To blush, or not to blush
Dijk, Kornelia Fennechien Liesbeth

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CHAPTER 5: Blushing-Fearful Individuals’ Judgmental Biases and Conditional Cognitions: An Internet Inquiry

This chapter is based on the article that will be published as: Dijk, C., de Jong, P.J., Müller, E., & Boersma, W. (in press). Blushing-Fearful Individuals’ Judgmental Biases and Conditional Cognitions: An Internet Inquiry. Journal of Psychopathology and Behavioral Assessment
Abstract
The present study examines two mechanisms that might explain why blushing-fearful individuals fear blushing: Judgmental biases for blushing in ordinary social situations that usually do not elicit a blush, and negative conditional cognitions about blushing irrespective of situation. A web-based self-report measure, linked to a German internet forum for people with fear of blushing, was completed by a group of high blushing-fearful participants (n = 155) and a low fear group (n = 61). Supporting the idea that cognitive biases are involved in fear of blushing, blushing-fearful participants showed inflated estimates of both the probability and the costs of blushing in these situations. In addition, blushing-fearful individuals were characterized by relatively negative conditional cognitions about blushing.
Fear of blushing can be a highly invalidating complaint. People who fear their blushing do so in many social situations and consequently avoid these situations or endure them with fear (Bögels, 2006). Diagnostically, fear of blushing is a subcategory of social phobia (e.g., Chaker, & Hoyer, 2007). Correspondingly, fear of blushing is the main complaint of about one third of the people who seek clinical help for their social fears (Bögels, & Scholing, 1995; Essau, Conradt, & Petermann, 1999), and more than half of the people who applied for surgical treatment because they feared their blushing could be diagnosed with social phobia (Gerlach, & Ultes, 2003). Yet, why some individuals live in fear of blushing is not well-understood. The present study was set up to test two mechanisms that could drive this fear.

One mechanism that might be involved in fear of blushing is the anticipation of a negative judgment by others when blushing in a particular context. Several studies showed that socially-fearful individuals tend to overestimate the costs of a negative social event (i.e., anticipate a negative judgment) and tend to overestimate the probability that such a negative event will actually occur (e.g., Foa, Franklin, Perry, & Herbert, 1996). Several studies tried to replicate this finding for fear of blushing. In these studies high and low blushing-fearful participants were asked to imagine that they blushed in several types of situations and were asked to indicate how they expected to be judged. Yet, all these studies failed to find evidence for a biased expectation to be judged negatively as a result of displaying a blush (Dijk, & de Jong, in press; see chapter 4).

However, these studies used situations in which people usually blush; such as being the center of attention, after a faux pas, or when a taboo topic is brought up (Crozier, 2004; Leary, Britt, Cutlip, & Templeton, 1992). Thus, situations in which blushing is quite normal and appropriate (cf. Shields, Mallory, & Simon, 1990). Yet, blushing-fearfuls often mention that they are typically bothered by blushing in very ordinary, everyday situations, in which people normally would not blush (e.g., see www.esfbchannel.com). Building on this, the present study tested whether blushing in ordinary, everyday situations does give rise to an enhanced expectation of a negative evaluation in high blushing-fearful individuals (i.e., costs). In addition, it was tested whether these individuals show heightened ratings for the probability to blush in these situations.

Apart from anticipating a negative judgment when blushing in ordinary social situations, blushing-fearful individuals may also have more general negative cognitions about the consequences of blushing, independent of a specific context (cf. Bögels, & Reith, 1999). Several types of conditional cognitions might be applicable. First, sensitivity to others’ evaluations is a core element in most models of interpersonal fears (e.g., Rapec, & Heimberg, 1997; Clark, & Wells 1995; Schlenker, & Leary, 1982). Second, negative cognitions
about the self play a role in social anxiety as well (Stopa, & Clark, 1993). Therefore, the present study tested to what extent blushing-fearful individuals are characterized by negative cognitions about the self as well as by negative cognitions about other’s evaluation when blushing. Third, Barlow (2002, p.254) noted that: “[…] individuals suffering from anxiety and related disorders evidence a marked sense of uncontrollability when faced with certain tasks and/or challenges that may be in some way threatening.” Blushing is an autonomic response, which makes it hard to control (Drummond, & Lance, 1987). Therefore, cognitions about the loss of control could also be involved in fear of blushing. For example, people who fear blushing can have an enhanced belief that they will lose control over their body when they blush, or lose control over the impression they make on others when they blush.

To summarize, the present study was set up to test the following hypotheses: (i) blushing-fearful individuals have judgmental biases concerning both the costs and the probability of blushing in ordinary situations (in which people usually tend not to blush); (ii) besides expecting a negative judgment when blushing in a particular context, blushing-fearful individuals are characterized by relatively negative cognitions about the consequences of blushing.

Method

Participants

Table 1. Description of the sample

<table>
<thead>
<tr>
<th>Variable (n)</th>
<th>Relation to BTS-Q</th>
<th>Descriptives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M (SD)</td>
</tr>
<tr>
<td>BTS-Q (mean)</td>
<td></td>
<td>6.38 (2.76)</td>
</tr>
<tr>
<td>FQ (sum)</td>
<td>( r = 0.75^{***} )</td>
<td>19.42 (10.26)</td>
</tr>
<tr>
<td>Age (N=235)</td>
<td>( r = -0.05 )</td>
<td>28.2 (9.9)</td>
</tr>
<tr>
<td>Sex(^1)</td>
<td>( t (232) = 2.49^{**} )</td>
<td>( n_{men} = 99; ) BTS-Q = 6.91 (2.35)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( n_{woman} = 135; ) BTS-Q = 6.02 (2.95)</td>
</tr>
<tr>
<td>Highest</td>
<td>( F (3,218) = 6.41^{***} )</td>
<td>( n_{Elementary school} = 17; ) BTS-Q = 8.57 (0.74)</td>
</tr>
<tr>
<td>Education(^1)</td>
<td></td>
<td>( n_{Middle school} = 44; ) BTS-Q = 7.13 (2.54)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( n_{Grammar School} = 100; ) BTS-Q = 6.26 (2.77)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( n_{University of Applied Sciences} = 61; ) BTS-Q = 5.73 (2.74)</td>
</tr>
<tr>
<td>% Years</td>
<td>( &gt;5 = 70.3% )</td>
<td>1-5 = 25.8%</td>
</tr>
<tr>
<td>suffering</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** \( p < 0.001 \). ** \( p < 0.05 \)
A link to the questionnaire was placed on a German internet forum for people with fear of blushing (http://www.erythrophobie.de/, from September 9, 2005 until February 20, 2006). Because only a few people without fear of blushing would be reached via this link, students of the University of Dresden, friends (of friends) of these students, and (German) acquaintances of the first and third author were also invited to complete the questionnaire. Both on the internet page as well as in the invitation mail, participants were informed that the study might help explain why people fear blushing, but were not provided with any information about the exact aims of the study. In line with the requirements of the ethical committee, participants were instructed that they were free to complete the questionnaire if they wanted and participants were allowed to refrain from answering questions. Table 1 presents a description of the 245 participants who completed the study\(^1\) (see “Materials and Procedure; participants’ characteristics”).

**Exclusion Criteria**

*Missing data.* Allowing participants to refrain from answering questions led to missing data. Five participants completed less than 50% of the items and three participants did not complete the whole blushing subscale of the Blushing, Trembling and Sweating Questionnaire (BTS-Q; Bögels, & Reith, 1999), which is the primary measure for fear of blushing. These eight participants were excluded from all analyses. Furthermore, in each of the separate analyses, participants were excluded when more than ten percent of the information for that specific analysis was missing (cf. Gerlach, & Ultes, 2003)\(^2\). In the results section, the number of participants is explicitly noted for each analysis.

*Two groups.* As can be seen in Figure 1, the distribution of the mean BTS-Q score is somewhat bimodal. Therefore, for all analyses two groups from the total sample were selected: a low-fear group (n=61) with a mean BTS-Q score from zero to four and a high-fear group (n=155) with a mean score from six to ten (cf. Mulksens, Bögels, de Jong, & Louwers, 2001; de Jong, & Peters, 2005). The intermediate group (n = 21) was excluded from all analyses.

\(^1\) Since both sex and education differed between the groups the analyses were rerun including these variables as covariates. This did not change the significance of Response, Group or the interaction between these two variables (all \(p\) remained <0.001). Therefore, the analyses without these covariates are presented.

\(^2\) Although these cases were deleted on theoretical grounds, analyses that included these participants did not change the significance of the results.
Materials and Procedure

The questionnaire was designed with the program “Teleform” (http://www.cardiff.com/products/teleform/). The questionnaire consisted of three parts. Part one aimed to investigate blushing-fearful individuals’ judgmental biases for blushing in ordinary situations, part two their more general conditional cognitions about blushing, and part three examined the participants’ characteristics.

Judgmental biases

In the first part of the study the participants read four vignettes that described an ordinary social situation. At the end of the vignette the participants were asked to imagine they blushed in this situation, after which several questions were asked to indicate how they expected to be judged by others. Then they were asked to imagine that they did not blush and to answer the questions concerning others’ judgments again. The order of “imagine you blushed in this situation” and “imagine you did not blush in this situation” was counterbalanced and changed for every succeeding vignette. In addition, participants were asked to rate the probability that they would blush in such a situation (cf. Dijk, & de Jong, 2009). To control for the effects of a specific
situation, there were three different versions for this first part of the study. After entering the website of the study, participants were randomly assigned to one of these three versions. For each version there were four different vignettes. Thus, in total there were 12 different vignettes describing ordinary situations (a full set of the vignettes can be obtained from the first author).

There were eight questions concerning others’ judgments (costs of blushing); four for imagining blushing and four for imagining not blushing. The questions were presented on a horizontal scale from 0 to 10, visualized with 11 dots. Participants were asked to indicate how competent (0 = very competent, 10 = not competent at all), how self-assured (0 = very self-assured, 10 = not self-assured at all), how normal (0 = very normal, 10 = not normal at all), and how likeable (0 = very likeable, 10 = not likeable at all) they thought others would judge them. When the participants had answered these questions, they were asked to indicate the probability that they would blush if they were to encounter such a situation in reality (0 = 0%, 10 = 100%).

Conditional cognitions.

This part of the study contained questions aimed at examining participants’ conditional cognitions about blushing (i.e. “If I blush then …”). There were three subscales. The others’ evaluations scale contained nine cognitions about others’ evaluations when blushing (cf. Bögels, & Reith, 1999). The self-evaluation scale contained five cognitions about the self when blushing. The control scale contained three cognitions about loss of control when blushing. All questions could be answered on a scale from 0 (applies totally to me) to 10 (does not apply to me at all). The questions are displayed in Table 2.

Participants’ characteristics.

The final part of the study contained questions designed to describe the sample. Question one was on a four-point scale and asked participants how long they had suffered from fear of blushing (0 = do not suffer, 1 = very brief/a few weeks, 2 = already for some time/a few months, 3 = relatively long/1-5 years, 4 = very long/more than 5 years). To examine participants’ fear of blushing, questions seven through 12 consisted of the blushing part of the Blushing Trembling and Sweating Questionnaire (BTS-Q; Bogels, & Reith, 1999). To examine participants’ social anxiety, questions 13 through 17 were

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3 A horizontal measure was used to follow previous work in which Visual Analogue Scales (VAS) were used to examine judgmental bias (e.g., de Jong, & Peters, 2005; de Jong et al., 2006). However, for technical reasons, scales from 0 to 10 were used rather than Visual Analogue Scales (cf. Couper, Tourangeau, Conrad, & Singer, 2006). For all these eleven-point scales (including the BQ), this means that the scores can be multiplied by 10 to compare them with the original scales.
questions from the social phobia subscale of the Fear Questionnaire (FQ; Marks, & Mathews, 1979). Finally, participants filled out some demographics: question 18 asked participants to fill in their gender, question 19 their age, and question 20 their level of education.

Table 2.

The cognition questionnaire

<table>
<thead>
<tr>
<th>Conditional Cognitions about Others’ Evaluations:</th>
<th>Conditional Cognitions about the Self:</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I blush, others will think I am ...</td>
<td>When I blush, I will think I am ...</td>
</tr>
<tr>
<td>1) Socially Skillfula</td>
<td>10) Socially Unskillful</td>
</tr>
<tr>
<td>2) Competenta</td>
<td>11) Incompetent</td>
</tr>
<tr>
<td>3) Weak</td>
<td>12) Weak</td>
</tr>
<tr>
<td>4) Insecure</td>
<td>13) Insecure</td>
</tr>
<tr>
<td>5) Shy</td>
<td>14) Shy</td>
</tr>
<tr>
<td>6) Strange</td>
<td>15) Strange</td>
</tr>
<tr>
<td>7) Normala</td>
<td>16) People will find out things about me that I want to keep private.</td>
</tr>
<tr>
<td>8) Sincerea</td>
<td>17) I lose control over how I come across to others</td>
</tr>
<tr>
<td>9) Likeable a</td>
<td>18) I lose control over my own body</td>
</tr>
</tbody>
</table>

Items were contra-indicative and were recoded in the analyses.

Data Reduction

Cronbach’s alpha was examined and mean scores were calculated for competent, self-assured, normal and likeable regarding the four vignettes. That is, the mean scores were calculated for imagining blushing (competent $\alpha = 0.86$, self-assured $\alpha = 0.92$, normal $\alpha = 0.92$ and likeable $\alpha = 0.91$) and for imagining not blushing (competent $\alpha = 0.89$, self-assured $\alpha = 0.87$, normal $\alpha = 0.85$ and likeable $\alpha = 0.89$). Furthermore, for the conditional cognitions about blushing the mean scores were calculated for the nine items measuring others’ evaluations ($\alpha = .83$), five items measuring self-evaluation ($\alpha = .90$) and three items measuring control ($\alpha = .75$).
Results

Analyses of Judgmental Biases of Costs and Probability
After correction for more than ten percent missing data, 58 low-fearfuls and 137 high-fearfuls were included in the analyses.

Judgmental Bias for Costs of Blushing
The four variables (competent, self-assured, normal, likeable) were subjected to a 2 within (imagined response = blush vs. no blush) by 2 between (group = high-fear vs. low-fear) repeated measures MANOVA. The means of the variables are displayed in Figure 2.

![Figure 2. Means of the variables that measured high and low-fearfuls' judgmental biases regarding costs of blushing.](image-url)

The analyses showed that participants generally anticipated a less positive judgment after imagining that they blushed than after imagining that they did not blush \((F(4,190) = 236.08, p < 0.001, \eta_p^2 = 0.83)\). Also, there was a main effect for group \((F(4,190) = 10.62, p < 0.001, \eta_p^2 = 0.18)\), evidencing that high-fearful participants generally anticipated a less positive judgment than low-fearful participants did. Of most interest for the present study, the imagined response by group interaction was also significant \((F(4,190) = 28.24, p < 0.001, \eta_p^2 = 0.37)\), indicating that high blushing-fearful participants show an enhanced expectation of being judged negatively when they would blush in ordinary situations.
To examine whether this pattern occurs with all dependent variables the analysis was followed up with four univariate repeated-measures analyses (for competent, self-assured, normal and likeable). These analyses showed that the main effect of imagined response is significant at the \( p = 0.001 \) level for all variables. Thus, for all variables participants expected a less positive judgment when they were asked to imagine that they blushed than when they were asked to imagine that they did not blush. The main effect of group (high-fear vs. low-fear) was only significant for self-assured and normal, both at the \( p = 0.001 \) level. Thus high-fearful participants expected to be judged as less self-assured and less normal than low-fearful participants. The interaction between the imagined response and group was significant for all variables at the \( p = 0.001 \) level. Therefore, there were subsequent t-tests for all variables to examine whether the groups differed for both imagined responses, and to examine for all variables whether the imagined responses differed for both groups.

These t-tests showed that for all four variables, both imagining to blush and imagining not to blush showed a significant difference between high and low-fearful participants at the \( p = 0.001 \) level. Also, for all variables except likeable, the difference between imagining to blush or not to blush was significant at the \( p = 0.001 \) level for the high-fearful as well as the low-fearful group. For the anticipated judgment of likeable, there was no significant difference between imagining to blush and imagining not to blush in the low-fearful group (\( t_{\text{low-fear}} (57) = 1.87, p = 0.07 \)). Only in the high-fearful group did participants anticipate that blushing would lead to a judgment of being less likeable (\( t_{\text{high-fear}} (136) = 13.78, p < 0.001 \)).

**Judgmental Bias for the Probability to Blush**

There was a main effect of group for the probability to blush (\( t(157.14) = 17.11, p < 0.001 \)). Whereas low-fearful participants indicated that it was unlikely that they would blush in these situations (\( M = 1.4, SD = 1.5 \)), high-fearful participants indicated that a blush would be quite probable in these situations (\( M = 6.2, SD = 2.2 \)).

**Conditional Cognitions.**

All 61 low-fearfuls and all 155 high-fearfuls were included in the analyses. To examine whether high-fearfuls differed from low-fearfuls in their conditional cognitions about blushing, the three cognition variables were analyzed in a 2 group MANOVA. Results showed that there was a significant difference between high and low-fearfuls in cognitions about blushing (\( F(3,212) = 62.93, p < 0.001, \eta_p^2 = 0.47 \)). Subsequent analyses per variable (self, other, control) showed that this difference was evident for all variables (\( F_{\text{other}}(1,214) = 143.83, p < 0.001, \eta_p^2 = 0.40 \); \( F_{\text{self}}(1,214) = 121.92, p < 0.001, \eta_p^2 = 0.36 \); \( F_{\text{control}}(1,214) = \))
69.2, \( p < 0.001, \eta^2_p = .24 \) Means and standard deviations are displayed in Table 3.

### Table 3

**Means (and Standard Deviations) for the Cognition Scores of High and Low-Fearful Participants.**

<table>
<thead>
<tr>
<th>Cognitions</th>
<th>Low-fearful (n = 61)</th>
<th>High-fearful (n = 155)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td>4.1 (2.5)</td>
<td>1.1 (1.4)</td>
</tr>
<tr>
<td>Other</td>
<td>3.9 (1.3)</td>
<td>1.7 (1.2)</td>
</tr>
<tr>
<td>Control</td>
<td>3.6 (1.1)</td>
<td>1.1 (1.6)</td>
</tr>
</tbody>
</table>

The Relationship between Judgmental Biases for Costs and Conditional Cognitions

To examine the relationship between judgmental biases and conditional cognitions about blushing, mean differences between imagining to blush and imagining not to blush were calculated for the four judgmental variables (competent, self-assured, normal, and likeable). Subsequently, mean scores were calculated for these mean difference scores to come to one “judgmental bias” score (Cronbach’s \( \alpha \) for these four difference scores is 0.88). Furthermore, we calculated a mean “cognition” score (Cronbach’s \( \alpha \) for Self, Other and Control is 0.79). The correlation between cognition and judgmental bias is -.59 (\( p < 0.001 \)); note that a more positive judgmental bias score indicates a negative anticipated judgment whereas a more positive cognition score indicates less negative cognitions about blushing. A regression analysis, in which both variables were entered predicting the mean BTS-Q-score, showed that both variables are independently associated with fear of blushing (\( \beta_{\text{cognition}} = -.87, p < 0.001; \beta_{\text{judgmental bias}} = .35, p < 0.001 \)).

**Discussion**

The main findings can be summarized as follows: (i) Compared to people who do not fear blushing, blushing-fearful individuals have judgmental biases for both the probability and costs of blushing in ordinary social situations. (ii) Blushing-fearful individuals are characterized by relatively negative conditional cognitions about blushing, irrespective of a given situation.

The results showed that both high and low-fearful participants expected a negative judgment when they would blush in ordinary situations; yet that blushing-fearful individuals showed an exaggeration of this anticipated negative judgment. In addition, high-fearful individuals showed enhanced ratings of the probability that they would blush if they would encounter such a situation in real life. This last finding is in correspondence with a previous study that tested situations in which people usually do blush, such as when being the center of attention (Dijk, & de Jong, 2009; see chapter 4). In this
previous study high-fearful participants showed higher ratings for the probability to blush, but high and low-fearful participants anticipated an equally negative judgment because of blushing. The present study however, found that high-fearful individuals showed higher ratings regarding the probability and of the costs of blushing. Thus, in correspondence with studies that looked for judgmental biases in social phobics (e.g., Foa, et al., 1996; Voncken, Bögels, & de Vries, 2003), also blushing-fearful individuals seem to hold judgmental biases for costs, but only for those situations in which blushing is not common.

Moreover, the present results showed that, compared to non-fearfuls, blushing-fearful individuals had a positive bias for not blushing in these everyday (blush-irrelevant) situations. When asked to imagine that they did not blush in these situations, blushing-fearful individuals expected to be judged more positively than did non-fearful individuals. Unfortunately, blushing-fearful individuals do expect to blush in these situations. This last finding suggests that at least part of the judgmental bias might be an over-positive expectation regarding the performance of other (non-blushing) people.

Negative cognitions about blushing were not restricted to specific situations, but were also present in the more general cognitions that the blushing-fearful participants held about blushing, irrespective of a particular situation. Blushing-fearfuls were more negative in all three types of cognitions, but the cognitions about others’ evaluations appeared to have the largest effect size. This might be due to the relationship between fear of blushing and social anxiety. Since most of the high blushing-fearful participants were also socially anxious, the acceptance of other people might be important to them (cf. Leary, Koch, & Hechenbleikner, 2001). Interestingly, fear of blushing also related to negative cognitions about the self when blushing. For example, the high-fearful group indicated that they judged themselves weak or strange when they blushed. For social phobia, it has already been shown that socially phobic individuals have relatively negative cognitions about the self (Stopa, & Clark, 1993), but no studies known to the authors have tested this idea for fear of blushing. Furthermore, in accordance with the uncontrollability of the blush (Drummond, & Lance, 1987), the results indicated that people who fear blushing have more negative cognitions about the lack of control when they blush.

Not surprisingly, both judgmental bias and more general conditional cognitions are related to fear of blushing. Interestingly, however, both indices were found to have an independent association with fear of blushing. This hints to the possibility that judgmental biases about the consequences of blushing in a particular situation and more general negative cognitions about blushing are separate mechanisms, that both may contribute to individuals’ fear of blushing. More research is necessary to untangle the exact (causal)
relationship between both mechanisms. It might be that negative cognitions about the consequences of blushing cause blushing-fearfuls to anticipate a negative judgment by others when blushing in ordinary situations. However, previous studies showed that blushing-fearfuls do not always expect to be judged negatively as a result of their blush, and sometimes even expect a more positive judgment (de Jong & Peters, 2005; de Jong, et al., 2006); and it might also be that blushing-fearfuls developed negative beliefs about blushing because of negative experiences with blushing in ordinary situations.

The present study has several limitations. First, the direct invitation of acquaintances and students as a control group vs. the link on a forum for the anxious participants led to differences in sex and education between both groups. However, additional analyses including sex and education as covariates showed that including these variables did not change the results. Second, the present study relied upon hypothetical situations and hypothetical responses for testing the judgmental biases. Such an approach relies upon participants’ ability to accurately report about how they would react, and one may well question whether individuals are indeed (always) able to do so (e.g., Parkinson, & Manstead, 1993). One could nevertheless argue that what is of major concern here is whether people do explicitly anticipate negative effects from their blushing. It seems that the influence of such explicit considerations regarding the anticipated interpersonal effects of displaying a blush can be reasonably successfully investigated with a vignette methodology (cf. Dijk, & de Jong, 2009).

The current findings are not only of theoretical interest, but may also have clinical implications. First, the present data indicate that it would seem efficient to challenge the expectancy of being judged unfavorably when displaying a blush in ordinary situations (i.e., the bias concerning overestimation of costs). Meanwhile, to the extent that the inflated expectancy of displaying a blush is not due to a differential physiological make-up (e.g., Mulkens, Dobbelraar, & Bögels, 1999), the present data indicate that it may be profitable to address this type of judgmental bias through therapy.

To conclude, the present study aimed to come up with some insights into the factors involved in people’s fearful preoccupation with their blushing. Two different types of mechanism were examined: Judgmental biases (for costs and probability) and conditional cognitions about blushing. The results showed that blushing-fearful individuals hold judgmental biases for blushing in ordinary situations. They expect to blush relatively easily in ordinary situations and they anticipate a negative judgment from others. Furthermore, they are characterized by relatively negative conditional cognitions about blushing that are independent of particular contexts. Together, the empirical evidence provides several important insights into why people fear blushing, which may also be useful in therapy.