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Learning History in Social Phobia

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Abstract. Previous research has associated the development of social phobia with parental rearing practices, learning influences such as conditioning, vicarious transmission and verbal acquisition, and the individual's own response to social situations. The present study aimed to further investigate these possible antecedents of social phobia. A Learning History Questionnaire (LHQ) was completed by patients with social phobia ($n = 55$), patients with posttraumatic stress disorder (PTSD; $n = 30$), and non-patient controls ($n = 30$). The LHQ focused on events that occurred before the age of 14 (the median age of onset for social phobia). The results indicated the importance of parental rearing practices such as not actively encouraging participation in social situations and emotional coldness. Difficulties with peer group were highlighted as important contributors to conditioning experiences. Individual response factors, especially post-event rumination, are potentially associated with the development of social phobia. Four of the 12 significant variables were unique to the social phobia group when the results from the PTSD group were taken into account. Further research is required to clarify the extent to which the environmental factors assessed in this study specifically contribute to the development of social phobia or to the development of anxiety more generally.

Keywords: Social phobia, learning, parenting, acquisition, cognitive processes.

Introduction

Social phobia is a common disorder with a lifetime prevalence, in Western countries, of between 7% and 13% (Furmark, 2002). It is a disabling condition that is associated with lower employment rates, lower socioeconomic status and higher rates of alcohol and substance abuse, relative to people without psychiatric morbidity (Patel, Knapp, Henderson and Baldwin, 2002). Social phobia often starts in late childhood or adolescence and typically follows a constant and chronic course (Rapee, 1995). In view of the early age of onset, a number of theoretical accounts (Buss, 1980) and empirical studies have focused on parental rearing practices.

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Parental rearing practices

A range of parental behaviour has been implicated in the aetiology of social phobia. Specifically, people with social phobia, compared to people without social phobia, retrospectively recall their parents as: more emotionally cold (e.g. Arrindell, Emmelkamp, Brilman and Monsma, 1983), more controlling or overintrusive (Arrindell et al., 1983; Rapee and Melville, 1997), providing less encouragement to engage in exposure (e.g. Arrindell et al., 1983; Bruch, Heimberg, Berger and Collins, 1989; Leung, Heimberg, Holt and Bruch, 1994), more likely to avoid social situations (Bruch et al., 1989), as emphasizing the opinions of others (e.g. Bruch et al., 1989; Leung et al., 1994), and as using criticism and shame when disciplining (Leung et al., 1994). Two of these studies indicated the relative specificity of the parental rearing style to social phobia versus panic disorder (Bruch et al., 1989; Rapee and Melville, 1997). More recently, Bögels, van Oosten, Muris and Smulders (2001) found that low family sociability and perceived overprotectiveness were associated with social anxiety in 8 to 18-year-olds. Finally, in a direct observation study, Hudson and Rapee (2001) reported that mothers of children diagnosed with one of four anxiety disorders, including social phobia (21%), were more over-involved when helping their child to complete cognitive tasks, relative to mothers of control children.

Broad learning influences

Preliminary evidence from retrospective studies has highlighted the likely importance of each of three pathways of fear acquisition (Rachman, 1991) in the development of social phobia; namely, conditioning, vicarious transmission and verbal acquisition (e.g. Mulkens and Bögels, 1999; Öst and Hugdahl, 1981; Stemberger, Turner, Beidel and Calhoun, 1995). Öst and Hugdahl's (1981) study reported that 58% of individuals with social phobia attributed their phobia to a direct conditioning experience, 13% to a vicarious experience, and 3% to information from others. Stemberger et al. (1995) reported lower rates of direct conditioning: 44% among individuals with social phobia relative to 20% of a normal control group. Among individuals with fear of blushing, Mulkens and Bögels (1999) found more conditioning experiences (97%) and vicarious learning (71%) experiences compared to non-fearful controls (conditioning 66%, vicarious 42%). These studies have raised several methodological issues. First, in general the studies have not ensured that the learning experiences reported by participants occurred prior to or at the time of phobia onset. Hofmann, Ehlers and Roth (1995) found that while participants with speech phobia reported more traumatic public speaking experiences (89%) relative to controls (50%), none of the participants reported a conditioning event before their phobia started and only 15% reported this exposure to have occurred at the same time their phobia started. It should be noted that Hofmann et al. (1995) administered the Speech Phobia Assessment Structured Interview, which entails a face-to-face format. This raises a second methodological issue; in each of the studies involving a face-to-face interview (Hofmann et al., 1995; Mulkens and Bögels, 1999; Stemberger et al., 1995) the interviewer was not blind to diagnostic status. Also, Mulken and Bögels (1999) raise the concern that participants may avoid reporting humiliating and embarrassing conditioning experiences to an interviewer but be more willing to volunteer these experiences in an anonymous questionnaire. This suggests that there may be an advantage associated with questionnaire-based studies. Finally, to the best of our knowledge no study exploring learning factors has included an anxious patient control group. This leaves open the possibility that the results may be associated with anxiety in general, not to social phobia in particular.

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Although several studies have noted an association between "high social anxiety" and low peer acceptance (e.g. La Greca and Lopaz, 1998), shyness and negative peer relations (Olweus, 1993; Rubin, LeMare and Lollis, 1990) and less intimacy and companionship (Vernberg, Abwender, Ewell and Beery, 1992), the role that other people who participate in a social situation (e.g. parents, peers) contribute to learning has been received less attention in social phobia (for review see Neal and Edelmann, 2003). Theoretically, other people in a social situation might contribute either by being an aversive conditioning stimulus, as in the case of bullying, or by providing vicarious experiences, by looking acutely embarrassed.

Individual's own response

Cognitive models partially account for social phobia by proposing that when in a social situation, individuals with social phobia pay relatively little attention to what is happening in the situation. Instead, they shift their attention internally to detailed self-observation and monitoring (Clark and Wells, 1995; Rapee and Heimberg, 1997). As such, people with social phobia are acutely aware of feeling anxious. This information is then used to infer how they appear to others and what others think of them (Mansell and Clark, 1999). Clark and Wells (1995) suggest that another source of information about the impression made on others is distorted, negative images of oneself from the observer perspective (outside the situation looking on oneself) as opposed to the field perspective (looking out through their own eyes) (Hackmann, Surawy and Clark, 1998). Accordingly, the learning history of individuals with social phobia may well be characterized by particularly detailed, negative, observer perspective self-impressions. In addition, the importance of post-event processing and avoidance in maintaining social concerns has been emphasized (Clark and Wells, 1995; Mowrer, 1960).

The aim of the present study was to further investigate the learning history of social phobia. Patients seeking treatment for social phobia completed a learning history questionnaire (LHQ). An anxious control group, comprised of patients seeking treatment for posttraumatic stress disorder (PTSD), was also tested to index the extent to which responses are specific to social phobia. PTSD was deemed to be a particularly appropriate control group because people with PTSD, like people with social phobia, are particularly disabled by their condition and have high levels of anxiety and depression. In addition, a non-patient control group was tested as an index of baseline responding. The inclusion of the PTSD and non-patient control groups mean that it was not possible to target situations just prior to the onset of the disorder. Accordingly, as the median onset age for social phobia is early adolescence (Rapee, 1995), the participants were asked to recall specific learning episodes prior to the age of 14 to ensure that the experiences recalled were from the period prior to or around the time of phobia onset. The LHQ was designed to index the role of parental rearing factors, the response of other people, the three modes of fear acquisition, and cognitive processes in the acquisition of social phobia.

Method

Participants

Fifty-five individuals who met DSM-IV criteria for social phobia, as assessed by the Anxiety Disorders Interview Schedule IV (ADIS-IV; Barlow and DiNardo, 1994), and 30 individuals who met DSM-IV criteria for PTSD, as assessed by the Structured Clinical Interview for the DSM-IV (SCID; Spitzer, Williams, Gibbon and First, 1996), were recruited from patients assessed for possible inclusion in treatment trials. For the social phobia group, 41 completed

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the questionnaire prior to treatment and 14 completed the questionnaire after treatment. The responses of these two groups were compared on all dependent variables (using independent sample *t*-tests). As there were no significant differences, the results will be reported for the social phobia group as a whole. Note that the treatment administered, cognitive therapy, was present focused and did not address early experiences (Clark et al., 2003; Ehlers et al., 2003). Thirty non-patient controls were recruited from the subject pool in the Department of Experimental Psychology, University of Oxford.

The three groups did not differ on age [social phobia $M = 36.9$, $SD = 8.3$; PTSD $M = 42.0$, $SD = 9.0$; control $M = 40.2$, $SD = 14.0$; $F\,(2, 112) = 2.63$, ns], sex [social phobia – male = 28, female = 27; PTSD – male = 11, female = 19; control – male = 14, female = 16; $\chi^2\,(1, N = 115) = 1.59$, ns], or level of education [see below under the heading Demographics for description of coding scheme; social phobia $M = 2.3$, $SD = 0.9$; PTSD $M = 2.0$, $SD = 0.9$; control $M = 2.1$, $SD = 0.8$; $F\,(2, 112) = 1.29$, ns]. The proportion of participants who lived with both parents prior to the age of 14 did not differ across the groups (social phobia 87%, PTSD 100%, control 90%; $\chi^2\,(1, N = 115) = 4.05$, ns).

All participants completed standard measures of social anxiety. The Fear of Negative Evaluation Scale (FNE; Watson and Friend, 1969) was higher for the social phobia group relative to both the PTSD and control groups [social phobia $M = 25.0$, $SD = 6.9$; PTSD $M = 15.4$, $SD = 9.9$; control $M = 14.5$, $SD = 7.7$; $F\,(2, 112) = 22.55$, $p < .001$] as were the Social Interaction Anxiety Scale (SIAS; Mattick and Clarke, 1998) [social phobia $M = 46.5$, $SD = 16.4$; PTSD $M = 24.1$, $SD = 19.1$; control $M = 17.3$, $SD = 12.7$; $F\,(2, 112) = 35.79$, $p < .001$], and the Social Phobia Scale (SPS; Mattick and Clarke, 1998) [social phobia $M = 31.0$, $SD = 14.4$; PTSD $M = 17.3$, $SD = 16.3$; control $M = 10.5$, $SD = 9.9$; $F\,(2, 112) = 27.98$, $p < .001$]. For participants who completed the LHQ after cognitive therapy, the pre-treatment scores are reported.

Procedure

Participants completed the Learning History Questionnaire (LHQ)[1], which was designed specifically for use in this study. It was developed by adapting questions asked in previous research (Ehlers, 1993; Hackmann et al., 1998; Hofmann et al., 1995). This consisted of three sections for all participants (demographics, parenting rearing practices, recall of social situations) and then one section just for the social phobia group (onset of social phobia). Note that the details of each of the composite scales described below are presented in the appendix.

Demographics. Participants were asked their age, sex, who they lived with prior to 14 years of age, and their highest level of education achieved (coded as 1 = left school before 16 years of age, 2 = completed high school, 3 = qualification from college or university).

Parenting rearing practices. This section comprised the following scales "exposure", "emotional coldness", "overprotectiveness", "criticism" and "verbal transmission" of fears (see Appendix for scale details). Each participant was then asked to rate, for when they were 14 years old or younger, the extent to which they perceived that their mother and their father were socially anxious (0 "Not at all anxious in social situations" to 10 "Extremely anxious

[1] For a copy of the LHQ please contact the first author.

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in social situations"). Participants reported how the parent that influenced them most had responded in social situations, reflecting modelling of social anxiety and avoidance behaviour. This scale assessed the vicarious mode of acquiring social anxiety and will be referred to as the "vicarious learning by parent".

Recall of social situations. Participants were asked to recall and describe four social situations that occurred before the age of 14: Situation 1 was "when you felt you did something embarrassing", Situation 2 was "when you observed someone else doing something embarrassing", Situation 3 was "when you remember feeling very nervous", and Situation 4 was "when you observed someone else looking very nervous". For all situations, the participants were asked to describe the situation and record their age when the social situation occurred. For Situations 1 and 3 only, participants were asked the perspective of their image of the situation (-3 = "Entirely looking out through my eyes", $+3$ = "Entirely observing from an external point of view") and how embarrassed/nervous they *felt* (-5 = "felt not at all embarrassed", 5 = "felt extremely embarrassed"). For all situations, participants were asked how embarrassed/nervous they/the other person *looked* (-5 = "looked not at all embarrassed/nervous", 5 = "looked extremely embarrassed/nervous").

For all four situations, participants were then asked to indicate which of a list of signs of embarrassment/nervousness others would have seen. The number of "yes" responses constituted the "signs of anxiety score". Participants were also asked whether the situation affected their confidence, anxiety, or self-consciousness in future social situations. The total of these items constituted the "future impact score". Participants then rated the responses that others may have made after the social situation. This section comprised three subscales; "others positive response score", "others critical response score" and "others avoidance response score". For Situations 1 and 3 only, participants were asked to rate their own response. This section comprised three subscales; "postevent reappraisal score", "postevent rumination score" and the "postevent avoidance response score".

Onset of social phobia. This part of the LHQ was administered to the social phobia group only who were asked their age when they noticed being afraid of social situations and then to describe "in your own words what was happening in your life at the time the social fears began". Participants were then asked to indicate whether any of the circumstances listed in Table 2 happened around the time their social concerns began (response scale = "Yes" or "No"). Finally, the participants were asked to record which of a list of reasons/events was most important, second most important, and third most important in the development of their social phobia. Based on Hofmann et al. (1995) the reasons/events are listed in Table 3.

Statistical analysis. Except where otherwise specified, the data analysis was based on one-way analysis of variance with post hoc Tukey tests to explore significant effects. On the basis of concerns raised by Perneger (1998) we retained the $p < .05$ significance cut-off.

Results

Parenting rearing practices

The mean values for this section are presented in Table 1. The social phobia group had lower scores for "exposure" and "verbal transmission" relative to the control group indicating that

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Table 1. Mean values for the four social situations recalled and parental rearing style

Parenting rearing practices	Social phobia	PTSD	Control	F (2, 112)
Exposure	1.6 (0.9)[a]	1.9 (1.2)	2.3 (0.9)[b]	4.69*
Emotional coldness	2.0 (1.0)[a]	1.3 (0.8)[b]	1.4 (0.9)[b]	8.31***
Overprotectiveness	2.0 (0.9)	1.9 (0.9)	1.8 (1.0)	0.45
Criticism	1.9 (0.7)	1.6 (0.8)	1.5 (0.9)	2.61
Verbal transmission	0.9 (0.7)[a]	1.2 (0.9)	1.6 (1.0)[b]	5.64**
Mother's social anxiety	4.8 (3.3)	5.9 (2.6)	5.6 (3.0)	1.27
Father's social anxiety	3.9 (3.2)	3.8 (2.8)	3.3 (3.1)	0.30
Vicarious learning by parent	1.7 (1.0)	1.5 (0.9)	1.6 (0.8)	0.27
Self as embarrassed/nervous: Average of situations 1 and 3				$X^2(2)$
% able to recall an example	89	87	100	4.01
				F (2, 96)
Age	10.7 (2.1)	10.9 (2.2)	10.3 (2.2)	0.45
Perspective	0.1 (2.2)	−0.3 (1.9)	−0.2 (2.1)	0.40
Felt embarrassed/nervous	4.2 (1.2)	4.0 (1.0)	3.9 (1.0)	0.83
Looked embarrassed/nervous	3.4 (1.5)[a]	3.5 (1.1)[a]	2.3 (2.4)[b]	4.79**
Signs of anxiety score	9.9 (6.1)	9.1 (6.0)	9.0 (5.0)	0.32
Future impact score	0.4 (0.1)[a]	0.6 (0.1)[b]	0.5 (0.1)[b]	9.32***
Response of other people:				
Others positive response score	1.5 (0.5)[a]	2.3 (0.8)[b]	2.0 (0.7)[b]	15.58***
Others critical response score	1.8 (0.7)	1.6 (0.5)	1.5 (0.4)	2.78
Others avoidance response score	0.8 (0.1)	1.0 (0.2)	0.7 (0.1)	1.34
Individual's response to the situation:				
Postevent reappraisal score	1.3 (0.4)[a]	1.8 (0.6)[b]	1.9 (0.6)[b]	11.80***
Postevent rumination score	3.0 (0.9)[a]	2.6 (0.7)	2.3 (0.7)[b]	5.77**
Postevent avoidance response score	1.5 (0.8)	1.8 (1.0)	1.6 (0.7)	1.34
Observing another as embarrassed/nervous: Average of situations 2 and 4				$X^2(2)$
% able to recall an example	56[a]	73[a]	97[b]	15.49***
				F (2, 68)
Age	11.4 (1.9)	10.5 (1.8)	11.1 (2.0)	1.36
Looked embarrassed/nervous	2.2 (2.2)	2.5 (2.7)	2.5 (3.1)	0.10
Signs of anxiety score	7.2 (4.4)	9.6 (4.7)	9.2 (5.2)	0.13
Future impact score	−0.4 (0.4)[a]	−0.1 (0.5)	−0.1 (0.3)[b]	4.08*
Response of other people:				
Others positive response score	1.7 (0.7)	1.9 (0.8)	2.0 (0.9)	1.23
Others critical response score	1.9 (0.6)[a]	2.0 (0.5)[a]	1.6 (0.4)[b]	5.60**
Others avoidance response score	1.9 (0.7)[a]	2.1 (0.6)[a]	1.5 (0.5)[b]	6.62**

Note. Standard deviations appear in parentheses. Different superscripted letters indicate significant differences. * $p < .05$; ** $p < .01$; *** $p < .001$.

the parents of the social phobia group provided less encouragement to engage in exposure and were less likely to warn against social dangers. The social phobia group had higher scores on "emotional coldness" than both the PTSD and control groups. The groups did not differ for "overprotectiveness" or "criticism", the rating of their mother's social anxiety, their father's social anxiety, or on the "vicarious learning by parent" score.

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Recall of social situations: self as embarrassed/nervous

As the results for the recall of the two social situations involving the participant (Situations 1 and 3) were identical, the data were pooled. The mean values for this section are presented in Table 1. Chi-square analyses indicated that the three groups did not differ in the percentage of participants who recalled at least one example of a social situation in which the participant felt embarrassed/nervous. In addition, the three groups did not differ in their age when the situation occurred, the perspective of their image of the situation, the extent to which they felt embarrassed/nervous, or the "signs of anxiety score". The social phobia and PTSD groups rated the extent to which they looked embarrassed/nervous higher than the control group. For the "future impact score", the social phobia group scored lower than both the PTSD ($p < .01$) and control groups ($p < .01$). The lower scores on the "future impact score" in the social phobia group, compared to the PTSD and control groups, reflect a greater reported impact of these experiences on people with social phobia, as the lower anchor for this scale was "less confident/more anxious/more self-conscious".

For the response of other people section, the "others positive response score" was lower for the social phobia group than both the PTSD ($p < .001$) and control ($p < .01$) groups, indicating that other people responded less sympathetically. There was no difference between the groups for the "others critical response score" and "others avoidance score".

For the individual's response to the situation, the "postevent reappraisal score" was lower for the social phobia group compared to the PTSD ($p < .01$) and control groups ($p < .001$), indicating that the social phobia group were less able to put their negative emotional reaction behind them. Further, the "postevent rumination score" was higher for the social phobia group compared to the control group ($p < .01$). There was no difference between the groups for the degree to which the participant decided to avoid similar situations in the future ("postevent avoidance response score").

Recall of social situations: observing another as embarrassed/nervous

As the results for the recall of the two social situations involving the observation of another person (Situations 2 and 4) were identical, the data for these two situations were pooled. The mean values for this section are presented in Table 1. There was a significant group difference for the percentage of participants who recalled at least one example of a social situation in which the participant observed someone else feeling embarrassed/nervous. Post hoc chi-square analyses indicated that while the social phobia and PTSD groups did not differ from each other, $\chi^2\,(2) = 2.38$, $p = 0.094$, both the social phobia, $\chi^2\,(2) = 15.19$, $p < 0.001$, and PTSD, $\chi^2\,(2) = 6.41$, $p < 0.05$, groups recalled fewer social situations in which the participant observed someone else feeling embarrassed/nervous relative to the control group. The three groups did not differ on their age when the situation occurred, the extent to which the other person looked embarrassed/nervous, or the "signs of anxiety score". For the "future impact score", the social phobia group reported greater negative impact relative to the control group ($p < .05$) and also tended to score higher than the PTSD group ($p = .058$).

For the response of other people section, there was no significant difference for the "others positive response score". Both the "others critical response score" and "others avoidance response score" were higher for the social phobia ($p < .05$ for both) and PTSD ($p < .01$ for both) groups relative to the control group, indicating that when the participant observed

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someone else feeling embarrassed/nervous other people in that situation responded more critically toward the embarrassed/nervous person and recommended avoidance.

Onset of social phobia

All participants in the social phobia group were able to recall their age when the social phobia started ($M = 15.4$ years, $SD = 8.1$). Forty-six participants (84%) were able to describe what was happening at the time their social fears began. These descriptions were coded by two psychologists, who were blind to group status, as occurring: on starting a new school, university or job ($n = 18$; 39.1%), when interacting with a potential or actual date ($n = 6$; 13.0%), at the onset of puberty ($n = 4$; 8.6%), when studying for exams ($n = 2$; 4.3%), when being bullied or having problems with peer group ($n = 8$; 17.4%), as a result of problems or changes in the family ($n = 12$; 26.1%), and during a stressful period at work ($n = 3$; 6.5%). Note that several participants reported more than one of the categories in their description. Discrepancies were resolved by discussion with the first author. Inter-rater agreement was good (kappas. 71 − .85).

Table 2 presents the percentage of the social phobia group endorsing each of 14 situations that might have occurred around the time the social concerns began. The five most frequently reported were: 51% change of place of work or school, 51% had problems with their peer group at work/school, 49% were not fitting in with or were being ostracized by a peer group, 47% were having difficulty doing well at work or school, and 44% were being criticized by someone.

Finally, Table 3 presents the mean rank for attributions about the development of social phobia. The mean rank was calculated by recoding the variable so that the most important reason was coded as 1, the second most important reason was coded as 2, the third most important reason was coded as 3, and all other reasons were coded as 6. That is, lower mean rank scores indicate the more commonly endorsed reasons for the development of social phobia. The four most commonly made attributions were: not having enough training about

Table 2. Events around the time the social fears began

Event	%
Parents splitting up/getting divorced	9.1
Changing place of work/school	50.9
Difficulty in doing as well as you would have liked at work/school	47.3
Problems with peer group at work/school	50.9
Loss of close confidant	27.3
Change in your physical appearance (e.g. acne, reaching puberty)	21.8
New relationship with boyfriend/girlfriend	9.1
Splitting up with a boyfriend/girlfriend	5.5
Being bullied or teased by other children	36.4
Did something very embarrassing	12.7
Felt embarrassed by something someone else (e.g. your parents) did	14.5
Being criticized by someone	43.6
Not fitting in with or being ostracized by a peer group	49.1
Other psychological problems	12.7

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Table 3. Attributions about the development of social phobia: mean rank scores and percentage of participants reporting each attribution as the most important reason

Attributions for the development of social phobia:	Mean rank	Most important reason (%)
Not enough training about how social situations work and how you behave in them	4.9 (1.9)	27.3
Generally shy person	4.9 (1.8)	18.2
Panic attack (sudden rush of intense fear or feeling of impending doom for no apparent reason when in a social situation)	5.1 (1.8)	21.8
Traumatic experiences in social situations	5.3 (1.6)	12.7
Generally anxious person	5.3 (1.6)	9.1
The way you were born (your genes)	5.4 (1.4)	12.7
Concern about your physical appearance	5.5 (1.4)	5.5
Observing other people being afraid in social situations	5.7 (1.1)	3.6

Note. Lower mean rank scores were calculated by recoding the variable so that the most important reason was coded as 1, the second most important reason was coded as 2, the third most important reason was coded as 3, and all other reasons were coded as 6.

how social situations work, being a generally shy person, experiencing a panic attack, and traumatic experiences in social situations/the way you were born.

Discussion

The aim of this study was to investigate the role of three broad areas in the perceived learning history of social phobia. Prior to discussing our findings, we emphasize that they need to be interpreted within the confines of an important limitation. This study relied on retrospective recall. As recall may be affected by biased attentional processes and current symptoms, it is possible that both the social phobia and PTSD groups preferentially attended to and recalled adverse experiences.

Parental rearing practices

Consistent with previous research, three variables discriminated the social phobia group from the control group. The social phobia group rated their parents as less likely to encourage them to engage in social events (e.g. Arrindell et al., 1989; Bruch and Heimberg, 1994; Leung et al., 1994) and as more emotionally cold (e.g. Arrindell et al., 1983; Bögels et al., 2001). Further, the social phobia group rated their parents as *less* likely to warn about the dangers of social events. This result raises the possibility that the verbal transmission of social fears, via parents, is not an important mode of acquisition in social phobia. Note that three variables shown to be important in previous research, criticism, stressing the opinions of others (Leung et al., 1994) and overprotectiveness (Bögels et al. 2001), were not replicated. Methodological differences may account for these differences. For example, there are differences in the samples recruited (e.g. Bögels et al. recruited 8 – 18-year-olds with a heterogenous range of disorders, we recruited 22 – 62-year-olds with social phobia), the manner in which the data were collected

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(e.g. Bögels et al. indexed current practices as observed by the child, we indexed recall of parent practices), and target outcome variables (e.g. Bögels et al. targeted social anxiety, we targeted social phobia).

Broad learning influences

Moving on to the results pertaining to conditioning, the events recalled by the social phobia group were, in general, highly fear provoking but this was also true of both the PTSD and the non-patient control groups (see the mean values for "felt embarrassed/nervous" in Table 1). For the section of the questionnaire that enquired about the onset of the social phobia, conditioning events were cited as the fourth most important reason that led to the onset of the social phobia and only 13% of the sample reported conditioning as the most important reason. As this section of the LHQ specifically enquired about the onset of social phobia, equivalent information could not be obtained from the PTSD and control groups. This leaves open the possibility that a similar rate of conditioning events may have been experienced by the PTSD and control groups (Ehlers, Hofmann, Herda and Roth, 1994). However, the number of participants who said a conditioning event was the most important reason (13%) is markedly lower than the rates reported by other studies conducted in the context of social phobia. For example, Mulkens and Bögels (1999; Study 2) found that 74% of a sample of people seeking treatment for social phobia reported a conditioning event. One possible account of this inconsistency is that we asked for the *most* important reason. In contrast, previous studies have asked whether or not conditioning was present. The importance of this methodological difference is evident in results reported by Hofmann et al. (1995) who asked their participants with speech phobia "Have you experienced any speaking situations that were extremely unpleasant for you?" The majority (89%) of the speech phobia group reported such a situation. However, when these participants were asked which is the "most important reason for the phobia", only 17% endorsed "traumatic experiences". This rate of conditioning is comparable to the rate found in the present study (13%).

Two results suggest that other people can act as important conditioning stimuli. First, problems with peer group and not fitting in with peer group were among the three most common events to coincide with the development of the social phobia. These findings extend previous investigations indicating an inverse relationship between "social anxiety" and peer group relations (e.g. La Greca and Lopez, 1998; Neal and Edelmann, 2003) by suggesting that peers can be involved in the development of social phobia. Second, when recalling social situations in the participant recalled themselves as embarrassed/nervous, relative to the non-patient control group, the social phobia group rated that the response of other people following the situation was less positive.

The evidence was mixed for the importance of vicarious transmission. On the one hand there was no difference on the "vicarious learning by parent" score. Further, when asked to recall a social situation in which they observed someone else doing something embarrassing or looking nervous only half of the social phobia group remembered a relevant experience, which was fewer relative to the control group. Hence, for many individuals in the social phobia group vicarious transmission did not seem to be important. However, those individuals in the social phobia group who did remember observing a situation in which someone else was nervous/embarrassed reported that it affected future social situations more, relative to controls. Further, in these situations the social phobia group reported observing that other people were

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more critical and more likely to encourage avoidance of future social situations. Highlighting again the potential importance of peer group, when the brief descriptions of the observed situations were coded the majority of the situations involved a member of the participants peer group (61% compared to 16% involving a parent, 14% a sibling, 12% a teacher or vicar). Although vicarious learning from peers has not been investigated in panic disorder, there is evidence that learning from parents is very important (Ehlers, 1993). Having said that, vicarious transmission was cited least often as the most important reason for the onset of social phobia (3.6%; $n = 2$). It is possible that vicarious transmission is only relevant to a subgroup of patients with social phobia (recall that only 56% reported recalling a situation in which they observed someone else looking nervous/embarrassed). Alternatively, as for conditioning, it may be that people with social phobia have vicarious conditioning experiences but that these are not the most important reasons for the development of social phobia.

In this study, verbal transmission did not emerge as an important learning variable. In fact, as already highlighted, the social phobia group reported that their parents were less likely to warn against social dangers. Further, the "others avoidance response score" was not different between the groups for when the participant recalled a situation in which they felt embarrassed/nervous.

Individual response factors

Relative to both the PTSD and the non-patient control groups, the social phobia group indicated that their own response involved being less able to put their negative emotional reaction behind them. Further, relative to the non-patient control group, the social phobia group indicated that they ruminated about their poor performance after the event. The latter finding provides evidence for the observation that individuals diagnosed with social phobia engage in post-event processing of a social event and that this is "dominated by . . . negative self-perception" and potentially serves to strengthen the belief that he/she is socially inept (Clark and Wells, 1995). Further, the finding raises the possibility that a tendency toward ruminative post-event processing may be important in the development of social phobia.

While all three groups recalled social situations in which they felt embarrassed/nervous at a similar rate, the social phobia and PTSD groups recalled fewer social situations in which someone else was embarrassed/nervous. This finding is consistent with the proposal that during a social interaction, people with social phobia become self-focused and their attention shifts from observing others to detailed monitoring and observation of themselves in order to ascertain how they are appearing to others (Clark and Wells, 1995). It is also possible that patients with PTSD are more self-focused.

Given that several previous studies have supported the prediction that individuals with social phobia recall observer perspective self-impressions (e.g. Hackmann, Clark and McManus, 2000) and that the spontaneously occurring imagery is typically linked to memories of an adverse social event occurring around the onset of the social phobia (Hackmann et al., 2000), it was surprising that the current study did not find more observer perspective self-impressions for the social phobia group. There are two possible explanations for this finding. First, the events recalled were prior to the onset of social phobia. The observer perspective may develop after onset. Second, although the method used in previous studies was adopted (i.e. asking the person to "try and visualize the situation" and then "thinking about the image you have just formed, please rate on the scale below your predominant impression") all previous studies

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involved a face-to-face interview. It is possible that the task of fully visualizing the situation and then holding it in mind was too demanding within a questionnaire format and without the guidance of an experimenter.

Several other noteworthy findings emerged. First, as noted in the introduction, there is a problem with simply comparing the social phobia group with a non-patient control group as the differences noted may also be true of anxious people in general. To examine this issue we included a group meeting diagnostic criteria for PTSD. Which variables remained unique to social phobia when the responses of the PTSD group were taken into account? Of the 12 significant results, four were unique to social phobia (i.e., uniqueness is defined here as the social phobia group being significantly lower or higher than the PTSD group). There are three possible explanations for this pattern of findings. First, Kendler, Karkowski and Prescott (1999) estimate the genetic component for the social phobia group to be approximately 50%. In other words, there is a very substantial environmental contribution to the development of social phobia. Thus, it is possible that environment factors, such as those investigated in this study, are elevated in any severe anxiety condition and that the specificity in the development of social phobia is accounted for at the gene level. To test this explanation, further research is required to clarify the extent to which genes and the environment specifically contribute to the development of social phobia or contribute to anxiety more generally. A second possibility is that the similarities to emerge between the social phobia and PTSD groups reflect that social relationships may be affected in both. Indeed, there is evidence that patients with PTSD have poor social support (Emily, Best, Lipsey and Weiss, 2003) and experience social alienation (Ehlers, Mayou and Bryant, 2003). A third possibility is that a vulnerability to anxiety exists and the specific anxiety that develops depends on the phase of development at which the disorder is triggered, with younger children developing separation anxiety and older children developing social phobia.

The most common attribution for why the social phobia group developed the phobia was not having enough training about how social situations work and how to behave in them. Social skills training has been found to be helpful in the treatment of social phobia (e.g. van Dam Baggen and Kraaimaat, 2000). It is possible that social skills training may be a helpful preventative strategy. Alternatively, on the basis of the finding that people with social phobia overestimate how negatively other people evaluate their performance (Rapee and Lim, 1992; Stopa and Clark, 1993), this result may be accounted for by a perceptual bias. It is also interesting to note that panic attacks were commonly cited as a reason for why the social phobia developed (reported by 21.8% of the social phobia group) is consistent with Hofmann et al.'s (1995) report that fear of panic attacks was the most common attribution for the development of speech phobia (reported by 33% of the sample).

In conclusion, this study has highlighted the potential importance of parental rearing practices such as not actively encouraging participation in social situations and emotional coldness, learning experiences such as difficulties with a peer group and vicarious transmission, and individual response factors such as post-event rumination. Four of the 12 variables were unique to the social phobia group when the results from the PTSD group were taken into account. We have already highlighted that this study is limited by its reliance on retrospective recall. Future research is required to test the replicability of these findings using a prospective design or, at the very least, include checks on the accuracy of recall, perhaps by asking siblings to complete a similar questionnaire. A novel aspect of this study was that possible individual's own response factors, such as observer perspective images and post-event rumination, were

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evaluated. A broader range of cognitive processes implicated in recent models of social phobia (Clark and Wells, 1995; Rapee and Heimberg, 1997) should be the subject of future research.

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Appendix. LHQ scales: Number of items and Cronbach's alpha for Situations 1 and 3 (1 & 3) and Situations 2 and 4 (2 & 4)

Name of scale	No. of items	Cronbach's alpha	Example
Parenting rearing practices[1]			
Exposure	2	.73	Did your parents encourage you to go to social events
Emotional coldness	3	.85	Were your parents warm and friendly to you (reverse scored)
Overprotectiveness	3	.85	Did your parents try to control everything you did
Criticism	4	.75	Did your parents criticize you in front of other people
Verbal transmission	3	.75	Before a social situation did your parents give you detailed instructions on how to present well
Vicarious learning by parent	11	.92	Made excuses and left early
Situations 1, 2, 3 and 4			
Signs of anxiety score[2]	13	0.80 (self) 0.72 (other)	Stuttering
Future impact score[3]	3	0.84 (self) 0.77 (other)	In future social situations did this situation make you. . . . .
Response of other people[4]			
Others positive response score	2	0.73 (self) 0.71 (other)	Sympathize with you
Others critical response score	5	0.83 (self) 0.77 (other)	Tease you
Others avoidance response score	1	n/a	Tell you to avoid similar situations in future
Individual's response to the situation[4]			
Postevent reappraisal score	3	0.73 (self)	Forget about it
Postevent rumination score	4	0.72 (self)	Worry about the impression you made
Postevent avoidance response score	1	n /a	Decide how to avoid similar situations in the future

[1] Response scale: 0 = "never", 1 = "rarely", 2 = "sometimes", 3 = "often", or 4 = "always"; [2] Response scale: Yes or No; [3] Response scale: −1 = "Less confident/More anxious/More self-conscious", 0 = "Made no difference"; +1 "More confident/Less anxious/Less self-conscious"; [4] Response scale: 1 = "Not at all", 2 = "Somewhat", 3 = "Moderately", 4 = "Very much".

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