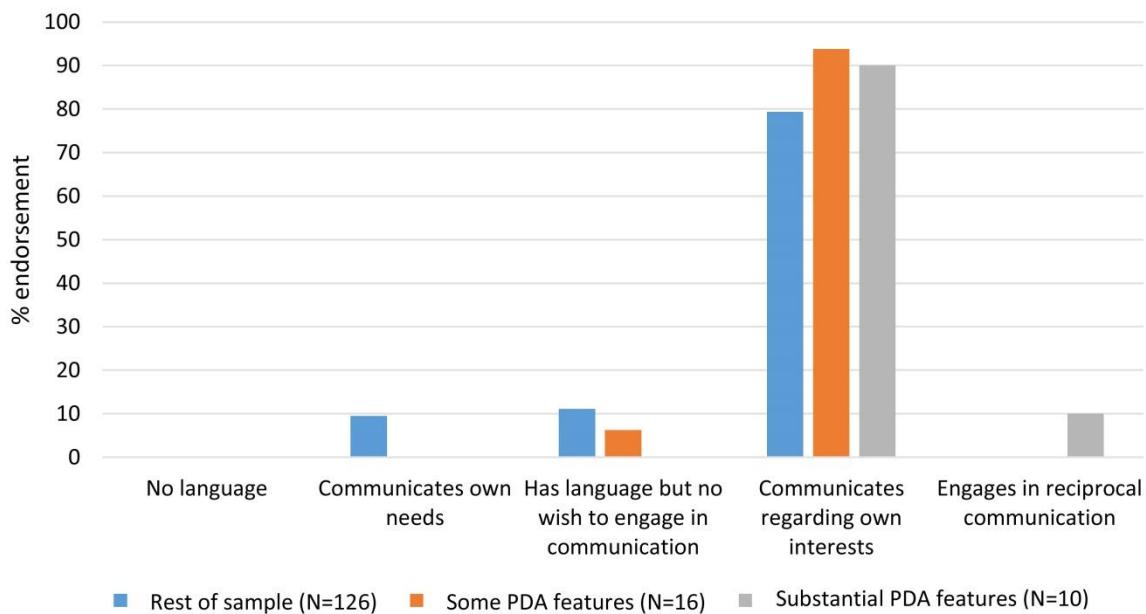
Ratings incorporated into the 'Aloof' interaction are: (1) 'Does not interact', (2) 'Interacts to obtain needs' and (3) 'Responds to physical contact'. For 'Passive' interaction, item is 'Does not initiate but responds to social contact'. For 'Active but odd' interaction, ratings are (1) 'Initiates contact but one sided' and (2) 'Stilted interaction'. There was no significant difference in ratings for the two PDA groups (N=27) vs. the rest of the sample (N=126) (Freeman-Halton extension of Fisher's exact test, two-sided,  $p=.104$ ).

C: Social communication stratified by PDA group: ratings of past behaviour



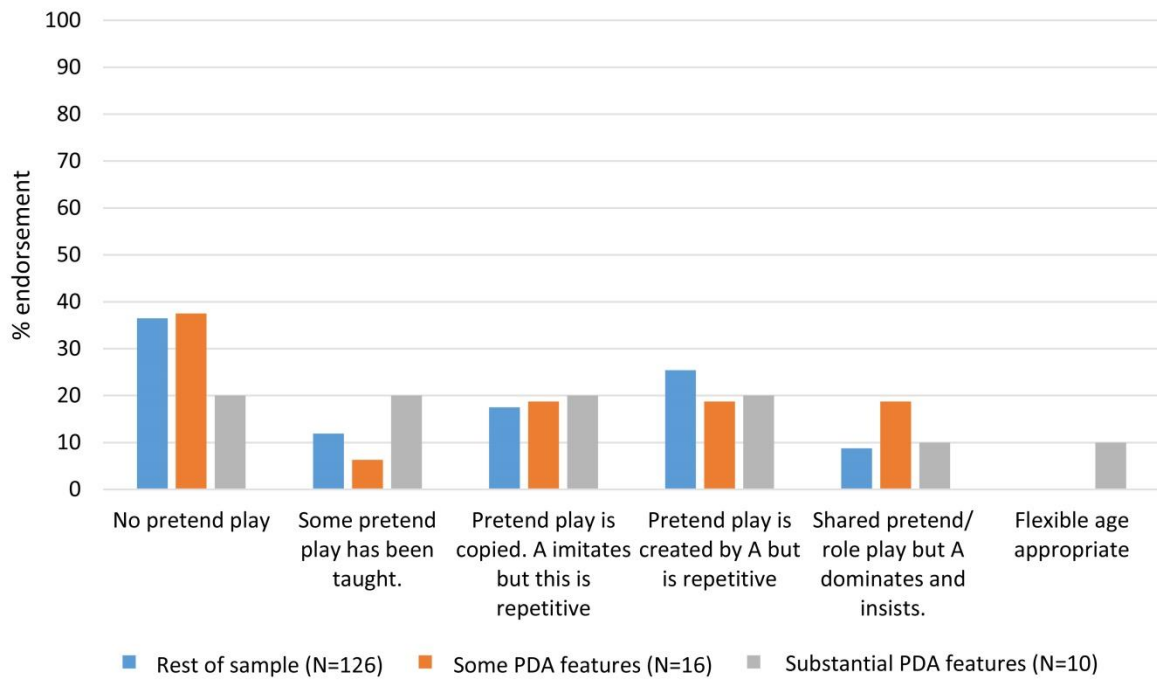
There was no significant difference in ratings for social communication: ratings of past behaviour between the two PDA groups combined (N=26) vs. the rest of the sample (N=125) for (Freeman-Halton extension of Fisher's exact test, two-sided,  $p=.616$ ).

D: Social communication stratified by PDA group: ratings of current behaviour



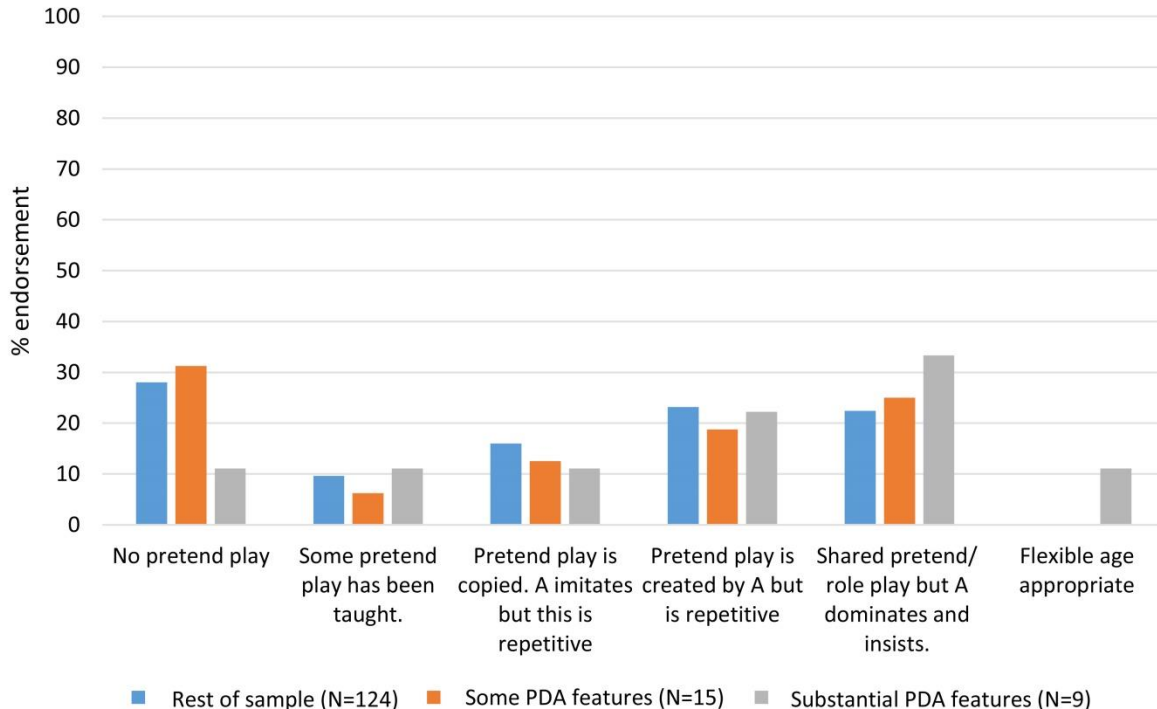
The difference in ratings for social communication: ratings of current behaviour for the two PDA groups combined (N=26) vs. the rest of the sample (N=126) reached the threshold for nominal significance (Freeman-Halton extension of Fisher's exact test, two-sided,  $p=.044$ ). However, this result would not survive correction for multiple comparisons.

E: Social imagination/ pretend play stratified by PDA group: ratings of past behaviour



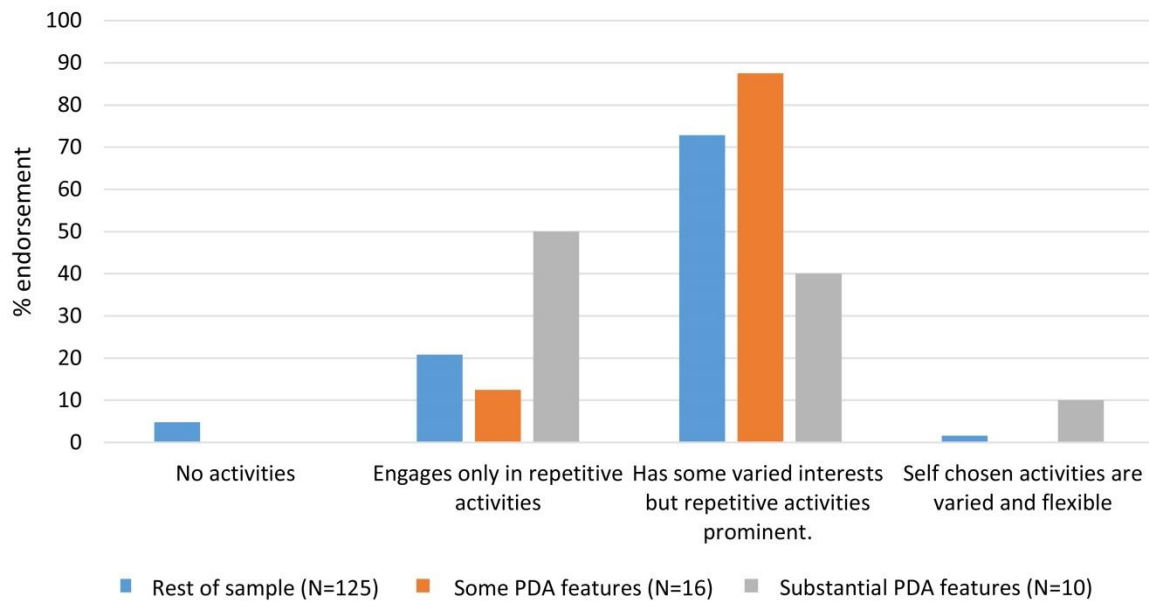
There was no significant difference in ratings of Social imagination/ pretend play: ratings of past behaviour for the two PDA groups (N=26) vs. the rest of the sample (N=126) (Freeman-Halton extension of Fisher's exact test, two-sided,  $p=.383$ ).

F: Social imagination/ pretend play stratified by PDA group: ratings of current behaviour



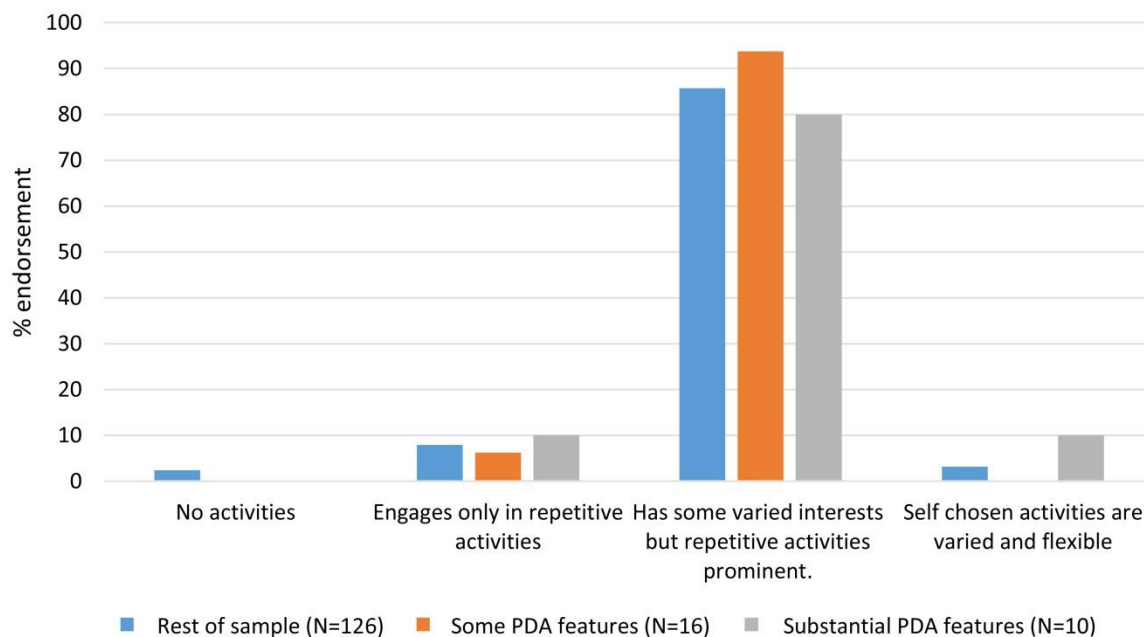
There was no significant difference in ratings of Social imagination/ pretend play: ratings of current behaviour for the two PDA groups (N=24) vs. the rest of the sample (N=124) (Freeman-Halton extension of Fisher's exact test, two-sided,  $p=.372$ ).

G: Rigid and repetitive pattern of activities stratified by PDA group: ratings of past behaviour



There was no significant difference in ratings of rigid and repetitive pattern of activities: past behaviour for the two PDA groups combined (N=26) vs. the rest of the sample (N=125) (Freeman-Halton extension of Fisher's exact test, two-sided,  $p=.455$ ).

H: Rigid and repetitive pattern of activities stratified by PDA group: ratings of current behaviour



There was no significant difference in ratings of rigid and repetitive pattern of activities: current behaviour for the two PDA groups combined (N=26) vs. the rest of the sample (N=126) (Freeman-Halton extension of Fisher's exact test, two-sided,  $p=1.0$ ).



**Online Resource 5: Endorsement of DISCO items selected for potential relevance to PDA across the PDA groups and the rest of the sample**

|  |              | % MINOR OR MARKED |                   |                     | PDA vs. Rest of the sample (Fisher's exact test, 2 sided) |
|--|--------------|-------------------|-------------------|---------------------|---|
|  |              | Rest of sample    | Some PDA features | Marked PDA features |   |
| <b>PART 3 - SECTION XII - SOCIAL INTERACTION - WITH ADULTS</b>                           |              |                   |                   |                     |   |
| <b>Awareness of own identity</b>   | <b>N=151</b> | <b>46</b>         | <b>81</b>         | <b>82</b>           | <b>p &lt; .001</b>  |
| Does not seek comfort when in pain or distress   | N=151        | 62                | 56                | 64                  | p > .1  |
| Does not give comfort to others  | N=152        | 81                | 88                | 91                  | p > .1  |
| One sided social approaches  | N=132        | 91                | 93                | 90                  | p > .1  |
| Lacks awareness of others' feelings  | N=152        | 91                | 100               | 91                  | p > .1  |
| <b>Laughs at others' distress</b>  | <b>N=153</b> | <b>41</b>         | <b>63</b>         | <b>100</b>          | <b>p &lt; .001</b>  |
| Fascination with violence  | N=152        | 23                | 19                | 45                  | p > .1  |
| Lacks reaction to others' happiness  | N=140        | 81                | 79                | 90                  | p > .1  |
| Limited sharing of interests and enjoyment   | N=153        | 83                | 100               | 82                  | p > .1  |
| Avoidance of age peers   | N=153        | 50                | 69                | 36                  | p > .1  |
| <b>PART 3 - SECTION XIII - SOCIAL INTERACTION - WITH AGE PEERS</b>                       |              |                   |                   |                     |   |
| Lack of interaction with age peers   | N=153        | 71                | 50                | 55                  | p = .072  |
| Peers are not referred companions  | N=124        | 66                | 77                | 56                  | p > .1  |
| Quality of interaction impaired  | N=117        | 94                | 100               | 100                 | p > .1  |
| <b>Inappropriate sociability (rapid, inexplicable changes from loving to aggression)</b> | <b>N=119</b> | <b>34</b>         | <b>70</b>         | <b>78</b>           | <b>p = .021</b>   |
| Lacks emotional response to age peers  | N=123        | 82                | 93                | 100                 | p > .1  |
| Lacks conventions of peer interaction  | N=101        | 85                | 100               | 100                 | p > .1  |
| <b>Using age peers as mechanical aids, bossy and domineering</b>                         | <b>N=151</b> | <b>14</b>         | <b>40</b>         | <b>36</b>           | <b>p = .011</b>   |
| Lacks friendship with age peers  | N=133        | 60                | 79                | 82                  | p > .1  |
| Quality of friendship impaired   | N=47         | 67                | 100               | 100                 | p = .074  |
| <b>Bullying and teasing by age peers</b>   | <b>N=132</b> | <b>57</b>         | <b>73</b>         | <b>100</b>          | <b>p = .040</b>   |

Items marked in bold reached the nominal significance threshold for increased endorsement in the PDA groups vs. the rest of the sample (Fisher's exact test, two sided).

|   |              | % MINOR OR MARKED |                   |                     | PDA vs. Rest of the sample (Fisher's exact test, 2 sided) |
|---|--------------|-------------------|-------------------|---------------------|---|
|   |              | Rest of sample    | Some PDA features | Marked PDA features |   |
| <b>PART 3 - SECTION XV – IMAGINATION</b>                              |              |                   |                   |                     |   |
| Role play – lacks ability to pretend with awareness of dramatic role. | N=150        | 83                | 81                | 82                  | p > .1  |
| No pretend or role play of any sort                                   | N=151        | 33                | 44                | 27                  | p > .1  |
| Role play lacks spontaneous quality – is copied                       | N=100        | 56                | 38                | 64                  | p > .1  |
| Absence of shared imaginative activities with age peers.              | N=99         | 57                | 44                | 64                  | p > .1  |
| Lack of curiosity about self or the world                             | N=153        | 74                | 88                | 82                  | p > .1  |
| Lack of spontaneous pretend play                                      | N=149        | 47                | 44                | 36                  | p > .1  |
| Repetitive pretend play – not varied                                  | N=81         | 44                | 56                | 45                  | p > .1  |
| Repetitive acting out roles   | N=72         | 51                | 86                | 83                  | p = .093  |
| <b>PART 4 - SECTION V - ROUTINES &amp; RESISTANCE TO CHANGE</b>       |              |                   |                   |                     |   |
| Repetitive questioning  | N=147        | 56                | 88                | 55                  | p > .1  |
| Repetitive themes   | N=141        | 72                | 81                | 73                  | p > .1  |
| Obsession with a person   | N=152        | 32                | 25                | 36                  | p > .1  |
| <b>PART 4 - SECTION VI - OVERALL PATTERN OF ACTIVITIES</b>            |              |                   |                   |                     |   |
| <b>Inability to remain sitting</b>                                    | <b>N=147</b> | <b>32</b>         | <b>63</b>         | <b>55</b>           | <b>p = .008</b>   |
| Continual motor restlessness  | N=150        | 41                | 63                | 45                  | p > .1  |
| Hyperactivity   | N=151        | 37                | 44                | 55                  | p > .1  |
| <b>Fixed, repeated motor stereotypies</b>                             | <b>N=153</b> | <b>29</b>         | <b>75</b>         | <b>27</b>           | <b>p = .012</b>   |
| Excessive repetition of activities                                    | N=153        | 27                | 38                | 18                  | p > .1  |
| <b>PART 5 - SECTION I – EMOTIONS</b>                                  |              |                   |                   |                     |   |
| Lack of emotional expression  | N=151        | 55                | 56                | 64                  | p > .1  |
| Unhappiness, misery   | N=153        | 52                | 56                | 82                  | p > .1  |
| <b>Changeable mood</b>  | N=153        | 58                | 81                | 73                  | p = .080  |
| <b>Crying and moaning</b>   | <b>N=152</b> | <b>23</b>         | <b>44</b>         | <b>45</b>           | <b>p = .031</b>   |
| <b>Laughing for no reason</b>   | <b>N=152</b> | <b>42</b>         | <b>56</b>         | <b>91</b>           | <b>p = .010</b>   |
| Puzzlement  | N=151        | 61                | 63                | 45                  | p > .1  |
| Anxiety   | N=153        | 75                | 94                | 91                  | p = .069  |
| Special Fears   | N=151        | 52                | 38                | 55                  | p > .1  |

Items marked in bold reached the nominal significance threshold for increased endorsement in the PDA groups vs. the rest of the sample (Fisher's exact test, two sided).

|  |              | % MINOR OR MARKED |                   |                     | PDA vs. Rest of the sample (Fisher's exact test, 2 sided) |
|--|--------------|-------------------|-------------------|---------------------|---|
|  |              | Rest of sample    | Some PDA features | Marked PDA features |   |
| <b>PART 6 - SECTION I - BEHAVIOUR AFFECTING OTHERS</b> |              |                   |                   |                     |   |
| Wandering  | N=150        | 33                | 50                | 55                  | p > .1  |
| <b>Destructiveness</b>                                 | <b>N=152</b> | <b>30</b>         | <b>63</b>         | <b>73</b>           | <b>p &lt; .001</b>  |
| <b>Noisiness</b>                                       | <b>N=151</b> | <b>27</b>         | <b>69</b>         | <b>55</b>           | <b>p &lt; .001</b>  |
| <b>Temper tantrums</b>                                 | <b>N=152</b> | <b>62</b>         | <b>88</b>         | <b>91</b>           | <b>p = .006</b>   |
| <b>Physical aggression</b>                             | <b>N=151</b> | <b>53</b>         | <b>88</b>         | <b>100</b>          | <b>p &lt; .001</b>  |
| <b>Anger towards parents</b>                           | <b>N=149</b> | <b>48</b>         | <b>88</b>         | <b>82</b>           | <b>p &lt; .001</b>  |
| <b>Blaming other people</b>                            | <b>N=149</b> | <b>43</b>         | <b>94</b>         | <b>100</b>          | <b>p &lt; .001</b>  |
| <b>Harassment of others</b>                            | <b>N=150</b> | <b>11</b>         | <b>38</b>         | <b>70</b>           | <b>p &lt; .001</b>  |
| <b>Behaviour in public places</b>                      | <b>N=153</b> | <b>46</b>         | <b>69</b>         | <b>82</b>           | <b>p = .010</b>   |
| <b>Personal modesty</b>                                | <b>N=153</b> | <b>26</b>         | <b>63</b>         | <b>36</b>           | <b>p = .012</b>   |
| <b>Psychological barriers</b>                          | <b>N=153</b> | <b>41</b>         | <b>75</b>         | <b>91</b>           | <b>p &lt; .001</b>  |
| <b>Approaching strangers</b>                           | <b>N=153</b> | <b>24</b>         | <b>56</b>         | <b>64</b>           | <b>p &lt; .001</b>  |
| <b>Embarrassing remarks in public</b>                  | <b>N=141</b> | <b>59</b>         | <b>81</b>         | <b>90</b>           | <b>p = .009</b>   |
| <b>Interrupting conversations</b>                      | <b>N=138</b> | <b>75</b>         | <b>93</b>         | <b>100</b>          | <b>p = .029</b>   |
| <b>Inappropriate response to others' emotions</b>      | <b>N=153</b> | <b>48</b>         | <b>88</b>         | <b>91</b>           | <b>p &lt; .001</b>  |
| <b>Difficult or objectionable personal habits</b>      | <b>N=153</b> | <b>29</b>         | <b>56</b>         | <b>73</b>           | <b>p = .001</b>   |
| <b>Scatters or throws objects around</b>               | <b>N=152</b> | <b>20</b>         | <b>50</b>         | <b>64</b>           | <b>p &lt; .001</b>  |
| <b>Lack of co-operation</b>                            | <b>N=152</b> | <b>62</b>         | <b>94</b>         | <b>100</b>          | <b>p &lt; .001</b>  |
| <b>Needs constant supervision</b>                      | <b>N=152</b> | <b>44</b>         | <b>81</b>         | <b>100</b>          | <b>p &lt; .001</b>  |
| <b>Apparently manipulative behaviour</b>               | <b>N=152</b> | <b>42</b>         | <b>94</b>         | <b>100</b>          | <b>p &lt; .001</b>  |
| <b>Demands carer's attention</b>                       | <b>N=151</b> | <b>65</b>         | <b>94</b>         | <b>100</b>          | <b>p &lt; .001</b>  |
| <b>Difficulties with other people</b>                  | <b>N=150</b> | <b>21</b>         | <b>69</b>         | <b>100</b>          | <b>p &lt; .001</b>  |
| <b>Socially shocking behaviour</b>                     | <b>N=152</b> | <b>7</b>          | <b>38</b>         | <b>73</b>           | <b>p &lt; .001</b>  |
| <b>Fantasising, lying, cheating, stealing</b>          | <b>N=150</b> | <b>25</b>         | <b>50</b>         | <b>80</b>           | <b>p &lt; .001</b>  |

Items marked in bold reached the nominal significance threshold for increased endorsement in the PDA groups vs. the rest of the sample (Fisher's exact test, two sided).