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Interpersonal determinants of trait anger: low agreeableness, perceived low social esteem, and the amplifying role of the importance attached to social relationships

Peter Kuppens *

Department of Psychology, University of Leuven, Tiensestraat 102, 3000 Leuven, Belgium

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Abstract

The aim of the present study is to provide an interpersonal account of trait anger. Given the interpersonal nature of anger, it is hypothesized that one's attitude towards others (in terms of low agreeableness) as well as one's beliefs about others' attitudes towards oneself (in terms of perceived low social esteem, the belief that one is lowly valued by others) contribute to trait anger. Additionally, it is argued that the effects of these interpersonal variables are amplified as people increasingly value their social relationships. To address these hypotheses, individual differences measures of the variables in question were administered ($N = 360$). The results confirmed the hypotheses: Both agreeableness and perceived social esteem were negatively related to trait anger, and the contribution of these variables in predicting trait anger was amplified as individuals attach more importance to social relations. Identical conclusions were reached when the analyses were performed when controlling for social desirability. Some implications for accounts of anger are discussed.
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1. Introduction

As one of the basic emotions, anger is experienced by most people in the course of their everyday life. The general proneness to experience anger is considered to differ between

* Tel.: +32-16-32-5896; fax: +32-16-32-5993.
E-mail address: peter.kuppens@psy.kuleuven.ac.be (P. Kuppens).

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individuals (Deffenbacher, 1992); accordingly, corresponding trait measures have been developed. The most widely used measure of trait anger is probably the Spielberger trait anger scale (Spielberger, Jacobs, Russell, & Crane, 1983). It has been successfully related to variables of diverging interest including other personality traits, aggression (e.g., Cornell, Peterson, & Richards, 1999), coronary heart disease (e.g., Spielberger et al., 1985), essential hypertension (e.g., Mann & James, 1998; Spielberger et al., 1991), helping behavior (e.g., Sterling & Gaertner, 1983), etc. As can be derived from the above list, trait anger is mostly used as an indicator of other variables. Despite this widespread interest in the consequences of trait anger (Martin, Watson, & Wan, 2000), research efforts regarding possible determinants of trait anger itself are less abundant. With the present study, we aim to provide an account of some interpersonal determinants of trait anger.

Our account starts from the commonly held view of anger as an interpersonal emotion (e.g., Averill, 1983; Siegel, 1986; Smith & Lazarus, 1993). From this, we first argue that attitudes towards others (in terms of low agreeableness) as well as beliefs about others' attitudes towards oneself (in terms of *perceived low social esteem*, the belief that one is lowly valued by others) play a role in trait anger. An aspect that combines both previous aspects (interpersonal distrust), is hypothesized to be related to anger as well, but to have no additional predictive power above its constituting elements. Second, we argue that the degree to which an individual attaches importance to his or her interpersonal relations can serve as an amplifier of the above-mentioned interpersonal variables in predicting trait anger. In doing so, we aim to clarify some of the interpersonal attitudes and beliefs that may underlie trait anger. We will now discuss our hypotheses in more detail.

First, the interpersonal nature of anger could be considered to consist of two main aspects: On the one hand, anger may involve a negatively valenced attitude of the angry individual vis-à-vis someone else: When one is angry, one typically blames someone else for something bad that has happened (Smith & Lazarus, 1993); furthermore, aggression could be seen as a possible consequence of this negative attitude (e.g., Anderson & Bushman, 2002). On the other hand, anger may also involve a negatively valenced appraisal of someone else's (i.e., the target of anger) attitude vis-à-vis the angry individual: Typically, an individual's anger arises as a result of perceiving some inflicted harm or injustice by a wrongdoer towards him or her (Averill, 1983; Miller, 2001; Smith & Lazarus, 1993). The present study will include two variables that each reflects one of these interpersonal aspects, as well as one variable that combines both.

Regarding attitudes towards others, we will examine the role of agreeableness as a possible determinant of trait anger. Agreeableness is a dimension from the five-factor theory of personality that is assumed to cover the realm of personality dispositions (McCrae & Costa, 1989). It refers to the general disposition to feel and/or act agreeable towards others. In the present context, given the negative nature of anger, we hypothesize that agreeableness is inversely related to trait anger. Only few data are available in the existing literature on the association between agreeableness and trait anger (Martin et al., 2000). Studies that did examine this relation obtained results consistent with our hypothesis, in that negative correlations between trait anger and agreeableness were reported (e.g., Martin et al., 2000; Whiteman, Bedford, Grant, Fowkes, & Deary, 2001). In the study by Whiteman et al. (2001), agreeableness even emerged as the largest five-factor correlate of trait anger. We thus argue that individuals characterized by low levels of agreeableness towards others are more predisposed to experience anger as compared with high agreeableness individuals.

Regarding beliefs about others, we introduce a new interpersonal concept, namely perceived social esteem (for a related concept, see, Murray, Griffin, Rose, & Bellavia, 2003). The latter is conceived as the social counterpart of self-esteem (e.g., Rosenberg, 1989; see below), and refers to an individual's perception of how he or she is valued by others. The core relational theme of anger is often denoted as other-blame in reaction to a perceived injustice, insult or threat to one's self-esteem stemming from someone else (e.g., Averill, 1983; Baumeister, Smart, & Boden, 1996; Smith & Lazarus, 1993). If an individual is inclined to think that others have a negative opinion about him or her, he or she may more easily experience injustice or insult by others, leading to higher anger proneness. As a result, we hypothesize that trait anger is associated with the belief that one is negatively valued by others, or stated differently, with perceived low social esteem. Note that our conjecture resembles findings regarding hostile encoding bias (Dodge, 1993; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). The latter refers to the tendency to attribute hostile intentions to others, which has been found to be highly relevant for the experience of anger and aggression.

An alternative interpersonal variable that may possibly be relevant for trait anger is interpersonal distrust. The latter has indeed been documented to be positively associated with trait anger (Haukkala, 2002; Martin et al., 2000). However, we argue that distrust may be viewed as a combination of both previous mentioned interpersonal variables in the prediction of trait anger: Interpersonal distrust refers to distrusting others (which is associated with low agreeableness, Martin et al., 2000) in reaction to the belief that one is not highly regarded by others, or that others have malevolent intentions (which lines up with perceived low social esteem). As such, we do not expect a measure of distrust to have additional explanatory power in predicting trait anger above both its constituting variables.

Second, we argue that the degree to which people attach importance to their interpersonal relationships can amplify the effect of each of the above-mentioned variables on trait anger. A fundamental aspect of emotion theories states that an object must bear relevance or importance to an individual's goals and values in order to enable him or her to become emotional about the object (e.g., emotional relevance, Smith & Lazarus, 1993): If one does not care about a certain situation or person, one will not likely become emotional when something (good or bad) happens regarding that situation or person. As mentioned above, anger generally occurs in the context of interpersonal relationships. As such, we hypothesize that the importance an individual attaches to his or her social relations, plays a role in trait anger. We do not believe, however, that the attached importance unconditionally affects trait anger, but instead that it can amplify the effect interpersonal beliefs and attitudes exert on trait anger. In other words, we believe that the interaction between the interpersonal variables mentioned above and the importance attached to social relations contributes to trait anger, on top of the contribution of the main effects of the included interpersonal variables. More in particular, we hypothesize that the proposed association between low agreeableness and trait anger, between perceived low social esteem and trait anger, and between distrust and trait anger, will be stronger for individuals that attach more importance to their social relationships as compared with individuals that attach less importance to such relationships, in line with assertions regarding the role of emotional relevance in emotion theories.

A caveat with respect to the predictions outlined above, is that the mutual interrelations between the variables of interest may be a result of their associations with a third-party confounding variable. An important variable to consider in this respect is social desirability. Indeed, the latter

has been documented to be associated with trait anger (Bartz, Blume, & Rose, 1996; Gisi & D'Amato, 2000), with agreeableness (Graziano & Tobin, 2002; Stoeber, 2001), and with interpersonal distrust (Gustavsson et al., 2000), and can be conceived to be correlated with perceived social esteem as well—for instance, perceived social esteem is likely to be related to self-esteem (Murray et al., 2003), which is correlated with social desirability (Robins, Tracy, Trzesniewski, Potter, & Gosling, 2001; Ryden, 1978). As such, it may be that found associations between our predictor variables and trait anger may be due to their common associations with social desirability. A crucial test of our account of trait anger thus consists of also evaluating the hypotheses described above when controlling for social desirability.

Summarizing, we aim at providing an interpersonal account of trait anger, from which we expect that attitudes or beliefs regarding the relation between an individual and others influence trait anger:

a. The general propensity to behave agreeably towards others is expected to be negatively associated with trait anger.
b. Independent from the previous, trait anger is expected to be positively associated with the belief that one is negatively valued by others (perceived low social esteem).

Interpersonal distrust could be considered as a combination of both low agreeableness and perceived low social esteem, thus we expect no additional predictive value of distrust above that of both previous variables.

c. The effect of each of the above-mentioned variables is expected to be amplified as an individual attaches more importance to social relations.

In our study, well-established trait measures of anger, agreeableness, distrust, and social desirability were used. For perceived social esteem, however, a questionnaire was constructed as a measure of this variable (derived from a measure of self-esteem).

2. Method

2.1. Participants

Participants were 360 first year psychology students that participated in return for course credits. The sample consisted of 299 females and 61 males, with an average age of 18.65 years.

2.2. Materials

2.2.1. Trait anger

Trait anger was measured making use of the Dutch adaptation of the Spielberger trait anger scale (Van der Ploeg, Defares, & Spielberger, 1982). The scale consists of 10 items, such as "I have a fiery temper" and "I am a hotheaded person", that have to be rated on a four-point scale (from 1 = almost never to 4 = almost always).

2.2.2. Agreeableness

We used the agreeableness scale of the Dutch version of the NEO-FFI questionnaire (Hoekstra, Ormel, & De Fruyt, 1996). This questionnaire consists of 60 items, with sets of 12 items measuring each of the five-factor personality dimensions, among which is agreeableness. Some items designed to measure agreeableness are "I try to be nice to everyone I meet" and "In general, I try to be alert and caring". Respondents are asked to indicate the degree to which they agree or disagree with each of the statements using a five-point scale (ranging from 1 = strongly disagree to 5 = strongly agree).

2.2.3. Perceived social esteem

As mentioned above, perceived social esteem refers to an individual's assessment of how one is valued by others (in positive or negative terms). As such, it is viewed as a perceived social counterpart of generalized self-esteem (how an individual values him- or herself, in positive or negative terms). Following on this line of thought, we adapted the items from the Rosenberg self-esteem scale (Rosenberg, 1989) to obtain a measure of perceived social esteem. The original Rosenberg self-esteem scale includes five positively and five negatively formulated items that reflect an individual's appraisal of oneself, such as "On the whole, I am satisfied with myself", and "At times I think I am no good at all", etc., which have to be rated on a four-point scale (ranging from 1 = strongly disagree to 4 = strongly agree). For the present study, we reformulated all ten items of this scale such that they reflect an individual's perceived evaluation by others ("On the whole, others are satisfied with me", and "At times others think I am no good at all", etc.). After recoding the negatively formulated items, the average score across the ten items was then calculated as a measure of perceived social esteem.

2.2.4. Distrust

The mistrust scale of the Swedish Universities scales of personality, reflecting suspicion and distrust of other people's motives, was used to assess interpersonal distrust (Gustavsson et al., 2000). The scale includes seven items such as "I find it hard to trust other people" and "I try to be alert in order to avoid being used by others", which are rated on a four-point scale (ranging from 1 = not at all applicable to 4 = totally applicable).

2.2.5. Importance of social relationships

The importance that an individual attaches to his or her social relations was measured by a single item, "To which extent do you feel your relationships with others are important to you?" The item had to be rated on a seven-point scale (ranging from 1 = totally unimportant to 7 = very important).

2.2.6. Social desirability

The social desirability scale of the Swedish Universities scales of personality was used (Gustavsson et al., 2000). The scale consists of seven items, such as "I never mind when others ask me for a favor" or "When I make a mistake, I am always willing to admit it", to be rated on a four-point scale (ranging from 1 = not at all applicable to 4 = totally applicable), and reflects socially conforming attitudes.

2.3. Procedure

All questionnaires were administered in the context of group sessions. The sessions were organized to enable the students to obtain course credits in exchange for participation.

3. Results

First, we will report descriptive statistics of the included scales and their interrelations. Second, results of (hierarchical) multiple regression analyses addressing the research hypotheses will be reported.

3.1. Descriptive statistics

Table 1 lists the mean scores across subjects for the trait anger scale, agreeableness scale, perceived social esteem scale, distrust scale, the importance of social relations item, and the social desirability scale, as well as Cronbach alpha reliability coefficients for the scales. The results regarding the latter demonstrated that the scales are characterized by a satisfactory internal consistency. Next, correlations between all measures were calculated, which are also reported in Table 1. The results show that the introduced scale for perceived social esteem was positively correlated with agreeableness, and negatively with distrust, which can be seen as in line with the proposed content of the scale. Agreeableness and distrust were negatively correlated, in line with expectations. Trait anger itself was negatively correlated with agreeableness, perceived social esteem, and positively with distrust; it was not associated with the importance the participants attach to their social relationships. Finally, social desirability proved to be significantly related to all other variables under study (with the exception of importance of social relationships).

3.2. Regression analyses

First, a multiple regression analysis was performed with trait anger as dependent, and agreeableness, perceived social esteem, and distrust as independent variables (for all variables, z-scores were used). The importance of social relations was not entered into the analysis given the obtained lack of association between this variable and anger (see Table 1). The results can be found in Table 2. It can be derived that both low agreeableness and perceived low social esteem signifi-

Table 1
Mean scores, standard deviations, Cronbach alpha coefficients, and intercorrelations between the scales

Scale	Mean	SD	α	1	2	3	4	5
1. Trait anger	2.23	0.57	0.87					
2. Agreeableness	3.72	0.45	0.69	−0.32***				
3. Perceived social esteem	3.22	0.42	0.87	−0.23***	0.24***			
4. Distrust	1.85	0.51	0.74	0.27***	−0.36***	−0.39***		
5. Importance relations	6.52	0.73	–	0.03	0.17**	0.09	−0.14**	
6. Social desirability	3.04	0.41	0.65	−0.36***	0.32***	0.21***	−0.11*	0.07

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 2
Summary of hierarchical regression analyses predicting trait anger from agreeableness, perceived social esteem, distrust, and interaction terms with importance attached to social relationships

	β	t	p
Step 1			
Agreeableness	−0.27	−4.62	0.000
Perceived social esteem	−0.16	−2.61	0.009
Distrust	0.07	1.10	0.274
Step 2(a)			
Agreeableness	−0.15	−1.95	0.052
Perceived social esteem	−0.16	−2.72	0.007
Distrust	0.07	1.20	0.233
Importance × low agreeableness[a]	0.19	2.67	0.008
Step 2(b)			
Agreeableness	−0.29	−4.89	0.000
Perceived social esteem	−0.02	−0.28	0.774
Distrust	0.08	1.22	0.221
Importance × perceived low social esteem[b]	0.19	2.59	0.010
Step 2(c)			
Agreeableness	−0.29	−4.95	0.000
Perceived social esteem	−0.17	−2.79	0.006
Distrust	−0.07	−0.91	0.363
Importance × distrust[c]	0.20	2.78	0.006

Note: $R = 0.39$, $R^2 = 0.15$ for Step 1 ($p < 0.001$); $\Delta R^2 = 0.02$ for Step 2(a); $\Delta R^2 = 0.02$ for Step 2(b); $\Delta R^2 = 0.02$ for Step 2(c) ($ps \leqslant 0.01$).

[a] Importance of social relationships scores × inversely coded agreeableness scores.

[b] Importance of social relationships scores × inversely coded perceived social esteem scores.

[c] Importance of social relationships scores × distrust scores.

cantly contributed to trait anger; the observed association between trait anger and distrust from Table 1 disappeared when controlling for agreeableness and perceived social esteem (although not presented here, partial correlations between trait anger and distrust, controlling for agreeableness and/or perceived social esteem, further revealed that both agreeableness and perceived social esteem mediated the relation between the former two variables).

Second, several separate hierarchical regression analyses were performed: In each analysis, the first step consisted of the regression equation described above; in a second step, an interaction term between importance of social relationships on the one hand and one of the original predictor variables on the other hand was added. In the analyses, this interaction term consisted of the product of the importance-item scores with the inversely coded agreeableness scale scores, with the inversely coded perceived social esteem scores, or with the distrust scale scores (see Table 2, Steps 2(a)–2(c), respectively). The interaction terms were entered in separate regression analyses in order to avoid problems of collinearity that could arise as a result of the dependencies between the different interaction terms. In each case, the interaction term added significantly to the prediction of trait anger. Also, adding the interaction between importance of social relationships and one of the interpersonal predictor variables more or less cancelled out the effect of the corresponding single predictor variable.

Table 3
Summary of hierarchical regression analyses predicting trait anger from agreeableness, perceived social esteem, distrust, and interaction terms with importance attached to social relationships, controlling for social desirability

	β	t	p
Step 1			
Agreeableness	−0.19	−3.25	0.001
Perceived social esteem	−0.11	−1.79	0.075
Distrust	0.09	1.53	0.127
Social desirability	−0.25	−4.46	0.000
Step 2(a)			
Agreeableness	−0.07	−0.90	0.370
Perceived social esteem	−0.11	−1.89	0.059
Distrust	0.10	1.64	0.102
Social desirability	−0.26	−4.53	0.000
Importance × low agreeableness[a]	0.19	2.79	0.006
Step 2(b)			
Agreeableness	−0.21	−3.54	0.001
Perceived social esteem	0.03	0.45	0.650
Distrust	0.10	1.69	0.093
Social desirability	−0.26	−4.57	0.000
Importance × perceived low social esteem[b]	0.20	2.80	0.005
Step 2(c)			
Agreeableness	−0.19	−3.25	0.001
Perceived social esteem	−0.11	−1.96	0.054
Distrust	−0.05	−0.64	0.525
Social desirability	−0.25	−4.53	0.000
Importance × distrust[c]	0.20	2.90	0.004

Note: $R = 0.45$, $R^2 = 0.20$ for Step 1 ($p < 0.001$); $\Delta R^2 = 0.02$ for Step 2(a); $\Delta R^2 = 0.02$ for Step 2(b); $\Delta R^2 = 0.02$ for Step 2(c) ($ps < 0.01$).

[a] Importance of social relationships scores × inversely coded agreeableness scores.

[b] Importance of social relationships scores × inversely coded perceived social esteem scores.

[c] Importance of social relationships scores × distrust scores.

Finally, the regression analyses described above were also performed with social desirability entered into the first step of each regression analysis. In doing so, our research questions could be evaluated when controlling for social desirability. The results are given in Table 3. Two main findings emerge: First, the results clearly show that controlling for social desirability did not change the previously observed relations between the variables of interest (as an exception, however, the contribution of perceived social esteem remains only marginally significant). Second, social desirability itself also contributed significantly to the prediction of trait anger.

4. Discussion

This study aimed at presenting an interpersonal account of trait anger. The aim was not to provide a comprehensive account of the determinants of trait anger (as can be derived from the

relatively low R^2-values). The present study does, however, highlight the importance of incorporating interpersonal beliefs and attitudes in accounts of the dispositional experience of anger: In sum, it was found that low agreeableness and perceived low social esteem are predictors of trait anger. A positive association between trait anger and distrust was observed as well, but this association was found to be mediated by agreeableness and perceived social esteem, suggesting that distrust can be conceptualized as a combination of both latter variables in predicting trait anger. Moreover, it was found that attaching importance to social relationships amplifies the predictive power of all previously mentioned variables. The found relations could not be explained by social desirability, which in itself uniquely contributed to trait anger as well.

Our account thus suggests that trait anger involves both attitudes towards others as well as beliefs about how one is valued by others, clearly demonstrating the interpersonal nature of anger. Both aspects contributed independently to trait anger: First, it was shown that low agreeableness is related to trait anger, consistent with previous research. Thus, anger involves a relatively negative interpersonal attitude. The latter is also clearly reflected in the action tendencies that are primarily associated with anger, such as antagonism (Frijda, Kuipers, & ter Schure, 1989). Second, the results demonstrated that the belief of being valued low by others is related to trait anger. It is possible that such perceptions are experienced as threatening to one's own self-esteem, which is considered to be an important determinant of anger and aggression (Baumeister et al., 1996; Kernis, Grannemann, & Barclay, 1989).

Our findings link up with elements from the model recently proposed by Anderson and Bushman (2002) to account for aggression. In their model, the authors suggested that knowledge structures, developed out of previous experiences and consisting of attitudes and beliefs (towards oneself, others, or objects), lead to perception and expectation biases and guide future affective experiences and behavior. Similarly, our results indicate that negative attitudes towards others and pessimistic perceptions of how one is valued by others may be reflections of knowledge structures that are relevant for the experience of anger. As such, these aspects can be assumed to prime the occurrence of certain attributions or appraisals—such attribution biases or appraisal tendencies are assumed to lie at the basis of stable individual differences in emotional experience (Dodge, 1993; van Reekum & Scherer, 1997). For instance, low perceived social esteem may facilitate the experience of derogation by others, leading to a higher general tendency to experience anger.

Finally, it was found that the effects of the interpersonal variables of low agreeableness, low perceived social esteem as well as distrust on trait anger are amplified as people attach more importance to their social relationships. The importance of social relationships in itself, however, was not related to anger. The results thus suggest that it is a combination of caring about such relations, together with negative attitudes towards others or pejorative beliefs about others' opinions about oneself that maximally predispose an individual to experience anger. This finding contradicts the perhaps commonly held view that anger proneness is associated with caring little about interpersonal contacts. In contrast, the current findings suggest that the importance of social relations does play a role in trait anger, in line with the role of emotional relevance in general emotion theories. High importance of social relations alone however is not sufficient to contribute to trait anger, not unless it occurs in combination with specific negative interpersonal attitudes and beliefs. This finding should also not be seen as contradictory to the obtained negative association between social desirability and trait anger. Social desirability refers to the desire to maintain favorable impressions and comply with social standards and norms, which is distinct from

attaching importance to social relations. Instead, low social desirability may be seen as part of the above-mentioned knowledge structures that predispose an individual to anger proneness as well.

It could be argued that a limitation of the present study consists of the underrepresentation of male participants in our sample (although the ratio reflects typical sex-ratios in psychology education in Belgium). The uneven sex proportion made the inclusion of sex differences into our analyses somewhat hazardous. It should be noted, however, that it has been concluded on the basis of prior research that men and women do not differ with respect to the general proneness to experience anger (e.g., Bartz et al., 1996; Milovchevich, Howells, Drew, & Day, 2001). For instance, after reviewing a large number of studies regarding trait anger, Deffenbacher (1992) concluded that sex differences have a limited impact on anger proneness. As such, sex differences were not included in our account of trait anger.

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