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## Fear of blushing: Relations with personality among children and adults



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#### ABSTRACT

Despite the common nature of blushing and the feelings of discomfort that often accompany it, to date, no studies have yet examined the relationship between personality characteristics and the fear of blushing. The present study fills this gap in the literature, by examining, in a sample of adults and a sample of children (9–16 years), the relationship between personality and fear of blushing. For this purpose questionnaires were administered to representative community samples of adults (n = 157) and children (n = 150). Results showed that, among adults, fear of blushing was best predicted by Structure, whereas, among children, fear of blushing was best predicted by Neuroticism. When comparing the two samples, children reported more fear of blushing than adults, whereas, across samples, females reported more fear of blushing than males. Conclusions are discussed as well as future directions for research.

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#### 1. Introduction

Blushing refers to a spontaneous reddening of the cheeks and forehead, that can also extend to the ears, neck and upper chest – the 'blush region'. When blushing occurs, the small blood vessels of the blush region dilate, increasing the blood volume in this area, often causing a subjective sensation of warmth in the affected area (Leary, Britt & Cutlip,1992). If people are aware of the fact that they are blushing, the blushing often intensifies (Kim, Cho, & Lee, 2012).

Blushing may occur in many different social situations, such as being stared at, being teased, asking a question during a meeting or being complimented by a superior. What all of these situations have in common is that the blusher is subject to unwanted social attention (or thinks he/she is), which evokes feelings of embarrassment or shame (De Jong & Dijk, 2013). This is usually a distressing experience for the blusher, with additional distress often being caused by the mere experience of blushing. As a result, blushing may in itself become a potential source of distress and shame (Crozier, 2010). Thus, despite the fact that blushing is a common physiological response in certain social situations and that blushing can have positive effects (e.g., Dijk, Koenig, Ketelaar, & de Jong, 2011), blushing is usually experienced as an unpleasant reaction

with some people developing a fear of blushing (erythrophobia; e.g., Mulkens, Bögels, de Jong, & Louwers, 2001).

#### 2. Individual differences in fear of blushing

Studies that have examined the relations between fear of blushing and individual difference variables have, among others, studied the cognitions of individuals who fear blushing. These studies have, for instance, shown that individuals who fear blushing believe that, in response to their blushing, others will think that they are less socially skillful, less competent, less 'normal' and less likeable (Dijk, de Jong, Müller, & Boersma, 2010). Other individual difference variables that have been examined in relation to fear of blushing are, for instance, actual facial blood flow during tasks that encompass social attention and skin colour (e.g., Drummond & Su, 2012). Surprisingly, to date, the relations between fear of blushing and personality characteristics have not been explicitly examined. Studying these relations seems highly relevant, because it may shed some light on the origins and stability of fear of blushing, and the expected effectiveness of interventions aimed at reducing fear of blushing. Whereas the relations between personality characteristics and fear of blushing have not been studied so far, previous studies have examined the relations between personality characteristics and the more encompassing Social Anxiety Disorder (SAD) as described in the DSM-V, also referred to as social phobia in the DSM-IV (e.g., Morris, 2004). Fear of blushing is often seen as a subtype of SAD. Both fear of blushing and SAD have been found to be related to several maladaptive cognitive processes, such as the fear of negative evaluation and self-focussed attention

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(e.g., Voncken, Dijk, De Jong, & Roelofs, 2010). Essau, Conradt, and Petermann (1999) even reported that about one third of people with social phobia report fear of blushing as their primary problem, and according to Gerlach and Ultes (2003) about half of the people seeking help for blushing could be diagnosed as having social phobia. Studies examining the relations between personality and social phobia have, for instance, shown that Neuroticism is related positively and extraversion is related negatively to the degree individuals suffer from social phobia (e.g., Bienvenu, Hettema, Neale, Prescott, & Kendler, 2007). Fear of blushing may, however, also be experienced without suffering from SAD, and in milder forms than may be the case when individuals suffer from SAD. Despite an overlap in maladaptive cognitive processes, individuals who suffer from SAD and individuals who suffer from fear of blushing also differ. Pelissolo, Moukheiber, Lobjoie, Valla, and Lambrey (2012), for instance, reported a later age of onset, less comorbidity. lower behavioral and temperamental inhibition, and higher selfesteem for individuals who suffered from severe fear of blushing without SAD, compared to individuals who suffered from SAD, and individuals who suffered from both SAD and fear of blushing. Therefore, the relations found between personality and SAD cannot be automatically generalized to fear of blushing.

#### 3. The present study

The present study will examine the relations between fear of blushing and personality characteristics. Moreover, because blushing is such a common phenomenon, the present study will examine these relations in two samples from the general community. Most studies on fear of blushing have used samples of university students and people with a SAD. The present study will, instead, use an adult sample from the general population (Study 1), as well as a community sample of children and adolescents (ages 9–16; Study 2). It might well be that fear of blushing and personality are related differently in adults and children and adolescents. However, based on results found in studies examining the relations between SAD and personality, we expected that fear of blushing would be related positively to Neuroticism and negatively to extraversion in both groups.

As stated above, blushing is often evoked by feelings of embarrassment or shame. Particularly during puberty, children are subject to increasing self-awareness, and often feel awkward as a result of the physical changes that they are experiencing (e.g., Eccles, 1999). Therefore, we expected children (particularly those around 15 years of age) to report more fear of blushing than adults.

#### 4. Study 1

#### 4.1. Method

#### 4.1.1. Participants and procedure

Adult participants were recruited by a Dutch research bureau (Flycatcher) as part of a large scale study on personality. From a large pool of participants (about 16,000 in total), a representative sample of 600 people was drawn. This sample was stratified with regard to age, sex, educational level, and province. The selected individuals received an invitation to participate in the study, that was conducted online. Useful data on the DPQ-2 (see Section 4.2.) was collected for 339 participants (56.5%). These participants received credits for their participation (net worth equals 1.33 Euro's). A subsample of 157 participants out of these 339 participants next also completed an online version of the Fear of Blushing scale (the remaining 182 participants completed other additional measures). This subsample was still representative with regard to the

stratification variables (sex, age, province, educational level). The total sample of adults used in the present study therefore consists of 157 participants, 71 men and 86 women, with a mean age of 54 years (*SD* = 18.0, range 17–89).

#### 4.2. Instruments

#### 4.2.1. Dutch personality questionnaire revised (DPQ-2)

The revised version of the Dutch Personality Questionnaire (DPQ-2; Barelds et al., 2007) is one of the most frequently used psychological instruments in The Netherlands. The DPQ-2 consists of 140 items, that are answered on a three-point scale (true-?false), with each scale consisting of 20 items. The seven scales of the DPQ-2 measure<sup>3</sup> Neuroticism (e.g., "I often feel nervous", "I get hurt easily by other people"), Introversion (e.g., "I have a lot of friends and acquaintances", "I don't like talking to people that I don't know"), Structure (e.g., "I work very accurately", "I often do things in a fixed sequence"), Hostility (e.g., "Other people's mistakes irritate me", "I distrust friendly people"), Egoism ("I don't care what others think about me", "I don't care much about other people's problems"), Dominance (e.g., "I have a lot of influence over other people", "I like giving orders"), and Self-esteem (e.g., "I am well able to solve my own problems", "I lack confidence" (-)). The DPQ-2 has excellent psychometric properties (e.g., Evers, Braak, Frima, & Vliet-Mulder, 2009–2011), with, for example, median alphas across studies ranging from .76 to .92, test-retest correlations ranging .86-.96, and expected relations with several other (personality) measures (Barelds et al., 2007). Cronbach's alphas in the present study are listed in Table 1.

#### 4.2.2. Fear of blushing

The Blushing, Trembling and Sweating Questionnaire (BTS-Q; Bögels & Reith, 1999) is an instrument that assesses aspects of blushing, trembling, and sweating. This questionnaire consists of six scales, of which the fear of blushing subscale was used in the present study. The fear of blushing scale consists of six items, that are, in the present study, rated on five-point scales, ranging from not at all (1) to very much (5). Example items are "How afraid are you to start blushing?" and "How often do you think in a certain situation: I hope I'm not going to blush?" Cronbach's alpha in the present study was .90 (see Table 1).

#### 4.3. Results

The mean scores for the scales used in the present study were computed, as well as the correlations between all scales. These are listed in Table 1, which also lists the alphas for the scales in the present study. As expected, there are significant positive correlations between fear of blushing and Neuroticism (r = .40, p < .01) and introversion (r = .34, p < .01). Not surprisingly also, a significant negative correlation was found with self-esteem (r = .29, p < .01), which correlates strongly with Neuroticism (see Table 1). Also, significant correlations were found with dominance (r = .33, p < .01), and structure (r = .24, p < .01). Finally, a small but significant positive correlation was found between fear of blushing and hostility (r = .16, p < .05). In sum, as individuals score higher on fear of blushing, they are more neurotic, more introverted, more structured and hostile, but less dominant, and have lower self-esteem.

In addition, we used regression analysis to examine which personality variables are the best predictors of fear of blushing. The results are listed in Table 2. Rather surprisingly, Structure was found

 $<sup>^{3}</sup>$  The names listed for the scales are English descriptions of the content of the original Dutch scales.

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