This is the author version of an article published as:


**Access to the published version:** [http://dx.doi.org/10.1016/j.brat.2007.03.014](http://dx.doi.org/10.1016/j.brat.2007.03.014)

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Abstract

The aim of the present study was to examine the effect of attentional focus on social anxiety in a group of high and low blushing-anxious subjects. One hundred and fourteen psychology undergraduate students were screened using the Fear of Blushing sub-scale of the Blushing Questionnaire (Bögels & Reith, 1999). Those with the most extreme scores in the top and bottom 20% of the distribution were selected to form a high ($n = 22$) and a low ($n = 22$) blushing-anxious group. Subjects were randomly allocated to either a self-focused attention (SFA) condition or a task-focused attention (TFA) condition. They were asked to engage in a 5 minute conversation with the first author, and were instructed to either self-focus (SFA condition) or task focus (TFA condition). Levels of social anxiety and self-awareness were measured using visual analogue scales. Results suggest that there was a significant condition by group interaction, with high blushing individuals showing considerably higher levels of social anxiety in the SFA condition compared to the TFA condition while low blushing individuals showed no significant difference across the two conditions.
The Effect of Attentional Focus on Social Anxiety

Three major theories of self-awareness (Buss, 1980; Carver & Scheier, 1982; Duval & Wicklund, 1972) assume that individuals direct attention in two different ways: i) externally, toward people, events in the world or the task at hand, or ii) internally, toward aspects of the self such as one’s appearance, thoughts, feelings or behaviour, producing a state of self-focused attention. Recent cognitive models of social anxiety have suggested that increased self-focused attention is related to social anxiety. For example, both Clark and Wells (1995) and Rapee and Heimberg (1997) proposed that an increase in self-focused attention plays a role in the maintenance of social anxiety. According to Rapee and Heimberg (1997) people with social phobia tend to have a more negative mental representation of their external appearance. Increasing self-focused attention will enhance awareness to this negative mental representation, thus producing anxiety. Another theory proposed that because people with social phobia are excessively self-aware, they do not process positive social feedback. As a result they rely on their own negative evaluations to assess their social performance (Clark and Wells, 1995). Based on these theoretical models, there should be an interaction between negative evaluation or negative mental representation and self-focus in producing social anxiety.

These theories should be especially true for those with blushing fears since increased physiological arousal enhances people’s self-awareness (Fenigstein & Carver, 1978) and in turn self-focused attention increases awareness of physiological reactions (Scheier, Carver, & Matthews, 1983). Because blushing is a visible symptom associated with social anxiety, the perception of this symptom is also likely to impact on the individual’s mental representation of how he or she appears to the audience (Rapee &
Heimberg, 1997). So when those who are blushing-anxious start to blush, they will develop a negative mental representation of themselves, at the same time self-focused attention is enhanced, causing them to feel socially anxious. Given the above, it is expected that self-focused attention will be more likely to induce anxiety among high blushing-anxious individuals as compared to their low blushing-anxious counterparts.

Despite the theoretical models discussed above, research to date on the effect of self-focused attention on social anxiety has provided mixed results. While some studies have suggested that increasing self-focused attention will lead to social anxiety (e.g. Bögels & Lamers, 2002; Woody, 1996; Woody & Rodriguez, 2000), other studies have failed to show any anxiety-provoking effects of self-focus. For example, a study by Bögels, Rijsemus, and De Jong (2002) investigated the effect of experimentally heightened self-awareness on fear, blushing, cognitions, and social skills. No evidence was found to support the prediction that self-awareness increased fear, blushing, physiological arousal, or negative thinking or decreased task performance. However, in this study, the researchers used mirrors to induce self-awareness. In the context of a social task, the presence of a mirror provided participants with objective information about their appearance which may subsequently lead to correction of over- or underprediction of symptoms. Therefore, the corrective feedback that the mirror provided may have counteracted the debilitating effects of self-focused attention (Bögels & Mansell, 2004).

By far the majority of research has shown a main effect of self-focused attention but has failed to show evidence of an interaction, that is, self-focus appears to increase anxiety, both for socially anxious participants and controls (e.g., Bögels & Lamers, 2002;
Woody & Rodriguez, 2000). For example, Bögels and Lamers (2002) investigated the effect of attentional focus on social anxiety using samples of socially anxious, blushing-anxious and socially phobic participants. Participants read 10 stories describing social events in which the main character was the centre of attention, and were then asked to imagine themselves as the main character. Attentional focus of the participant was manipulated (self-focused versus task-focused), along with the type of feedback from audience (positive, neutral, negative). It was found that social anxiety was mediated by the focus of attention: participants from all three samples reported higher levels of social anxiety when made self-focused than when task-focused. Similarly, Woody and Rodriguez (2000) also showed self-focus intensified social anxiety and impaired social performance in people with social phobia and normal controls. However, a limitation to both studies is that they are limited in their ecological validity. While Bögels and Lamers (2002) used a set of hypothetical scripts, Woody and Rodriguez’s study involved participants giving a speech in front of an audience, both situations may differ from day-to-day social interactions. Therefore, the effect of attentional focus on social anxiety in everyday social situations requires further research.

Also, most studies examining the effect of attentional focus on social anxiety have not included a manipulation of task-focused attention. Theoretical models of social anxiety predict that increasing task focus will reduce anxiety (Rapee & Heimberg, 1997). In line with this, some research has indicated that task-focused attention improves task performance. For example, Brockner and Hulton (1978) compared the performance of high and low self-esteem subjects on a concept formation task. Participants were placed under one of three conditions: 1) the audience condition, 2) control condition, and 3)
task-focused condition. In the audience condition, participants sat in front of a one-way mirror and were informed that they were being observed by several people. In the task-focused condition, the participants were told that the task can be somewhat tricky, so they should focus their undivided attention on the task. In the control condition, no additional instructions were given. The authors found that low self-esteem participants performed worse than their high self-esteem counterparts in the audience condition, no differently in the control, and better than high self-esteem individuals during the task-focused condition. In addition, Bögels, Mulken, and De Jong (1997) presented two case studies showing that teaching patients with erytrophobia to redirect their attention to the task strongly decreased blushing propensity, fear of blushing, avoidance behaviour, and negative beliefs about the consequences of blushing. With this initial evidence supporting the potentially beneficial effects of task-focused attention, it is therefore important that when examining the effect of attentional focus on social anxiety that a manipulation of task-focused attention is also included.

The present study was designed to investigate the effects of attentional focus on social anxiety among a group of high and low blushing-anxious individuals. Specifically, the current study included a self-focusing condition (SFA) as well as a task-focusing condition (TFA). Given the possibility that using mirrors to induce self-awareness could lead to corrective feedback, we decided to manipulate attentional focus by giving participants instructions to self-focus or task-focus. Finally, because the present study aimed to investigate the effect of attentional focus on social anxiety under real social situations, we devised a social task (conversation) that was relatively more reflective of everyday social interactions.
We hypothesised that there would be a significant condition by group interaction, whereby high bushing anxious individuals would be considerably more socially anxious compared to low blushing-anxious individuals in the SFA condition, and the two groups would show less of a difference in the TFA condition.

Method

Participants

One hundred and fourteen psychology undergraduate students completed the Fear of Blushing sub-scale of the Blushing Questionnaire (Bögels & Reith, 1999). Based on a power analysis, a sample size of 40 subjects were sufficient for the present study. So students with the most extreme scores in the top and bottom twenty percent of the distribution were selected to participate in the study in exchange for course credit. The top twenty percent (cut-off score = 46.2) was classified as high blushing-anxious and the bottom twenty percent (cut-off score = 5) was classified as low blushing-anxious. The high blushing-anxious group consisted of 3 males and 19 females, with a mean age of 22.32 (SD 5.87). The low blushing-anxious group consisted of 10 males and 12 females, with a mean age of 21.82 (SD 5.61). Half the participants from each group were randomly allocated to a self-focused attention condition (SFA) and half to a task-focused attention condition (TFA). In the SFA condition, there were 7 males and 15 females, with a mean age of 21.18 (SD 4.94). In the TFA condition there were 6 males and 16 females with a mean age of 22.95 (SD 6.32).

Measures

Measures of state social anxiety. The present study adapted Bögels and Lamers’s
(2002) Visual Analogue Scales (VASs) to measure participants’ level of social anxiety and self-awareness during the conversation. Participants were measured on eight emotions (anger, pride, fear, sadness, embarrassment, guilt, happiness and shame) and one physiological reaction (blushing). The scales ranged from 0 ‘not at all’ to 100 ‘extremely’. Only the items related to social anxiety, fear, embarrassment, and shame, were used in the final analyses. Participants also rated their self-image and image that others might have of them during the conversation. The scales ranged from 0 (very positive) to 100 (very negative).

To check whether the attentional focus manipulation was successful, participants were asked to rate how self-aware they were during the conversation, and to what extent they saw themselves through the eyes of the other. The scales ranged from 0 (not at all) to 100 (extremely).

Social interaction anxiety. The SIAS, developed by Mattick and Clarke (1998), was used to assess social interaction anxiety. It contains 20 items rated on a five-point Likert scale, ranging from 0 to 4, with 0 being not at all and 4 being extremely. For each item participants were asked to “indicate the degree to which you feel the statement is characteristic or true of you”.

The internal consistency of the SIAS is high, with Cronbach’s $\alpha$ ranging from 0.88 – 0.93 (Mattick & Clarke, 1998). It has excellent test-retest reliability at 4 week intervals ($r = 0.92$, $n = 36$) and 12 week intervals ($r = 0.92$, $n = 9$). The SIAS also been shown to have good discriminant validity (Brown et al., 1997; Mattick & Clarke, 1998; Peters, 2000).
Blushing anxiety. The Fear of Blushing subscale of the Blushing Questionnaire, developed by Bögels & Reith (1999) was used to select high and low blushing-anxious individuals. It consists of 5 VASs, ranging from 0 (not at all) to 100 (very much). For each item participants were asked to “indicate what best applies to you”. The internal consistency of this subscale is high (Cronbach’s α=0.95). Also, the subscale correlates with the Dutch Blushing Propensity Scale (Dutch BPS; Bögels, Alberts, & de Jong, 1996) (r = 0.56). The Fear of Blushing subscale also has good discriminant validity (Bögels & Reith, 1999).

Procedure

Upon arrival, participants were told that the study involved the relationship between social behaviour and emotions. They read an information sheet and signed a consent form. After participants provided consent, they were asked to complete the SIAS. Participants were required to engage in a 5-minute conversation with the first author, who was unaware of the blushing-anxiety status of the participants. This was achieved by giving participants an ID number, such that participants’ anxiety status could not be inferred from their IDs. Participants were free to discuss any topic except for the experiment.

Participants were randomly allocated to either the SFA condition or the TFA condition. In the SFA condition, participants were given the following instructions to self-focus during the conversation:

After the 5-minute conversation, you will need to fill out a questionnaire concerning certain aspects of yourself during those 5 minutes. During the
conversation please focus your attention inwards by concentrating on your breathing, heart-rate, your voice, or any signs of blushing, etc.

In the TFA condition, subjects were given the following instructions to focus their attention onto a task during the conversation:

After the 5-minute conversation, you will be asked to recall some of the things that I’ve said during those 5 minutes, so please try to pay close attention to that I say. The questions will not be tricky so you’ll have no trouble answering them as long as you focus your attention on my words.

The first author responded to participants in a friendly but neutral manner. If a silence of more than 3 seconds occurred, she cued the participant by asking a short question such as “are you a full-time student?” After the 5-minute conversation, participants were asked to fill out a series of VASs assessing their emotional, cognitive, and physiological responses to the social task.

Results

Preliminary Analyses

Participant characteristics. Group descriptive statistics are reported in Table 1. A chi-squared analysis was carried out to see whether the proportion of males to females differed significantly between the two groups. Results showed that the high and low blushing-anxious group differed significantly by gender, $\chi^2(1, N = 44) = 5.35, p < .05$, with the low blushing-anxious group having a higher proportion of males than the high blushing-anxious group. Two 2 (group) x 2 (condition) ANOVAs were also carried out to assess whether the high and low blushing groups in the SFA and TFA conditions differed by age and SIAS scores. Results showed that for age, there was no main effect for group,
F(1, 40) = .09, p = .77, no main effect for condition, F(1, 40) = 1.07, p = .31, and the interaction effect was also not significant, F(1, 40) = 1.67, p = .20. For SIAS scores, there was a significant condition by group interaction F(1, 40) = 7.73, p < .05.

Insert Table 1

Data reduction. To facilitate data reduction, Pearson’s correlations were conducted to determine whether some variables were suitable for combining. The correlation matrix is presented in Table 2.

Insert Table 2

Based on the correlational patterns of the variables, it was decided that variables would be combined as done by Bögels and Lamers (2002). ‘Fear’ and ‘embarrassment’ (r = .961 p < .001) were combined to form a single variable, as were ‘self image’ and ‘image that others might have of me’ (r = .827, p < .001). To reduce the number of dependent variables, the mean of ratings on fear/embarrassment, blushing, shame, and self-image/image that others might have of me were taken to create a composite variable called ‘social anxiety’. This composite variable represents the cognitive, emotional, and physiological aspects of social anxiety (Bögels & Lamers, 2002). The manipulation check variables ‘self-awareness’ and ‘to what extent did you see yourself through the eyes of the others’ were moderately correlated (r = .783, p < .001), but were combined because they both measured the same underlying construct - self-awareness (Bögels & Lamers, 2002).
A principal axis factor analysis was also performed to further ensure that the variables were correctly combined. There was only one eigenvalue greater than one (4.62) suggesting a single factor that explained 73% of the total variance. All variables loaded on this factor providing further justification for combining the six variables into a composite.

**Manipulation check.** A two-way ANOVA was carried out on the combined variable ‘self-awareness’ to determine whether the attentional focus manipulation had been successful. A significant difference between conditions in ratings of self-awareness was found, $F(1, 40) = 15.67, p < .001$. Thus participants rated themselves to be more self-aware in the SFA condition than in the TFA condition. That is, the SFA condition ($M = 61.32$) resulted in higher self-focus than the TFA condition ($M = 42.66$). However, significant differences were also found between groups, $F(1, 40) = 20.93, p < .001$. So irrespective of condition, high blushing-anxious individuals ($M = 62.77$) were more self-aware than low blushing-anxious individuals ($M = 41.20$). The Condition by Group interaction was not significant, $F(1, 40) = 0.01, p < .93$.

**Main Analysis**

A 2 x 2 ANCOVA was carried out to test the hypothesis that there would be a significant condition by group interaction, with high blushing-anxious individuals showing considerably higher levels of social anxiety compared to low blushing-anxious individuals in the SFA condition, but showing less of a difference in the TFA condition. Since the high and low blushing-anxious groups differed significantly by gender, gender was entered as a covariate. The analysis showed that controlling for gender, the group by
condition interaction was significant, $F(1, 39) = 10.49, p < .01$, and a medium effect size for this interaction was found, $\eta^2 = .06$ (see Figure 1).

The nature of the interaction effect is conveyed in Figure 1. It shows that high blushing-anxious individuals displayed a significantly higher level of social anxiety in the SFA condition than in the TFA condition whereas low blushing-anxious individuals showed no significant difference in social anxiety levels between the two conditions.

**Discussion**

The aim of the present study was to examine the causal role of attentional focus on social anxiety during social interactions. It was predicted that there would be a significant interaction between condition and group, whereby high blushing-anxious individuals would show a greater difference in social anxiety levels between the two conditions than the low blushing-anxious individuals. Results provided support for the current hypothesis, showing that high blushing-anxious individuals were considerably more socially anxious compared to low blushing-anxious individuals in the SFA condition, and the two groups showed less of a difference in the TFA condition. So the current study demonstrated that the negative effects of self-focused attention and the positive effects of task-focused attention are specific for those who are blushing-anxious.

The finding that self-focused attention caused social anxiety, only for high blushing-anxious individuals, goes against the results of some studies showing that self-focused attention is detrimental for both socially anxious participants and normal
individuals (Bögels & Lamers, 2002; Woody & Rodriguez, 2000). However, unlike these studies, which used either a set of hypothetical scripts or a speech task, the present experiment was conducted in a setting that was relatively more reflective of everyday social interactions.

Results of the present study are consistent with predictions based on the recent cognitive models of social anxiety (e.g. Clark & Wells, 1995; Rapee and Heimberg, 1997). Our findings are also parallel with the results of previous studies which showed that self-focused attention has a detrimental effect specifically for individuals who have low self-esteem, low expectancy or who are depressed, whereas for people who have a positive affect, high self-confidence or high expectancy it actually has no or even a positive effect (e.g., Alden, Teschuk, & Tee, 1992; Brockner & Hulton, 1978; Gibbons, et al. 1985; Nix, Watson, Pyszczynski, & Greenberg, 1995).

A limitation of the present research or perhaps with any research of this kind is the separation of different constructs, such as separating attentional manipulation from manipulation of perceived negative evaluation. For example, in the SFA condition, participants were instructed to focus their attention on various aspects of themselves, including physiological symptoms such as blushing. Since a concern for these individuals is the visibility of their blushing, it is possible that high blushing-anxious individuals interpreted the instructions to mean that the experimenter was aware of their blushing-anxious status, and was therefore evaluating them accordingly. If this was true then high blushing-anxious individuals in the SFA condition would be more likely to perceive negative evaluation than those who are in the TFA condition, causing them to feel more socially anxious.
So, additional research with better controlled attentional focus manipulations is required in order to better distinguish between these two constructs. When attempting to induce self-focused attention, future research should also include a measure of perceived negative evaluation in order to assess whether attention was manipulated specifically.

More general limitations of the study should also be mentioned. Although this study did not use a clinical population, the mean scores in the high blushing group are comparable to pretreatment scores previously reported in samples of social phobics with a fear of blushing (see Mulkens, Bogels, de Jong & Louwers, 2001). Given this, it is unlikely that the inclusion of a clinical group would yield contradictory results. Nevertheless replication of this research using a clinical sample would be important.

One should also be careful in generalising the results of the current study to the general population. As the sample is made up primarily of females, conclusions about the interaction effect in males are limited. However, an examination of the mean social anxiety score for males revealed that they were in the same direction as those for females, so the results from the current study may still be applicable to the male population. Nevertheless, further research with a larger male sample is needed.

Although there are already studies suggesting that self-focused attention increases awareness to physiological reactions (e.g., Scheier et al., 1983), it is still unclear whether focusing attention on the self will increase actual physiological arousal. The present study fails to establish this relationship: although there was a trend for participants to perceive higher levels of blushing in the SFA condition than in the TFA condition, this difference was not significant. Therefore, future studies examining the causal relationship between self-focused attention and social anxiety could also include physiological measures, such
as blushing, skin conductance, and heart rate as well as the confederate’s rating of the participants’ social skills and other observable aspects of social anxiety. This allows the experimenter to assess not only the participants’ subjective level of social anxiety, but also how self-focused attention can affect physiological arousal.

The present findings have important implications for treatment. They suggest that attention processes are related to social anxiety, specifically, self-focused attention may cause social fears. Therefore it can be expected that attention retraining in patients with social phobia will reduce their social anxiety levels. Since the direction of attentional focus can be shifted by verbal instructions, treatments can focus on teaching socially anxious individuals to direct their attention away from themselves and toward the task at hand. By focusing attention on the task, those who are socially anxious become less preoccupied with monitoring their somatic and cognitive symptoms, thus reducing awareness of feared anxiety responses. Since task-focused attention could reduce self-awareness, training social phobics to focus on the task at hand could also decrease their exaggerated perception of being in the centre of attention, which is a prominent complain by many socially anxious individuals (Wells & Clark, 1997).

Conclusions

The present study provided empirical support for the idea that attention processes are associated with social anxiety. There appears to be a causal relationship between self-focused attention and social anxiety for high blushing-anxious individuals, whereby a greater level of self-focus could lead to social anxiety. The study also provided partial support for the recent proposition that directing attention to the task has beneficial effects on social anxiety. Given these findings, future directions for treatment could focus on
instructing socially anxious individuals to direct their attention away from themselves and toward the task at hand during social interactions. It would also be helpful for future research to create better controlled paradigms to manipulate attentional focus, so that the possibility of manipulating negative evaluation is reduced.
References


Table 1

*Means and standard deviations of high and low blushing-anxious participants under SFA and TFA conditions*

<table>
<thead>
<tr>
<th>Variable</th>
<th>High blushing-anxious</th>
<th>Low blushing-anxious</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SFA ($n = 11$)</td>
<td>TFA($n = 11$)</td>
</tr>
<tr>
<td>Sex (male: female $n$’s)</td>
<td>1:10 2:9</td>
<td>6:5 4:7</td>
</tr>
<tr>
<td>Age (years)</td>
<td>22.55 (6.51)</td>
<td>22.09 (5.47)</td>
</tr>
<tr>
<td>SIAS</td>
<td>47.46 (7.81)</td>
<td>42.27 (4.73)</td>
</tr>
</tbody>
</table>

*Note.* Scores are means, with standard deviations in parentheses, unless proportion scores are indicated. SIAS: Social Interaction and Anxiety Scale.
Table 2

*Intercorrelations among Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fear</td>
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<td>_</td>
<td>_</td>
<td>_</td>
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<tr>
<td>2. Embarrassment</td>
<td>.96*</td>
<td>_</td>
<td>.83*</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
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<tr>
<td>3. Shame</td>
<td>.82*</td>
<td>.83*</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>4. Blushing</td>
<td>.81*</td>
<td>.84*</td>
<td>.84*</td>
<td>_</td>
<td>_</td>
<td>_</td>
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<tr>
<td>5. SIImage</td>
<td>.67*</td>
<td>.67*</td>
<td>.62*</td>
<td>.57*</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>6. OImage</td>
<td>.62*</td>
<td>.60*</td>
<td>.58*</td>
<td>.56*</td>
<td>.83*</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>7. Self-aware</td>
<td>.48*</td>
<td>.52*</td>
<td>.51*</td>
<td>.44*</td>
<td>.35*</td>
<td>.30</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>8. SeeOthers</td>
<td>.47*</td>
<td>.49*</td>
<td>.57*</td>
<td>.46*</td>
<td>.28</td>
<td>.28</td>
<td>.78*</td>
<td>_</td>
</tr>
</tbody>
</table>

*Note.* *p*<.001

SIImage: self image. OImage: image that others might have of me. SeeOthers: to what extent did you see yourself through the eyes of the others?
**Figure Caption**

*Figure 1.* Mean State Social Anxiety for low blushing-anxious (n = 22) and high blushing-anxious (n = 22) groups in SFA and TFA conditions.

![Figure 1](image-url)