Social-Cognitive Factors in Childhood Social Anxiety: A Preliminary Investigation

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Abstract

The present study addresses the social cognition of socially anxious children, with particular emphasis on their ability to understand others’ mental states in interpersonal situations. The heterogeneous sample used in this preliminary investigation consisted of 63 primary school children in England and the USA. The English children were from a mainstream classroom of 8- to 9-year-olds, while the children from the USA ranged in age from 6 to 11 years and had been selected by school district officials for a variety of social interaction difficulties. All children completed measures of social anxiety, shy negative affect, and various social-cognitive abilities, and teacher ratings of social skills were additionally available for the USA subgroup. Results showed that feelings of social anxiety are not associated with any basic deficit in the understanding of recursive mental states which concern facts about the physical world. However, there was evidence that socially anxious children—particularly those with high levels of shy negative affect—do experience specific social-cognitive difficulties in understanding the links between emotions, intentions, and beliefs in social situations. Providing further support for this link, socially anxious children were rated by their teachers as poorer than non-anxious children only on social skills that require insight into others’ mental states. Directions for further examination of this complex interplay between cognitive and emotional factors in the development of social anxiety are discussed.

Keywords: Social anxiety; social cognition; mental state understanding; social skills

Introduction

Self-presentational theorists see social anxiety as resulting from a high motivation to make a desired impression on others coupled with a low expectancy of making that impression (Schlenker & Leary, 1982). Socially anxious individuals, therefore, want to make a positive impression on others but fear (and expect) that they will be evaluated negatively by others. Moreover, negative emotional states like anxiety, embarrassment, and shame can increase awareness of one’s negative thoughts about social
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interaction (Henderson & Zimbardo, in press). It is not difficult to see how feelings of social anxiety, together with a focus on negative thoughts, can lead to distress during—and consequently avoidance of—social situations. Ultimately, this pattern results in a low frequency of successful social interaction, which in turn must inevitably worsen the social anxiety.

There is evidence for this kind of vicious cycle in primary school children. Beidel (1998) notes that while social anxiety disorder is most often diagnosed during adolescence or adulthood, it in fact may emerge during childhood. Indeed, we now have two social anxiety scales specifically for use with children: Beidel, Turner, & Morris's Social Phobia and Anxiety Inventory for Children (1995), and La Greca & Stone's Social Anxiety Scale for Children—Revised (1993). The former has a five-factor structure: physical and cognitive symptoms, assertiveness, fear of conversations, public performance anxiety, and social avoidance. The latter has a three-factor structure: fear of negative evaluation, general social avoidance, and avoidance of novel social situations. Moreover, researchers working with children and adolescents have found support for associations between social anxiety and negative social expectancies, low social competence, dysphoric mood, and low self-esteem on the one hand (e.g., Chansky & Kendall, 1997; Ginsberg, La Greca, & Silverman, 1998; La Greca & Lopez, 1998; Pope & Ward, 1997; Spence, Donovan, & Brechman-Toussaint, 1999), and negative peer status on the other (e.g., Inderbitzen, Walters, & Bukowski, 1997; La Greca, Dandes, Wick, Shaw, & Stone, 1988; La Greca & Stone, 1993; Walters & Inderbitzen, 1998).

Evidence from research with both adults and children tells us much about the proximal causes of social anxiety. We know that individuals with social anxiety have fears of failure and criticism (e.g., Epkins, 1996), have an anxious preoccupation with the self-images they are projecting which interferes with effective information-processing (e.g., Hope, Heimberg, & Klein, 1990; Lord, Saenz, & Godfrey, 1987), anticipate negative social outcomes (e.g., Chansky & Kendall, 1997; Spence, Donovan, & Brechman-Toussaint, 1999), display a negative bias in picking up cues from their audience (e.g., Veljaca & Rapee, 1998), and blame themselves for negative social interactions (e.g., Henderson & Zimbardo, 1993; Trower, Sherling, Beech, Harrop, & Gilbert, 1998). In addition to this wealth of knowledge about social anxiety, researchers investigating the distal etiology of social anxiety have explored both biological influences, such as temperament, and learning factors, such as child-rearing patterns and peer interaction experiences (see Bruch & Cheek, 1995; Leary, 1983). Relating to both these proximal and distal causes of social anxiety is the social-cognitive profile of the socially anxious individual. The present study moves beyond the research on information-processing biases mentioned above to address more fundamental aspects of ‘interpersonal understanding’. Specifically, we test for the first time the hypothesis that socially anxious children, particularly those who have high levels of relevant negative emotion, have difficulty in understanding other people’s mental states during social situations.

Why should social anxiety in childhood be associated with any particular pattern of social cognition? First, socially anxious individuals’ expectation of negative social outcomes may result from a lack of knowledge about how self-conscious concerns can be translated into effective behavioural strategies. This is consistent with Leary’s (1983) discussion of how self-presentation efficacy—the ‘subjective probability of conveying any particular image of oneself to others’ (p. 99)—is low in socially anxious individuals. In the present study, we test the hypothesis that socially anxious children
have a poorer appreciation of self-presentational strategies. If socially anxious children are unable to recognize how self-presentational concerns can give rise to successful behavioural displays, this could help to explain why they might develop low self-efficacy with regard to impression management strategies. In the present study, we use Banerjee & Yuill’s (1999b) self-presentational display task, which requires children to explain the self-presentational behaviour of characters in hypothetical social scenarios. It is anticipated that social anxiety will be associated with difficulty in doing so. It should be noted that this association is predicted to be specific in nature; no differences are expected on the control task, where children must explain prosocial displays.

Second, the anxious self-preoccupation of socially anxious children is likely to coincide with poorer appreciation of social-cognitive processes in interpersonal situations. We already know that the excessive self-focus of socially anxious adults hampers attention to external cues, to the extent that recall of the situation is poorer (e.g., Hope, Heimberg, & Klein, 1990). If children share this same self-focus, its impact is surely not limited to recall deficits. The developing child’s social cognition is strongly related to his or her interactions with peers (e.g., Dodge, 1983), and a failure to attend to the features of such interactions may have consequences for the child’s understanding of social-cognitive processes. Specifically, we test the hypothesis that socially anxious children will be less likely to understand the complex links among subjective mental states in interpersonal situations.

Finally, it is important to note that these kinds of social-cognitive characteristics are domain-specific. In other words, we do not expect socially anxious children to demonstrate a global impairment in mental-state understanding. Evidence from the adult literature indicates that the excessive self-focus of socially anxious individuals is likely to be apparent only in interpersonal encounters which potentially involve social evaluation (e.g., see Hatvany, Souza e Silva, & Zimbardo, 1981). Thus, on standard mental-state understanding tasks, which typically concern beliefs about physical object identity or location, socially anxious children should not differ from non-anxious children. To test this expectation in the present study, we use a standard test of second-order mental-state reasoning (Sullivan, Zaitchik, & Tager-Flusberg, 1994), which taps the child’s understanding of one story character’s false belief about another character’s belief about the identity of a birthday present. Moving away from the physical to the social domain, we use a test of ‘faux pas’ understanding to assess the extent to which socially anxious children show a deficit in understanding the multiple links among feelings, intentions, and beliefs in interpersonal encounters which potentially involve affectively-valenced social evaluation. O’Riordan, Baron-Cohen, Jones, Stone, & Plaisted’s (1996) ‘faux pas’ task, as adapted by Banerjee (2000), requires children to explain how one story character unintentionally hurts the feelings of another character. The cognitive prerequisites of this task are no more complex than those of Sullivan et al.’s (1994) second-order false-belief task: in both cases, one character says something because he or she is ignorant of another character’s belief/attitude. However, we expect poorer performance in socially anxious children only on the ‘faux pas’ task, because this task taps the appreciation of interpersonal processes in social situations that potentially involve social evaluation.

It is important not to generalise the above social-cognitive characteristics across all socially anxious individuals. It is likely that these characteristics will be most apparent in socially anxious individuals with high levels of shy negative affect. The existing literature tells us that dysfunctional cognition is strongest in children and adults...
who are both socially anxious and high in negative affect/dysphoria (see Epkins, 1996; Henderson, in press; Henderson & Zimbardo, 2000), possibly because the salience of negative emotions could interfere with accessing cognitive resources during social interactions. It follows then that high negative affect (which can reflect the self-blaming tendencies and low self-esteem observed in many socially anxious individuals, as mentioned above) should therefore particularly lower socially anxious children’s appreciation of interpersonal processes in social situations and thereby reduce the opportunity to engage in—and learn from—successful social interactions.

The present study uses a correlational design to provide a preliminary investigation of the social-cognitive characteristics of socially anxious children, and further considers links with the child’s social behaviour. Happe & Frith (1996) investigated real-life social behaviours involving theory of mind in children with conduct disorder, and noted that those children were judged as poor on social skills that involve mentalising (e.g., initiating conversations of interest to others), although they were not judged as so impaired on other social skills (e.g., delivering a simple message). If socially anxious children do indeed demonstrate poorer appreciation of mental states in the interpersonal domain, we would also expect them to show this pattern of social behaviour. Given the preliminary nature of this study, we use a heterogeneous sample of children of different ages, of multiple ethnicities, from two different countries, and from both mainstream and selected populations, so that any associations observed among the emotional, cognitive, and behavioural measures are unlikely to be idiosyncratic characteristics of a single demographic category.

Method

Participants

The sample consisted of 63 children. Approximately half the children were 8- to 9-year-olds attending an urban, ethnically diverse, primary school in Brighton, UK (n = 33, 13 girls, mean age 8;9, range 8;2–9;2). The remainder were 6- to 11-year-olds from schools in a suburban, ethnically diverse elementary school district in California, USA (n = 30, 13 girls, mean age 8;6, range 6;4–11;11). The latter children had been selected by school district officials to receive special help in order to develop their social interaction skills. Their primary difficulties ranged from problems in confidence and social withdrawal to aggression and other antisocial behavioural patterns. All children were tested with the fully informed authorised consent of school authorities, and were free to withdraw from the study or decline to complete any task at any point.

Procedure

The 8- to 9-year-old English children were seen individually by a male experimenter on two separate occasions at least one week apart. In one session, the child was asked to complete four questionnaires, although only data from two are related to this report. The items on the questionnaires were presented orally on a cassette-player, although the child marked responses on a paper version listing the questions and response options. The child was allowed to stop the cassette and ask the experimenter for repetition or clarification of unfamiliar words. In the other session, the child completed three social cognition tasks. Each session lasted approximately 15 minutes. The two
task sessions were in counterbalanced order, and the order of tasks within each session
was randomised. Children in the USA sample were seen individually by one of two
female experimenters in the same way, except that the experimenters read aloud the
questions for this group. Additionally, for these children only, classroom teachers were
asked to rate the children on a measure of sociability, described below.

Measures and Scoring

The Social Phobia and Anxiety Inventory for Children (SPAI-C) created by Beidel,
Turner, & Morris (1995) was used as a measure of social anxiety. Children receive a
score between 0 and 2 on each of 26 items. This gives rise to a score out of 52 where
high scores indicate high social anxiety. Four children (one 9-year-old and three out
of the four 6-year-olds in the USA sample), were unwilling or unable to respond to
all items of this questionnaire and were excluded from analyses involving this measure.
It should be noted that the individual one-on-one procedure for administering this
questionnaire allowed the experimenters to provide any necessary help in explaining
the meaning of individual words or sentences where appropriate, especially for the
youngest children in the USA subgroup.

A questionnaire of our own design was used to tap negative affective states related
to social anxiety. The structure was similar to those of existing affect self-report scales,
which require ratings of how much one has experienced various affective states (e.g.,
Watson, Clark, & Tellegen’s 1988 Positive and Negative Affect Scale). Using a more
simple response format and more concrete descriptions of affective states, our Shyness
Negative Affect Scale (Henderson, Banerjee, & Smith, 1999; see Appendix) asked
children to rate how often they experienced a variety of negative affective states related
to social anxiety. Children were asked to rate how often they experienced each feeling
on a scale from Never (0) to Sometimes (1) to Always (2). Ten of these concerned a
range of relevant negative states (feeling embarrassed, blushing, sad, stupid, laughed
at, worried about upsetting others, hurt, angry, babyish, and guilty). The items were
selected on the basis of face validity, and no large study has yet been used to address
the psychometric properties of the scale. However, the level of internal consistency in
the data collected here was acceptable (Cronbach’s alpha = .74), and scores across
these ten items were therefore summed to result in a ‘shy negative affect’ score out of
20. Two further items in the questionnaire were filler positive items (happy, excited).
It should be noted that two pilot items with the same response format (concerning
how respondents felt comfort after a negative event) were added to the end of this
scale to inform design for a separate study. One child who failed to complete all ques-
tions was excluded from analyses.

Three social cognition tasks were used in this study. First, children completed the
standard second-order false-belief task used by Banerjee & Yuill (1999a), derived
from Sullivan, Zaitchik, & Tager-Flusberg (1994). Children received a ‘false belief’
score of 1 if they answered all questions correctly (including an appropriate justifica-
tion for their answer to the final test question). An incorrect response to the final
test questions or an inappropriate justification for their answer to the last test question
resulted in a ‘false belief’ score of 0. It should be noted that one child in the English
sample and five children in the USA sample failed one of the control questions
for this task, and were therefore excluded from analyses involving scores on this
task. In addition, one child in the USA sample failed to complete this task. An inde-
pendent rater coded a third of all responses. Inter-rater agreement on scoring justifi-
cations for responses to the final question as appropriate or inappropriate was 95% (kappa = .90).

The second task used was the ‘faux pas’ task described in Banerjee (2000), based on O’Riordan, Baron-Cohen, Jones, Stone, & Plaisted (1996). Banerjee (2000) had devised two stories for this task, one based on a scenario set out in previous research on the task by Morrison (1998), and the other newly created by the author. The stories were acted out using dolls and props, and both involved a situation where a person unintentionally commits a faux pas which upsets someone (e.g., one character says he hates the violin to another character who loves playing the violin). The children were asked to identify the faux pas and the character who committed it, and were then asked why the character should not have said what he did. For each of these three questions, incorrect answers were corrected by the experimenters before continuing the task. The fourth question of interest was whether the first character meant to upset the second character. Finally, children were asked to justify their answer to the previous question. The two stories for this task were presented in counterbalanced order. For each story, children scored 1 for each question answered correctly. This allowed a maximum score of 5 for each story, and, summing across the two stories, a maximum score of 10 for the task. One child from the USA sample did not complete this task. An independent rater coded a third of all responses. Inter-rater agreement on scoring justifications for responses to the final question as appropriate or inappropriate was 100%.

The final task was the self-presentational display task used by Banerjee & Yuill (1999b), where children were asked to provide explanations for deceptive self-presentational displays used by story characters. The task included four test stories, which all involved self-presentational behaviour (e.g., not crying after getting hurt). For these stories, children were required to identify ‘social evaluation’ motives for the characters’ behaviour (e.g., ‘He didn’t want them to think he was a wimp’). There were also four control stories which involved prosocial displays (e.g., pretending that an awful present is nice). For these stories, children were required simply to provide any appropriate explanation for the display (e.g., ‘He didn’t want to upset them’). Children received a score of 1 for each story for which they had provided the required explanation. This results in a ‘self-presentation display’ score out of 4 and a ‘control display’ score out of 4. One child in the USA sample did not complete this task. An independent rater coded a third of all responses. Inter-rater agreement on scoring explanations as correct or incorrect was 96% (kappa = .90).

Children in the USA sample were rated by their classroom teachers on 45 items tapping children’s social behaviour. The scales containing these items were first devised by Frith, Happe, & Siddons (1994), who in turn had derived some of the items from the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984). Two sets of items are of particular interest to the present study. Frith et al. isolated 16 items that experts in research on mental-state understanding classed as behaviours which appear to require the attribution of mental states to others (‘interactive sociability’). A further 16 items were classed as behaviours which do not require this understanding of others’ mental states (‘active sociability’). In the present study, teachers rated each child on these items using a scale of Never, Sometimes, and Often (scored as 0, 1, and 2). Each child received two totals: the sum of scores across 15 ‘interactive sociability’ items and the sum of scores across 16 ‘active sociability’ items (one ‘interactive sociability’ item was omitted from the ratings questionnaire due to a clerical error). Ratings for one child were not completed, and many teachers did not complete all of the items in the two scales (median numbers of items completed for ‘active’ and ‘inter-
active’ scales, 12 and 10, respectively). The scores were prorated to take into account the missing data, resulting in an ‘interactive sociability’ score out of 30 and an ‘active sociability’ score out of 32. It should be noted that the items in the ratings questionnaire were arranged in a random order.

Results

Before turning to the main interest of this paper, it should be noted first that the two subgroups within our sample differed on the emotional and social-cognitive variables. Specifically, as indicated in Table 1, preliminary analysis showed that the USA subgroup tended to score higher than the English subgroup on social anxiety, while they performed at a significantly lower level on each of the three social-cognition tasks. It should also be noted that age was a significant covariate for each of the social-cognitive measures (though it is important to note that it was not associated with the social anxiety or shy negative affect measures). Nonetheless, analyses of covariance confirmed that each of the subgroup differences on the social-cognitive tasks remained even after controlling for the age effect. This evidence is suggestive, in light of the fact that the children in the USA subgroup had been identified by school district officials as having social interaction difficulties. However, given the multiple differences between the two subgroups (e.g., country, age range, selected vs. unselected populations), comparisons of the two subgroups cannot be interpreted conclusively. Nevertheless, this initial analysis makes it clear that our main investigation of associations between variables must control for the observed differences between the sample subgroups. Finally, it should be noted that, after controlling for age, no effects of gender were observed in the above preliminary analysis.

Relationships between Social Anxiety, Shy Negative Affect, and Social-Cognitive Measures

Our primary interest is in determining whether associations among the emotion and social cognition measures can be found in this heterogeneous sample. All pairwise associations were assessed using a test of partial correlation, partialling out the effect of the binary variable ‘subgroup’ (England vs. USA). Thus, a significant partial correlation between social anxiety and a social-cognitive measure may be taken to indicate that a significant proportion of variability in the social anxiety scores is explained by the social-cognitive variable, after accounting for the variability explained by subgroup differences.

First, we observed a significant positive correlation between the social anxiety scores and the shy negative affect scores (partial \( r (55) = .54, p < .001 \)), consistent with the existing literature. We next considered the key question of whether social anxiety was associated with the social-cognitive measures. Table 2 shows the partial correlations between the social anxiety scores and the social-cognitive measures. We first examined the correlations for the entire sample. As predicted, the point-biserial correlation with second-order false-belief performance is not significant (mean social anxiety scores for the 39 task passers and the 14 task failers, 18.40 and 17.62, respectively). However, as hypothesized, social anxiety was negatively correlated with the faux pas scores and the self-presentation display scores, but was not significantly correlated with the control display scores.
Table 1. Mean Scores on All Measures, by Subgroup, with Significance Tests for Subgroup Differences

<table>
<thead>
<tr>
<th></th>
<th>Social Anxiety (max = 52)</th>
<th>Negative Affect (max = 20)</th>
<th>Second-Order False Belief (max = 1)</th>
<th>Faux Pas (max = 10)</th>
<th>Self-presentation Display (max = 4)</th>
<th>Control Display (max = 4)</th>
<th>Interactive Sociability (max = 30)</th>
<th>Active Sociability (max = 32)</th>
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<tr>
<td></td>
<td>England Mean</td>
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<td></td>
<td>17.07</td>
<td>7.94</td>
<td>.81</td>
<td>9.27</td>
<td>3.03</td>
<td>3.73</td>
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<tr>
<td></td>
<td>Std. Deviation</td>
<td>7.40</td>
<td>4.04</td>
<td>1.10</td>
<td>.98</td>
<td>.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>England N</td>
<td>33</td>
<td>32</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>USA Mean</td>
<td>20.77</td>
<td>7.62</td>
<td>7.79</td>
<td>2.28</td>
<td>3.24</td>
<td>12.98</td>
<td>17.84</td>
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<tr>
<td></td>
<td>Std. Deviation</td>
<td>10.84</td>
<td>3.56</td>
<td>2.48</td>
<td>1.36</td>
<td>1.12</td>
<td>5.84</td>
<td>5.04</td>
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<tr>
<td>USA N</td>
<td>26</td>
<td>29</td>
<td>24</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
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<tr>
<td></td>
<td>Overall Mean</td>
<td>18.70</td>
<td>7.79</td>
<td>7.79</td>
<td>2.28</td>
<td>3.50</td>
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<tr>
<td></td>
<td>Std. Deviation</td>
<td>9.18</td>
<td>3.79</td>
<td>2.00</td>
<td>1.23</td>
<td>.92</td>
<td></td>
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<tr>
<td>Overall N</td>
<td>59</td>
<td>62</td>
<td>56</td>
<td>62</td>
<td>62</td>
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+ two-tailed t-test comparison of England and USA subgroups, p < .13.
* two-tailed t-test comparison of England and USA subgroups, p < .05.
To test our hypothesis that social anxiety would be most strongly associated with social-cognitive difficulties when shy negative affect is high, we examined these partial correlation for a ‘low shy negative affect’ group and a ‘high shy negative affect’ group separately. We used a median split on shy negative affect (located at score 8 out of 20), to derive these two groups, one scoring relatively higher on shy negative affect than the other. As shown in Table 2, consistent with our predictions, the correlations between social anxiety and both the self-presentation scores and the faux pas scores were small for the ‘low shy negative affect’ group. However, as expected, the corresponding correlations were significant for the ‘high shy negative affect’ group. Finally, it should be noted that performance on the second-order false-belief task and performance on the control display stories were not correlated with social anxiety in either shy negative affect group.

A composite score of social cognition was calculated by standardising and then averaging the self-presentation scores and faux pas scores. Combining in this way the two key social cognition measures (understanding of self-presentational displays and understanding of faux pas situations) allows us to observe a clear pattern in the link with social anxiety. The overall partial correlation of this composite score with social anxiety was significant (partial $r_{(55)} = -0.40$, $p = .001$). However, it is evident that this association is stronger in the high shy negative affect group (partial $r_{(25)} = -0.44$, $p = .01$) than in the low shy negative affect group (partial $r_{(26)} = -0.14$, ns).

In view of the fact that the above analyses involved an aggregation of the England and USA subgroups, which differed on several dimensions, it is worth noting that the basic pattern of associations described above was found when examining each subgroup individually. Specifically, the correlation of the social anxiety scores with the composite social cognition scores was significant in both the England and USA subgroups ($r_{(31)} = -0.29$, $p = .05$, and $r_{(23)} = -0.46$, $p = .01$, respectively). Furthermore, for both subgroups (but particularly for the England subgroup), this correlation was stronger in the high shy negative affect group ($rs = -0.53$ and $-0.39$, for England and USA respectively).

### Table 2. Partial Correlations between Social Anxiety and Social Cognition Measures, Controlling for the Effects of Sample Subgroup, Subdivided by Level of Shy Negative Affect (df in Parentheses)

<table>
<thead>
<tr>
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<th>Social Anxiety correlated with:</th>
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<tr>
<td></td>
<td>Second-Order False Belief</td>
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<tr>
<td>Low shy negative affect</td>
<td></td>
</tr>
<tr>
<td>group</td>
<td>.07</td>
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<tr>
<td></td>
<td>(26)</td>
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<tr>
<td>High shy negative affect</td>
<td></td>
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<tr>
<td>group</td>
<td>-.10</td>
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<tr>
<td></td>
<td>(20)</td>
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<tr>
<td>Total</td>
<td>.06</td>
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<td></td>
<td>(50)</td>
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* $p \leq .05$, ** $p \leq .001$
USA subgroups, respectively) than in the low shy negative affect group ($r_s = .26$ and $-.33$, respectively). Finally, when analysing the two subgroups’ data separately, there was again no evidence of any negative associations between social anxiety and the control display scores or the second-order false-belief scores.

**Relationships between Social Anxiety, Social-Cognitive Measures, and Teacher Ratings of Sociability**

The teacher ratings of sociability for the USA subgroup were associated with the children’s social anxiety scores. Although social anxiety was not significantly correlated with ratings of ‘active sociability’, which is thought not to require mentalising skills ($r (23) = -.11$, $ns$), the negative correlation with ratings of ‘interactive sociability’, which is thought to require the attribution of mental states, approached significance ($r (23) = -.32$, $p = .06$).

This relationship could be mediated at least in part by the differences in social cognition noted above. Indeed, the composite social cognition scores computed above had a significant positive correlation with ‘interactive sociability’ ($r (26) = .44$, $p < .01$), but, like the social anxiety scores, were not significantly correlated with ‘active sociability’ ($r (26) = .23$, $ns$).

The precise causal relationship among the various variables here cannot be inferred conclusively. It is important to note first that the correlation of social anxiety with the composite social cognition scores remains significant after controlling for shy negative affect (partial $r (54) = -.30$, $p = .01$), while the correlation of shy negative affect with the composite social cognition scores is only marginally significant after controlling for social anxiety (partial $r (54) = -.19$, $p < .10$). However, the analysis does seem to suggest that shy negative affect is, to a greater or lesser degree, associated with social anxiety, social cognition, and interactive sociability. The size of the USA subgroup is unfortunately too small to permit regression analysis to determine the precise contribution of each variable to variance in the ‘interactive sociability’ ratings. Nevertheless, the pattern of results is compatible with the notion that social anxiety is linked to poor ‘interactive sociability’ in part because of specific social-cognitive difficulties.

**Discussion**

This investigation provides preliminary evidence that social anxiety, especially when coupled with high shy negative affect, is indeed associated with specific patterns of social cognition. As hypothesised, there was clearly no global deficit in mental-state understanding among socially anxious children, since performance on the standard second-order false-belief task was not associated with social anxiety. However, also as predicted, social anxiety was related to impaired performance on the faux pas and self-presentation (though not the control) display tasks. Specifically, although the associations appear to be moderate in size, social anxiety is linked with relatively poorer insight into the way in which self-presentational motives can give rise to effective emotion displays, and relatively poorer appreciation of the complex unintended emotional consequences of a faux pas.

Moreover, in view of the observed correlation between social anxiety and interactive sociability—social behaviours thought to require an insight into others’ mental states—it seems likely that these kinds of characteristics have an impact on the
children’s behavioural interactions. This is consistent with findings that socially anxious children are often classified as being neglected by their peers (e.g., La Greca et al., 1988), since it seems reasonable to assume that the difficulties in interpersonal understanding can lead to social avoidance on the part of the child as well as social exclusion by his or her peers.

It should be noted that the observed correlations among these variables are fairly modest, but the pattern of associations between social anxiety, social cognition, and social behaviour was largely as expected on the basis of the theoretical arguments presented earlier in this paper. This therefore provides a foundation for further research to elucidate the size and significance of the relationships observed here. We suggest that such research should use additional—and more precise—emotion and social cognition measures, as well as measures to control for the effects of other broad variables such as verbal ability.

The link between performance on social-cognitive measures and behaviour in real-life social situations deserves particular attention. In the present study, social anxiety was negatively associated with ratings of social skills that require insight into others’ mental states but was not associated with ratings of social skills that do not require such insight. It is interesting to note that the paper by Happe & Frith (1996), which outlines the teacher rating scales used in the present study, reports a similar pattern of behaviour ratings for children with conduct disorder. The authors of that paper, like us, did not find any deficit in performance on standard false-belief tasks, and argued that children with conduct disorder could have an ‘intact but skewed theory of mind’ (p. 395), with biases towards using mentalising skills only towards antisocial ends (e.g., lying, bullying). Turning back to the socially anxious children in our sample, we agree that fundamental cognitive deficits in mentalising are unlikely. However, the children’s poorer performance on the faux pas and self-presentational display tasks suggests that social maladjustment may be associated with impairment in higher-order mentalising skills. Furthermore, this impairment may manifest itself not in standard false-belief tasks involving beliefs about physical object identity or location, but rather in tasks which require insight into the links between emotions, intentions, and beliefs involved in interpersonal interactions.

If the existence of such associations between social cognition, social anxiety, and social behaviour is substantiated by future research, a critical question will be the causal direction of the associations. Our preliminary examination of these links had a correlational design, allowing only speculation about causality. We suggest that a bi-directional relationship is likely, whereby early experience of unsuccessful social interactions can inhibit social-cognitive development which in turn can lead to further social interaction difficulties. This is consonant with Dunn’s (1996) discussion of how the ‘divide’ between cognitive and social development should be bridged. On the one hand, she shows how a ‘notable variety of social processes . . . are associated with the development of mindreading and emotion understanding’ (p. 510). At the same time, we have evidence that ‘early differences in . . . children’s sociocognitive abilities [are] associated not only with differences in their own developmental outcomes, but with differences in the patterns of change over time in others’ behaviour towards them’ (p. 515). We argue that this formulation is equally applicable to the mainstream population and to special populations.

In the case of social anxiety, the role of negative affect is an additional factor of special interest. The results confirm that social anxiety and shy negative affect are correlated, and this is compatible with existing findings of negative expectancies and self-
blaming tendencies in individuals with high social anxiety (see Chanksy & Kendall, 1997; Trower, Sherling, Beech, Harrop, & Gilbert, 1998; Veljaca & Rapee, 1998). The data from the social-cognitive measures used here suggests that this combination may be a cause for concern. Specifically, as hypothesised, the observed pattern of correlations suggests that the children with both high social anxiety and high levels of shy negative affect tend to be the ones with the most severe underperformance in the understanding of self-presentational displays and faux pas situations.

The precise role of shy negative affect is not clear here, and the direction of causal effects in particular is ambiguous. Use of a larger sample size in future research would permit regression analysis to yield some indication of the likely contributors to variance in the social behaviour variables, but longitudinal research is necessary for gaining further insight into the causal directions of the relationships observed. One likely possibility is that high shy negative affect makes socially anxious children less attentive to interpersonal processes. Forgas, Bower, & Krantz (1984) found that participants with an induced unpleasant mood were particularly harsh in judging their own behaviour in social interactions, suggesting high levels of negative self-focus. Coupled with the self-focus that is typical of socially anxious individuals (see Buss, 1980; Henderson, in press), shy negative affect could therefore heighten the anxious self-preoccupation and direct attention away from ongoing interpersonal processes. On the other hand, one might also speculate that shy negative affect could derive from a history of unsuccessful social interactions which in turn is due to a poorer insight into successful self-presentational strategies and other social-cognitive processes. Future research, with more precise measures of the variables concerned, must be directed towards better understanding this complex interplay between cognition and emotion in the developing child.

It is important to note that the findings of this study arose from a very heterogeneous sample, with children of different nationalities, ethnicities, and ages, from both mainstream and selected populations. Finding evidence for the hypothesised associations between social anxiety and specific social-cognitive characteristics in such a sample, even after controlling for the differences between the two subgroups contained within it, provides strength for the idea that those associations are not limited to a specific demographic category. Rather, it gives support to the argument that any formulation of social anxiety in children must include a consideration of social-cognitive issues.

Further research can build on the evidence reported above, and examine systematically the nature of social anxiety in different groups of children. Clearly, the two subgroups used in this preliminary investigation include children varying on multiple dimensions. However, future research must build on the data reported here by testing for associations between social anxiety and social cognition in larger and more narrowly specified groups (e.g., different age groups, children with vs. without particular social interaction problems). Although the present study was not designed to elucidate the origins of the differences observed between the two sample subgroups, it is interesting to note that the USA subgroup, which comprised children identified as having difficulties in social interaction, performed less well on social cognition tasks and had a tendency to score higher on social anxiety than the other subgroup. This is compatible with our basic premise that the social-cognitive profile of children will be highly relevant to social-behavioural characteristics (see Dodge, 1980; Dodge & Frame, 1982; Happe & Frith, 1996), and suggests that this link must be considered in any examination of social anxiety. Indeed, in our main analysis looking at the sample
as a whole, the pattern of correlations between the social cognition measures and the emotion measures is compatible with a model involving multidirectional links between social cognition, social anxiety, shy negative affect, and social behaviour. However, it remains for further research to clarify the exact nature, strength, and significance of these links.

In summary, the results from this study have shed some light on how socially anxious children think about the social world. Although the evidence for global cognitive characteristics (e.g., attribution biases, attentional biases etc.) is well-documented, there has been virtually no investigation of the link in childhood between social anxiety and performance on social-cognitive tests of mental-state understanding. This study presents a first glimpse of how social anxiety may be associated with specific patterns of performance on social cognition tasks in childhood. Although the statistical effects observed here were on the whole of moderate size, the existence of such effects is entirely compatible with what we might expect about social anxiety and provides encouragement for further research into the observed associations. We suggest that the links among social anxiety, social cognition, and social behaviour are of both theoretical and practical significance. It is our task now to elaborate further on the social-cognitive profile of socially anxious children, not just to develop our conceptualisations of social anxiety, but also to inform our intervention programmes for helping children with clinically-diagnosable conditions relating to social anxiety.

References


Robin Banerjee and Lynne Henderson


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Note

1. Only data from a social anxiety questionnaire and a shy negative effect questionnaire are reported here. Two (in the English subgroup) or three (in the USA subgroup) other questionnaires tapping aspects of personality and social relations were used to test hypotheses regarding separate issues not addressed in the present report.

Appendix: Shyness Negative Affect Scale (Henderson, Banerjee, & Smith, 1999)

*Listed below are some feelings that boys and girls have when they are around other people. Sometimes they have them when they are at school or with their families, and sometimes they have them when they are alone and just thinking about other boys and girls.*

Think about yourself and for each item put a tick in one of the columns to show how often you have the feeling.

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Never or hardly ever</th>
<th>Sometimes</th>
<th>Most of the time or always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you feel embarrassed?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>2. How often do you blush (get a hot and red face)?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>3. How often do you feel sad?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>4. How often do you feel stupid?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>*5. How often do you feel happy?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>6. How often do you feel like people are laughing at you?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>7. How often do you feel worried about hurting someone’s feelings?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>8. How often do you get your feelings hurt?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>*9. How often do you feel excited?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>10. How often do you feel angry?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>11. How often do you feel like a baby?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>12. How often do you feel badly about something you did?</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

*Filler positive items