Social needs in daily life in adults with Pervasive Developmental Disorders

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**Abstract**

Although social deficits remain a persistent component of the behavioural phenotype of Pervasive Developmental Disorders (PDD) in adulthood, it remains unclear whether these represent diminished social needs, as is seen in social anhedonia, or rather thwarted social needs, as is seen in social anxiety. This study used the Experience Sampling Method (ESM) – a structured diary technique – to examine social interaction in daily life of 8 adults with PDD, compared to 14 healthy controls. Multilevel regression analyses showed that PDD subjects a) did not spend more time alone, b) had no increased preference to be alone when in company, and c) spent more time with familiar people, compared to control subjects. Patients experienced more negative affect and anxiety when in the company of less familiar people compared to when they are alone, whereas no difference in affect could be found between being alone or being with familiar people. All these lines of evidence suggest that PDD subjects do have a desire to interact. However, this may be thwarted as is seen in social anxiety. Therapeutic interventions should aim at decreasing negative affect and anxiety in social interactions possibly by improving social skills to fulfill the existing social needs in adults with PDD.

**1. Introduction**

Deficits in social interaction are considered to be the core symptom of Pervasive Developmental Disorders (PDD), such as autism and Asperger’s syndrome. The core social deficits in PDD as mentioned in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) diagnostic criteria include impairments in the use of multiple nonverbal behaviours, failure to develop peer relationships appropriate to developmental level, a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people and lack of social or emotional reciprocity (APA, 2000).

Whereas most studies have focused on social deficits in children with PDD (e.g. (Koning and Magill-Evans, 2001), a review paper by Seltzer et al. (2004) showed that social impairments remain a persistent component of the behavioural phenotype in adolescence and adulthood. Although symptoms can abate over time, most of the adults with autism spectrum disorder still experience problems especially in the domain of social interactions (Billstedt et al., 2007; Seltzer et al., 2003). A study by Orsmond et al. (2004) reported reduced participation in social and recreational activities as well as a lower prevalence of having friends and peer relationships in adults with PDD. A question that many have posed is whether the lack of social relationships in patients with PDD is due to a lack of desire to relate to other people or rather to a lack of skills needed to form relationships (Orsmond et al., 2004; Rutter, 1970; Seltzer et al., 2004).

The latter question has an interesting correspondence with the literature relating to differences between social anhedonia and social anxiety (Brown et al., 2007). Social anhedonia which is described as a diminished social need has been characterised by social disinterest and a lack of pleasure from social interactions (Brown et al., 2007; Kwapil, 1998) whereas social anxiety is characterised as a conflict between a desire to interact on the one hand and fear of rejection or humiliation on the other (Asendorpf, 1990; Beidel and Turner, 1998; Brown et al., 2007). Social anhedonia and social anxiety have been studied at the level of every day functioning with social anhedonia corresponding to an enjoyment of solitude, based on lower positive affect and a preference to be alone when in company, and social anxiety being reflected in levels of negative affect depending on the type of social context with increased negative affect in company of less familiar people (Brown et al., 2007; Kashdan and Steger, 2006).

In the current study, we have adopted a similar approach and used a structured diary technique, the Experience Sampling Method (ESM) (Myin-Germeys et al., 2009), to investigate whether patients with PDD compared to controls show in the context of daily life a diminished social interest, as is seen in social anhedonia, or rather a thwarted social need as is seen in social anxiety. We investigated social functioning in daily life by 1) comparing the activities and social context of individuals
with PDD compared to healthy controls, 2) studying whether patients with PDD more often prefer to be alone when in social company as well as judge their company as less pleasant, and 3) relating mood, expressed as negative affect, positive affect and anxiety, to the social context in patients with PDD compared to controls.

2. Methods

2.1. Participants

The sample consisted of 8 subjects (7 males, 1 female) with a Pervasive Developmental Disorder, who were all under current treatment and had contact with their case-manager (social psychiatric nurse) at least on a monthly rate. All subjects met criteria for PDD-NOS (3 subjects) or Asperger's syndrome (5 subjects) according to DSM-IV and were diagnosed as such by an experienced clinician. In addition, the Childhood Autism Rating Scale (CARS) [Schopler, et al., 1988] was used to assess the severity of the autistic behaviour (mild/moderate/severe). The CARS is a behaviour rating scale consisting of 15 items scored on a 1 (normal) to 4 (severely abnormal) Likert scale. The sum of the separate items is divided into non-autistic (score 15–29), mildly–moderately autistic (score 30–36) and severely autistic (score 37–60). The CARS has good psychometric properties [Schopler, et al., 1988] and is effective in diagnosing adults [Mesibov et al., 1989]. The mean score on the CARS for all patients was 32 (mildly–moderately autistic), the range was 30–37 and only one subject had a score of 37, which is just in the category 'severely autistic'. Inclusion criteria were (a) age 18 years and older, (b) sufficient command of the Dutch language to understand instructions and informed consent, and (c) normal intellectual functioning (IQ > 80). Exclusion criteria were (a) use of alcohol in excess of five standard units per day, and (b) weekly use of illicit drugs.

Patients were recruited through outpatient mental health service facilities in Maastricht and Heerlen. Written informed consent was obtained from all subjects. IQ was measured by the shortened version of the Groninger Intelligence Task (GIT, [Luteijn and Vanderplog, 1983]). The mean IQ score was 117 (S.D. 11, range 100–129).

Fourteen control subjects (12 male, 2 female) were selected from an ESM-database and were matched on age, gender, and level of education. Because of the small sample size, we used two control subjects for every PDD subject to improve power. They met the same inclusion and exclusion criteria.

2.2. Experience Sampling Method

The Experience Sampling Method (ESM) is a within-day self-assessment technique. The technique has mainly been used in schizophrenia research (Myin-Germeys and van Os, 2007; Myin-Germeys et al., 2001; Thewissen et al., 2008) but was also successfully applied to studies of depression (Peeters et al., 2003; Wickers et al., 2009), eating disorders (Engel et al., 2005), multiple personality disorders (Loewenstein et al., 1987), panic disorder (Kendary and Taylor, 1999), ADHD (Knoose et al., 2008), and borderline personality disorder (Glaser et al., 2008; Stiglmayr et al., 2008) (see Myin-Germeys et al., 2009) for review). Subjects received a digital wristwatch and a set self-assessment forms collated in a booklet for each day. Ten times a day on six consecutive days, the watch emitted a signal at unpredictable moment between 07:30 and 22:30h. After each signal reports of thoughts, current context (activity, persons present, and location), appraisals of the current situation, current symptomatology, and mood were collected. All self-assessments were rated on a 7-point Likert scale.

The ESM procedure was explained to the subjects during a briefing session in which a practice form was completed to make sure the subjects were able to understand how to use the 7-point Likert scale format. Subjects were instructed to complete their reports immediately after the signal, thus minimizing memory distortions, and to record the time at which they completed the form. There was telephone contact between the subject and the researcher on the second and fourth day, to assess compliance to the instructions and to answer possible questions of the subject.

Subjects had to fill in a minimum of 20 forms out of 60 to be included. All reports completed more than 15 min after the signal were excluded from the analyses. Previous work [Delespaul, 1995] has shown that reports completed after this interval are less reliable and consequently less valid.

2.3. Measures

2.3.1. Assessment of mood

Mood states were measured with 8 ESM items, all rated on a 7-point Likert scale (1 = not at all, 7 = very). The items down, guilty, insecure, lonely and envious formed the Negative Affect scale (NA), (Cronbach’s α = 0.87). The items happy, cheerful and relaxed formed the Positive Affect scale (PA), (Cronbach’s α = 0.89). Previous research e.g. [Myin-Germeys et al., 2005] found that the item angry had low loadings on both NA and PA, and was therefore also excluded in this study. Feeling anxious was also studied as a separate item.

2.3.2. Assessment of social context

Social context was assessed with the following questions: “I am alone” (yes/no), “with whom am I?” (open answer), and “how many men/women/children are currently present”. The answers on the first question were afterwards recoded into the variable “social context” with 4 categories: 0 = alone, 1 = family members or fellow residents, 2 = friends and acquaintances, 3 = strangers. The data of friends and acquaintances were united into one category because there were too few observations in the separate categories. A second social context variable was constructed comparing situations when subjects were not alone (social context_in company: 0 = family members, 1 = friends and acquaintances, 2 = strangers). In these non-alone situations, two appraisals of the company were assessed with the questions “This social context is pleasant” and “I’d rather be alone right now” (both rated on a 7-point Likert-scale).

2.3.3. Assessment of activities

Activities were assessed with the question: “What are you doing at this moment?” The activity variable was coded in 5 categories: 0 = nothing, 1 = work or study related activities, 2 = household and self-care activities, 3 = recreational activities, 4 = social activities.

2.4. Statistics

ESM data have a hierarchical structure as multiple observations (level 1) are nested within subjects (level 2). Because of this multilevel-structure (multiple observations within one person), multilevel or hierarchical linear modeling techniques are ideally suited for the analyses [Schwartz and Stone, 1998]. Multilevel linear techniques are a variant of the more common unilevel linear regression analysis.

All statistical analyses were executed with STATA Statistical Software (STATA 10.0 for Windows) [StataCorp, 2007], the XTREG module was used for analyses. In this module the B is the fixed regression coefficient of the predictor in the multilevel model and can be interpreted identically to the estimate in a unilevel linear regression analysis. Wald test was used to test main and interaction effects.

2.4.1. Activities and social company

A two-tailed t-test was used to compare the percentage of time spent in a specific context between the two groups.

2.4.2. Preference to be alone when in social company

A multilevel linear regression analysis has been conducted with “preference to be alone” as the dependent variable and group, defined as 0 = control, 1 = patient, social context_in company as well as their interaction as independent variable. In addition, a similar analysis was conducted with “pleasantness of the social company” as dependent variable.

2.4.3. NA and PA related to social context

Multilevel linear regression analyses have been conducted with negative affect and positive affect respectively as dependent variable and “social context”; “group” as well as their interaction as dependent variable.

3. Results

3.1. Descriptives

The sample consisted of 8 PDD and 14 control subjects. One control subject did not comply with the research protocol (<20 valid reports) and was therefore excluded from the analyses. The mean number of valid reports was 43 for the control subjects (range 27–56, minimum 4 valid reports a day) and 48 for the PDD subjects (range 32–60, minimum 5 valid reports a day). Sociodemographic variables are shown in Table 1. Most of the PDD subjects were incapable of work or unemployed, while none of the control subjects were.

3.2. Activities and social company

No significant difference was found in the amount of time spent alone between patients (M = 37%, S.D. (21%), range 20–50%) and controls (M = 35%, S.D. (21%), range 22–47%) (t(19) = –0.27, P = 0.79). However, a clear difference was found in the social context of patients compared to controls (see Fig. 1). Whereas patients spent significantly more time with family (t(19) = –3.18, P<0.005), controls spent much more time with friends/acquaintances (t(19) = 3.56, P = 0.002). No significant difference was found in the amount they spent with strangers (t(19) = 1.06, P = 0.30).

In terms of activities that people were involved in, no differences were found in time spent doing nothing (t(19) = –0.68, P = 0.50), doing household activities (t(19) = –1.50, P = 0.15), and interestingly being involved in social activities (mainly conversations and visits) (t(19) = 0.03, P = 0.98). Differences were found in working/studying
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