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What Coping Tells about Personality

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Abstract

In this study, 123 participants (non-psychology students) who responded to an interpersonal stress situation staged in the laboratory were judged by unacquainted observers in terms of the Big Five dimensions, intelligence and social attractiveness. Coping behaviour appeared to predict personality impressions in a way that mirrors the relations between personality and coping observed in previous research: Overall, higher levels of Extraversion (E), Agreeableness (A), Conscientiousness (C) and Openness to experience (O) (as well as intelligence and social attractiveness) were predicted by problem-focussed behaviour and cognitive restructuring, whereas higher levels of Neuroticism (N) were predicted by withdrawal/passivity. The interpersonal impact of the particular coping reactions, as indicated by a positive personality impression, were largely inconsistent with their impact on affect following the stress induction. Copyright © 2009 John Wiley & Sons, Ltd.

Key words: coping; personality; personality judgments

INTRODUCTION

Over the past two decades, the relationship between personality and coping has regained strong research attention. A large body of evidence attests to direct or indirect relations between personality and coping (e.g. Bolger & Zuckerman, 1995; Bouchard, Guillemette, & Landry-Léger, 2004; David & Suls, 1999; DeLongis & Holtzman, 2005; Knoll, Rieckmann, & Schwarzer, 2005; Lee-Baggley, Preece, & DeLongis, 2005; Suls, David, & Harvey, 1996; Watson & Hubbard, 1996). Recently, a meta-analysis documented small to moderate associations between personality (as indicated by the Big Five dimensions) and the differential use of coping strategies (Connor-Smith & Flachsbart, 2007). By and large, the results show that Extraversion (E), Openness to experience (O), Conscientiousness (C) and—to a smaller extent—Agreeableness (A) were positively associated with coping strategies that were classified as primary and secondary control, in particular problem solving and cognitive restructuring. In contrast, Neuroticism (N) was positively related to coping behaviours that were classified as disengagement, especially withdrawal and

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wishful thinking, and to negative emotion focus. Overall, the strongest associations were found for E, N and C, with the highest mean effect ($r = .41$) found for the relation between N and negative emotion focus.

With the relations between personality and coping behaviour firmly established, the question arises whether personality can also be inferred from coping behaviour—that is whether coping behaviour is diagnostic of personality. This question can be seen as a special application of the more fundamental question to what extent lay perceivers use behavioural signs that are associated with certain traits to infer the presence of these traits in others (Borkenau & Liebler, 1992, 1995; Funder & Sneed, 1993). In our present research, we take up this perspective and examine whether personality impressions that observers—lay persons—form from observing persons cope with an aversive situation correspond to the associations between personality and coping documented in the research literature. Such a correspondence would reflect a robust link between personality and coping that goes beyond the scientific evidence for trait-based interindividual differences in coping choice. It would suggest a high consensus between scientific and social knowledge concerning the links between personality and coping. Observers are likely to rely on this social knowledge when they infer traits from (unfamiliar) persons' behaviour, either intentionally or automatically (Uleman, Saribay, & Gonzalez, 2008).

In the present research, unacquainted observers judged participants who responded to an interpersonal stress situation staged in the laboratory in terms of the Big Five dimensions, intelligence and social attractiveness. With this design, we used the methodological advantages offered by laboratory stressors (e.g. Connor-Smith & Flachsbart, 2007). In our study, all participants were confronted with a standardized stressor that—though standardized—allowed for individual differences in spontaneous coping reactions. Most importantly, in the laboratory setting, we were able to examine the extent to which coping-based personality judgments could be predicted from two different perspectives, namely self-reports and observer ratings of the participants' coping behaviour. To ensure independent observer ratings, we used two different observer groups for the personality ratings and the ratings of the participants' coping behaviour. To distinguish between these two different data sources, in the following we will refer to the first group as 'Personality Observer Group' (POG) and to the second group as 'Coping Observer Group' (COG).

We assumed that the interpersonal stress episode staged in the laboratory provided judges with a brief, but meaningful and coherent sample of the targets' coping behaviour. Results from the 'thin slices of behaviour' research tradition suggest that trait impressions inferred from brief excerpts of behaviour will be especially valid when the slices are meaningful and relevant for the variables to be judged (Ambady, Bernieri, & Richeson, 2000). In our case, the validity of the personality judgments was measured against two criteria: First, and most relevant to the aim of our present study, the coping-based lay assessments of the targets' personality were compared with the associations between personality and coping documented in the research literature. The respective participants' self-ratings of their personality served as a second criterion.

THE PRESENT RESEARCH

Our present study was guided by two major aims. First, we wanted to examine whether coping behaviour could predict personality impressions in a way that mirrors the observed relationships between personality and coping. Second, we compared the interpersonal

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impact of coping, as indicated by a favourable personality impression, with the affective impact of the particular coping reactions, as indicated by their associations with changes in affect following the stress induction.

In the first part of the present study, participants were treated unfairly in the laboratory; a confederate experimenter (falsely) accused them of having caused the breakdown of a computerized task they were asked to complete. This was part of a larger study testing sex differences in anger-related behaviour (see Weber & Wiedig-Allison, 2007, which presents results unrelated to those reported here). The participants' responses to the provocation were assessed from two different perspectives—self-reports and observer ratings of the participants' behaviour based on video clips.

Self-reports and observer ratings of the participants' coping reactions (COG) were measured via six dimensions that represent basic strategies in coping with interpersonal anger-eliciting situations (Kubiak, Wiedig-Allison, Zgoriecki, & Weber, 2008; Weber & Wiedig-Allison, 2007; Weber, Wiedig, Freyer, & Gralher, 2004), including non-hostile feedback, humour, distancing, rumination, submission and venting anger. In terms of higher order coping categories (Connor-Smith & Flachsbart, 2007; Skinner, Edge, Altman, & Sherwood, 2003), these coping reactions can be classified as problem solving (feedback), cognitive restructuring (humour and distancing), passive behaviour or withdrawal (submission) and negative emotion focus (venting anger and rumination). On the basis of these higher order coping dimensions, we were able to compare our findings that relate to a specific stress-situation with the corresponding findings for the relations between personality and coping.

In addition to the participants' self-reports of their coping behaviour that are typically used in studies on personality and coping (for an overview see Connor-Smith & Flachsbart, 2007), we obtained observer ratings of the participants' reactions (COG). Two reasons led us to include observer ratings. First, we assumed that observer ratings of the targets' coping behaviour provided the corresponding measure for personality judgments inferred from coping behaviour (provided by POG), as the two data sources share the same—outside—perspective. Second, given the notorious biases of self-reports, we were interested in adding a different data source.

In the second part of the present study, independent judges (POG) who were unacquainted with the participants were presented with video clips depicting the provocation and the participants' responses, and were asked to judge the participants in terms of the Big Five dimensions, intelligence and social attractiveness. We included social attractiveness as a direct measure of how positively the participants were perceived. Based on the assumption that the personality judgments inferred from coping behaviour mirror the relations between personality and coping documented in the literature (Connor-Smith & Flachsbart, 2007), we predicted that participants who were more likely to respond to the provocation in a problem-oriented way and by way of cognitive restructuring (i.e. giving non-hostile feedback, humour and distancing) would receive higher ratings for E, C and O (as well as intelligence and social attractiveness), and lower ratings for N. In contrast, we expected that those who were more likely to show negative emotion focussed responses and passive behaviour (i.e. venting anger and submission) would receive higher scores in N. A lower tendency for venting anger and a higher tendency for submission should be related to higher levels of A. Our predictions were unspecific to the data source used for assessing the participants' coping behaviour. Due to a lack of comparable studies, we had no specific hypotheses concerning possible differences in predicting coping-based personality judgments using self-reports versus observer ratings.

DOI: 10.1002/per

One of the primary aims of our present study pertains to the social consequences of coping implicated in the personality impressions inferred from coping behaviour. Given that, trait poles such as low versus high C differ in the extent to which they are socially desirable (e.g. John & Robins, 1993; Paulhus, Bruce, & Trapnell, 1995), lay assessments of personality based on coping behaviour may bear clear evaluative implications. For example, it seems plausible to assume that coping behaviour that is interpreted as signaling an emotionally stable, agreeable and conscientious person is greatly beneficial to the targets' social functioning, mainly because such an impression signals reliability and mastery to some extent, which is highly relevant in many social contexts. Consequently, conveying a positively valued personality when coping with stressful situations likely enhances social acceptance and interpersonal attraction (Dunkel-Schetter & Skokan, 1990; Vollmann, Renner, & Weber, 2007).

While the focus of the present research was on the social consequences of coping, we included changes in positive and negative affect following the stress induction as a second outcome variable. In research on stress and coping, change in affect (and thus psychological well-being) is the typical criterion used to evaluate the effectiveness of coping behaviour. This empirical focus on affect notwithstanding, coping is generally thought to serve multiple purposes, including maintaining mental and physical health, and social functioning (e.g. Lazarus & Folkman, 1984). With the two different outcomes used in the present study, we were able to address the multifunctionality of coping and to compare the social impact of the coping reactions with their possible impact on (short-term) subjective well-being. Based on previous research, we assumed that the effectiveness of coping reactions may vary with the specific outcome (e.g. DeLongis & Holtzman, 2005; Suls & Fletcher, 1985), but we made no specific predictions.

METHOD

Participants

Participants were 157 students (non-psychology) at the University of Greifswald, who took part in a larger study on sex differences in anger-related behaviour, results of which have been reported elsewhere (Weber & Wiedig-Allison, 2007). They received 20 Euros for participation. We excluded the data of 34 participants who indicated during debriefing that they had been suspicious of the purported goals of the study or had previously heard about the study, leaving a final sample of 123 participants (60 women, 63 men; mean age = 22.9 years, SD = 3.0).[1]

Procedure

Participants were recruited by means of flyers distributed on the University campus. Those interested in participating were told that the aim of the research was to study the relationship between personality and concentration skills and that it consists of two parts:

[1]We excluded all participants from analyses who reported during debriefing that they had been suspicious of the purported goals of the study. However, viewing the videos showing these participants' reactions to the provocation made us suspicious of the reported suspiciousness in at least half of the cases. We suspected that in these cases, the self-reported suspiciousness might reflect the intention to present oneself during debriefing as a person who cannot be tricked. Nevertheless, we accepted the participants' self-reported suspiciousness, leading to a comparatively high exclusion of potential participants.

DOI: 10.1002/per

completing a set of questionnaires at home and participating in a laboratory test. After giving their consent, the participants were given a set of questionnaires measuring various personality traits such as the Big Five dimensions, as well as habitual anger-related reactions. The data on habitual anger-related reactions are reported elsewhere (Weber & Wiedig-Allison, 2007). The participants were asked to return the questionnaires when attending the scheduled laboratory session.

The laboratory session was scheduled approximately 1 week later. The participants were randomly assigned to a same-sex or opposite-sex experimenter (role-played by two senior psychology students). At the beginning of the study, the experimenter reminded the participants that the study was about personality and concentration skills. The participants were then informed that they would work on two tasks that measured attention and concentration. They were also told that they would be videotaped while they performed the tests to monitor their blink rate and gestures during task fulfilment. After giving their consent to the video recording, a paper-and-pencil test measuring concentration was administered to lend credence to the cover story. Subsequently, the participants completed a self-report measure of baseline positive and negative affect.

In the subsequent anger-induction phase, the participants worked on a computerized version of the Stroop test (Glaser, 1991). The test required the participants to indicate, as quickly as possible, the colour in which a colour word is printed on the screen, by pressing one of three keys marked red, blue and green. To produce the typical Stroop-interference, the colour words were printed in a colour incongruent with the semantic content of the word. The participants were carefully instructed to use only the three coloured keys and to press no other key on the keyboard.

The Stroop test was manipulated to break down after 5 minutes of perfect functioning.[2] As soon as this happened, the experimenter accused the participant of having pressed the 'Enter' key, thereby causing the breakdown of the computer program. In addition, the experimenter commented in a brusque and condescending manner that the task should have been easy enough, implying that the participant failed on something trivial. After pretending to attempt a restart of the program (which failed), the experimenter announced that due to the participant's fault, the data were useless. Therefore, the participant would not receive the promised reward. Subsequently, the participants completed several questionnaires, including measures of state positive and negative affect, and a questionnaire asking for their reactions towards the experimenter.

After they had completed the questionnaires, the participants were debriefed about the true nature of the study and were offered the possibility to withdraw their data (no one accepted). Thereafter, they were thanked for their participation, received the 20 Euros, and were asked to sign a written permission to use the videotapes for further analyses. Finally, they were asked whether, at any point during the experiment, they had had doubts concerning the true purpose of the study or had heard about it before.

The experimenters were carefully trained and supervised in the enactment of the provocative behaviour using video feedback. To verify that the provocation had the intended effect, videos of the experimenters' behaviour was judged by a group of independent observers. These manipulation checks showed that (a) the experimenters' behaviour was perceived as unfair, anger-eliciting, unfriendly, unjust and inappropriate,

[2]We are grateful to Wilhelm Glaser for allowing us to manipulate the computerized Stroop test that he developed. The programme manipulation was conducted by Conrad Schimke and Alexander Kaps.

DOI: 10.1002/per

and that (b) these ratings did not differ as a function of sex of participant and sex of experimenter (Weber & Wiedig-Allison, 2007).

MEASURES: SELF-RATINGS

The *Big Five dimensions* were measured with a German translation of the 10-item short version of the Big Five Inventory (BFI-10), in which each dimension is assessed by two items, representing both the high and low pole of the corresponding dimensions (Rammstedt & John, 2007). The items had a response format ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). Prior research (Rammstedt & John, 2007) has shown that the BFI-10 is marked by high retest-reliability, high convergent validity and high external validity using peer ratings.[3]

Pre- and post-provocation positive and negative affect was assessed by the German adaptation (Krohne, Egloff, Kohlmann, & Tausch, 1996) of the *Positive and Negative Affect Schedule* (Watson, Clark, & Tellegen, 1988). On 10 items for positive affect (PA) and 10 items for negative affect (NA), participants indicated on a 5-point scale ranging from 0 (*only a bit or not at all*) to 4 (*extremely*) how they felt right now. Cronbach's α for PA was .85 (pre) and .89 (post); for NA .61 (pre-) and .90 (post).

Coping reactions were assessed with a situation-specific version of the *Anger-Related Reactions and Goals Inventory* (ARGI). The ARGI measures six rationally derived, conceptually distinct dispositional anger-related reactions and six rationally derived, conceptually distinct dispositional anger-related goals focussing on interpersonal situations (Kubiak et al., 2008; Weber et al., 2004).[4] In the situated version of the ARGI used in the present study, the participants indicated on a 4-point scale from 1 (*not at all*) to 4 (*completely*) how they responded to the behaviour of the experimenter after the computer broke down. Each subscale consists of four items (see Weber & Wiedig-Allison, 2007). The subscales include *Venting* (e.g. 'I flared up'), *Submission* (e.g. 'I gave in to avoid arguing'), *Feedback* (e.g. 'I told the experimenter what I disagreed with in a calm but clear way'), *Distancing* (e.g. 'I did not take much notice of it'), *Rumination* (e.g. 'I could not stop thinking about the experimenter's behaviour and what made me angry') and *Humour* (e.g. 'I looked at the funny side'). Scale scores were computed by adding up the four items per scale.

In the present sample, the reliabilities of the ARGI-subscales were sufficient to good, with Cronbach's α coefficients ranging from .66 for distancing to .90 for humour (for details, see Weber & Wiedig-Allison, 2007). The intercorrelations among the subscales were small to moderate; the largest correlations were found for humour and distancing ($r = .57$, $p < .01$), and for rumination and distancing ($r = -.51$, $p < .01$). Men and women differed only in distancing, with men reporting distancing to a significantly higher extent.

[3]The correlations between the two items representing one dimension (after reverse-scoring the low pole item) were $r = .31$, $p < .01$ (N); $r = .62$, $p < .01$ (E); $r = .43$, $p < .01$ (O); $r = .29$, $p < .01$ (C) and $r = .05$, $p = .58$ (A). Given that the two items for each Big Five dimension were selected to cover a broad bandwidth for each dimension and to measure core aspects of a dimension, while being not highly redundant in content (Rammstedt & John, 2007), the small to moderate correlations are consistent with the rationale for constructing the BFI. As reported by Rammstedt and John (2007), the reliability of the BFI was confirmed by substantial test–retest stability.

[4]The goals measured by the ARGI reflect the objectives that people pursue when responding to anger-eliciting interpersonal events (see Kubiak et al., 2008). In the present report, only the anger-related reaction subscales of the ARGI were used, since the study focussed on observable behaviour rather than intentions.

DOI: 10.1002/per

MEASURES: OBSERVER RATINGS

Observer ratings of coping reactions (COG)

The video clips showing the interaction between participant and experimenter were rated by 30 observers (15 male and 15 female psychology students) who were unaware of the study's goals and not acquainted with any of the participants. The participants' behaviour was shown from the moment the program broke down and the experimenter started to accuse the participant until the end of the participant's response to the experimenter's announcement that the promised reward (20 Euros) would be withheld.

The raters used an observer version of the situational form of the *ARGI* scales, in which the items were rephrased in the third person (e.g. 'He [she] told the experimenter what he [she] disagreed with in a calm but clear way'). Again, the response format ranged from 1 (*not at all*) to 4 (*completely*). Observer ratings were restricted to the five reaction subscales that could be judged on the basis of verbal and/or non-verbal behavioural signs: feedback, humour, distancing, venting and submission. The subscale rumination was omitted, because rumination is difficult to infer from observable behaviour, particularly if the observation period is short. In four sessions, each rater watched 41 videotapes and each participant was rated independently by 10 observers (five men and five women). Scores for the five reaction subscales were computed by averaging the observers' ratings.

The reliability (interrater agreement) of the observer ratings, estimated on the basis of a random subset of 41 videos rated by 10 independent observers, was high, with values (Cronbach's α) ranging from .86 to .92. The intercorrelations among the observer-based reaction scales were small to moderate; the largest correlations were found for venting and distancing ($r = -.68$, $p < .01$), and for humour and distancing ($r = .60$, $p < .01$). Men received significantly higher ratings on humour and distancing than women, whereas women received higher ratings than men on venting. Self- and observer ratings of participants' reactions correlated weakly to moderately, with correlations ranging from $r = .22$, $p < .05$ (feedback) to $r = .36$, $p < .01$ (submission) (for details see Weber & Wiedig-Allison, 2007).

Observer judgments of personality (POG)

In 10 sessions, four paid judges (non-psychology students, two men and two women) who were unacquainted with the first part of the study independently rated the 123 participants. The judgments of the participants' personality were based on the same video clips used for the observer ratings of the coping reactions.

Personality (Big Five dimensions) and *intelligence* were rated on bipolar 5-point rating scales with adjective pairs as anchors. All adjective pairs were adapted from Borkenau, Mauer, Riemann, Spinath, and Angleitner (2004). The Big Five dimensions as well as intelligence were each measured by four adjective pairs. *Social attractiveness* was measured by six items assessing interest in interacting with the participant on six different occasions, such as working on a project together or going to a party together. The items were rated on a 7-point scale, with the anchors 1 '*definitely no*' and 7 '*definitely yes*.' The scores on the six items were averaged to create one scale. The ratings of the four judges were averaged to form one score on each item. Internal consistencies (Cronbach's α) of the seven scales ranged from .80 for neuroticism to .96 for openness and social attractiveness (see Table 2).

Table 1 provides an overview of the study design and the measures used.

DOI: 10.1002/per

Table 1. Overview of study design and measures

Procedure	Self-ratings	Observer ratings
(About) 1 week prior to laboratory session	Set of questionnaires, including Big Five (BFI-10)	
Laboratory session		
Pre-anger-induction	Positive (PA) and Negative (NA) state affect (PANAS)	
Post-anger induction	Positive (PA) and Negative (NA) state affect (PANAS) Coping reactions (ARGI)	
Video clips, showing the participants' behaviour in response to anger induction		*Coping Observer Group* (COG): ratings of the participants' coping reactions, based on ARGI (observer version) *Personality Observer Group* (POG): ratings of the participants' personality, based on items adapted from Borkenau *et al.* (2004)

RESULTS

Preliminary analyses

Manipulation check

To verify that the provocation had the intended effect on affect, *t*-tests were conducted to test changes in pre- versus post-induction affect. As expected, results showed a significant increase in NA (pre: $M = 13.26$, SD = 2.60; post: $M = 17.57$, SD = 6.78; $t(122) = -7.67$, $p < .001$, $d = 0.84$) and a significant decrease in PA (pre: $M = 29.58$, SD = 6.21; post: $M = 27.63$, SD = 7.41; $t(122) = 4.04$, $p < .001$, $d = 0.29$).

Personality judgments and participants' self-reports of their personality

Self- and observer ratings (POG) of the Big Five dimensions correlated significantly for E ($r = .29$, $p < .01$), N ($r = .23$, $p < .05$) and C ($r = .19$, $p < .05$), respectively, which is largely in line with results of previous studies on the accuracy of personality judgments based on short observations of single-task behaviour (Borkenau & Liebler, 1993; Borkenau

Table 2. Intercorrelations among judgments of personality, intelligence, and social attractiveness

Scales	1.	2.	3.	4.	5.	6.	7.	*M* (SD)
Personality								
1. Extraversion	**.95**	−.55**	.07	.25**	.73**	.49**	.51**	2.93 (.98)
2. Neuroticism		**.80**	−.20*	−.32**	−.55**	−.52**	−.39**	2.73 (.67)
3. Agreeableness			**.92**	.54**	.34**	.62**	.60**	3.98 (.52)
4. Conscientiousness				**.92**	.51**	.75**	.57**	3.61 (.56)
5. Openness.					**.96**	.82**	.76**	2.99 (.88)
6. Intelligence						**.81**	.83**	3.51 (.57)
7. Social attractiveness							**.96**	4.19 (1.03)

Note: Internal consistency (Cronbach's α) along the diagonal is bold.
*$p < .05$; **$p < .01$.

DOI: 10.1002/per

et al., 2004). Self-ratings of O ($r = .17$, $p > .05$) and A ($r = .12$, $p > .05$) were positively, but not significantly related to the corresponding observer ratings. Overall, these findings corroborate the validity of judgments based on 'thin slices' of behaviour exhibited by persons unacquainted with the respective observers (Ambady et al., 2000).

Coping reactions and personality judgments

Table 2 shows descriptive statistics for and intercorrelations among the personality judgments (POG). The judgments on the Big Five scales were in part strongly correlated, which is consistent with findings indicating that the correlations among the Big Five dimensions are stronger as the personal distance between target and judges grow (Beer & Watson, 2008a,b). Intelligence and social attractiveness were strongly associated with the Big Five dimensions (keyed in the socially desirable direction), in particular with A, O and C.

Hierarchical regression analyses were conducted to test the unique contribution of each reaction to explain observer judgments of the Big Five dimensions, intelligence and social attractiveness. In a first series of analyses, we used observer ratings of coping reactions (COG) to test the effect of the particular reactions on personality judgments. In these analyses, sex of participant and all observer-rated reactions except for the target reaction were entered in the first step and the target reaction in the second step[5] (see Table 3). The results revealed that the strongest unique prediction of the personality judgments was found for *feedback*: over and above the other reactions, feedback predicted judgments of higher levels of E, O, A, C, intelligence and social attractiveness, as well as lower levels of N. In contrast, *submission* significantly predicted judgments of lower levels of E, O and intelligence, as well as higher levels of N. Contrary to our expectation, submission did not predict higher levels of A. *Distancing* contributed uniquely to the prediction of lower levels of N; *humour* to higher levels of E and *venting* to lower levels of A (but not, as was expected, to higher levels of N).

Replicating the analyses with the participants' self-reports of their coping reactions led to a somewhat different pattern of results (see Table 4, see also Footnote 5). For *venting* and *submission*, the findings were highly similar to that obtained for the observer ratings. By and large, this was also true for *feedback*, but here the self-ratings (uniquely predicting higher levels of C, intelligence and social attractiveness) appeared to be less strongly predictive of a favourable personality impression than were the observer ratings. Differences between self- and observer ratings were most pronounced for *distancing* and *humour*: Other than for the observer ratings, self-rated *distancing* predicted lower levels of C and intelligence, and appeared to be unrelated to N. Self-rated *humour* was more strongly

[5]All analyses on predicting personality judgments and changes in affect were repeated without entering sex in Step 1, leading to the same results, except for the regression of observer-rated distancing on positive affect, $\Delta R^2 = .01$, $F(1, 116) = 3.40$, $p = .07$, $\beta = .21$, $p = .07$.

In additional analyses, all hierarchical regression analyses on predicting personality judgments and changes in affect were conducted separately for the male and female sample. No significant differences between the male and female sample were found for the regression of observer-rated reaction scales on personality and affect. Differences were only found for the association of self-rated venting and humour with affect: in the male sample venting was positively associated with negative affect, $\Delta R^2 = .14$, $F(1, 55) = 19.40$, $p < .01$, $\beta = .39$, whereas in the female sample venting was positively associated with positive affect, $\Delta R^2 = .05$, $F(1, 52) = 7.99$, $p < .01$, $\beta = .25$. In the male sample humour was negatively associated with negative affect and positively associated with positive affect, $\Delta R^2 = .11$, $F(1, 55) = 17.99$, $p < .01$, $\beta = .44$ and $\Delta R^2 = .06$, $F(1, 53) = 7.58$, $p < .01$, $\beta = -.32$, respectively, whereas in the female sample humour was not significantly associated with either positive or negative affect, $\Delta R^2 = .01$, $F(1, 52) = .95$, $p = .33$, $\beta = -.10$ and $\Delta R^2 = .01$, $F(1, 52) = .75$, $p = .39$, $\beta = .12$, respectively.

DOI: 10.1002/per

Table 3. Summary of hierarchical regression analysis for predicting personality, intelligence, and social attractiveness

Target reaction scale included in Step 2	Criterion						
	E	N	A	C	O	I	SA
O-Venting							
adj. R^2 for step 1	.46**	.37**	.22**	.18**	.44**	.33**	.28**
ΔR^2	.02	.00	.05**	.01	.00	.01	.00
β	.21	.04	−.37**	−.14	−.01	−.18	−.03
O-Submission							
adj. R^2 for step 1	.42**	.23**	.27**	.16**	.39**	.30**	.26**
ΔR^2	.06**	.13**	.00	.02	.05**	.04*	.02
β	−.39**	.57**	−.01	−.24	−.34**	−.30*	−.22
O-Feedback							
adj. R^2 for step 1	.44**	.34**	.19**	.10**	.31**	.21**	.15**
ΔR^2	.04**	.02*	.08**	.08**	.13**	.12**	.12**
β	.24**	−.18*	.35**	.35**	.45**	.43**	.43**
O-Distancing							
adj. R^2 for step 1	.48**	.26**	.26**	.17**	.43**	.32**	.26**
ΔR^2	.01	.10**	.01	.02	.01	.01	.02
β	.13	−.61**	.23	.24	.21	.23	.26
O-Humour							
adj. R^2 for step 1	.45**	.36**	.27**	.18**	.44**	.34**	.38**
ΔR^2	.03**	.01	.00	.00	.01	.00	.00
β	.25**	.11	−.06	−.08	.12	.05	.01

Note. O-, observer ratings (COG); E, Extraversion, N, Neuroticism; A, Agreeableness; C, Conscientiousness; O, Openness; I, Intelligence; SA, Social Attractiveness; Step 1 includes sex of participant and all reaction scales except the target reaction scale included in Step 2; for Step 2 adj. $R^2_{\text{Extraversion}} = .48$, adj. $R^2_{\text{Neuroticism}} = .36$, adj. $R^2_{\text{Agreeableness}} = .26$, adj. $R^2_{\text{Conscientiousness}} = .18$, adj. $R^2_{\text{Openness}} = .44$, adj. $R^2_{\text{Intelligence}} = .33$, adj. $R^2_{\text{Social Attractiveness}} = .27$.

*$p < .05$; **$p < .01$.

predictive of a positive personality impression than other-rated humour, contributing uniquely to higher levels of C, O, intelligence and social attractiveness.[6] As indicated by the variance explained, personality judgments were more strongly associated with the observer-rated coping behaviours than the self-rated coping behaviours. This may be explained by shared method variance between the observer ratings that favours the predictions made by the observers.

The correlations between the participants' self-ratings of their personality and self-rated coping showed significant negative correlations between N and feedback ($r = -.20$, $p < .05$), and between N and distancing ($r = -.22$, $p < .05$); a significant positive correlation was obtained for N and rumination ($r = .36$, $p < .01$). Negative correlations were found between A and venting ($r = -.28$, $p < .01$) and between O and venting ($r = -.18$, $p < .05$). Overall, these correlations were in line with previous research (Connor-Smith & Flachsbart, 2007). However, compared to the previous findings, no

[6]Note that these relations are not due to an overlap in the contents of the items used to measure coping and the personality dimensions, as the coping and personality items reflect two different levels of generalization. The coping items (items see Weber & Wiedig-Allison, 2007) describe specific behaviours (e.g. 'he/she gave in to avoid arguing'), whereas the personality dimensions (items see Borkenau et al., 2004) were measured at the level of highly generalized adjectives (e.g. 'composed-nervous').

DOI: 10.1002/per

Table 4. Summary of hierarchical regression analysis for predicting personality, intelligence, and social attractiveness

Target reaction scale included in Step 2	Criterion						
	E	N	A	C	O	I	SA
S-Venting							
adj. R^2 for step 1	.15**	.17**	−.01	.10**	.20**	.12**	.06*
ΔR^2	.00	.02	.06**	.00	.02	.02	.01
β	.03	.14	−.26**	−.05	−.14	−.13	−.10
S-Submission							
adj. R^2 for step 1	.12**	.11**	.04	.10**	.16**	.10**	.06*
ΔR^2	.04*	.07**	.01	.01	.06**	.04*	.01
β	−.23*	.30**	−.10	−.10	−.26**	−.21*	−.13
S-Feedback							
adj. R^2 for step 1	.06*	.14**	.04	.08**	.14**	.11**	.05
ΔR^2	.09**	.04*	.01	.02	.07**	.02	.02
β	.33**	−.22*	−.12	.15	.29**	.16	.15
S-Distancing							
adj. R^2 for step 1	.16**	18**	.03	.03	.20**	.10**	.05
ΔR^2	.00	.00	.02	.08**	.02	.04*	.02
β	−.03	−.06	−.20	−.38**	−.17	−.26*	−.21
S-Rumination							
adj. R^2 for step 1	.15**	.18**	.04	.10**	.21**	.13**	.07*
ΔR^2	.00	.00	.01	.00	.00	.00	.01
β	.07	−.06	.12	.02	.08	.06	.09
S-Humour							
adj. R^2 for step 1	.16**	.17**	.03	.06*	.18**	.07*	.03
ΔR^2	.00	.01	.02	.04*	.03*	.06**	.04
β	−.04	−.13	.17	.26*	.23*	.32**	.25*

Note. S-, self-ratings; E, Extraversion; N, Neuroticism; A, Agreeableness; C, Conscientiousness; O, Openness; I, Intelligence; SA, Social Attractiveness; Step 1 includes sex of participant and all reaction scales except the target reaction scale included in Step 2; for Step 2 adj. $R^2_{\text{Extraversion}} = .15$, adj. $R^2_{\text{Neuroticism}} = .18$, adj. $R^2_{\text{Agreeableness}} = .04$, adj. $R^2_{\text{Conscientiousness}} = .10$, adj. $R^2_{\text{Openness}} = .21$, adj. $R^2_{\text{Intelligence}} = .13$, adj. $R^2_{\text{Social Attractiveness}} = .06$.
*$p < .05$; **$p < .01$.

significant relations were obtained for E and C, which may be due to the brief self-report Big Five measure used in this study.

Coping reactions and affect

In a first series of analyses we used self-reported coping reactions to predict changes in affect following the stress induction, because they provide the measure that is typically used for examining the affective consequences or correlates of coping. To determine the unique effect of the particular reactions on post-provocation affect, we conducted hierarchical regression analyses in which sex of participant, pre-provocation affect and all scales except the target reaction scale were entered in Step 1, and the target reaction scale was entered in Step 2[5]. Table 5 presents the results. The findings revealed a unique positive effect of *humour* and *distancing* on post-provocation PA. *Rumination* and *venting* had a unique positive effect on post-provocation NA. *Feedback* and *submission* had no unique effects on affect. These results are largely consistent with previous findings for anger-related reactions (Kubiak et al., 2008; Rusting & Nolen-Hoeksema, 1998).

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Table 5. Summary of hierarchical regression analysis for predicting post-provocation affect

Target reaction scale included in Step 2	Criterion		Target reaction scale included in Step 2	Criterion	
	NA	PA		NA	PA
S-Venting			S-Distancing		
adj. R^2 for step 1	.35**	.57**	adj. R^2 for step 1	.38**	.56**
ΔR^2	.03*	.01	ΔR^2	.00	.02*
β	.20*	.08	β	.01	.18**
S-Submission			S-Rumination		
adj. R^2 for step 1	.38**	.58**	adj. R^2 for step 1	.25**	.58**
ΔR^2	.00	.00	ΔR^2	.13**	.00
β	−.01	.02	β	.42**	.02
S-Feedback			S-Humour		
adj. R^2 for step 1	.37**	.57**	adj. R^2 for step 1	.37**	.56**
ΔR^2	.01	.01	ΔR^2	.01	.02*
β	.08	.07	β	−.13	.19*
O-Venting			O-Distancing		
adj. R^2 for step 1	.18**	.53**	adj. R^2 for step 1	.15**	.52**
ΔR^2	.00	.00	ΔR^2	.03*	.02**
β	−.07	.07	β	−.30*	.26*
O-Submission					
adj. R^2 for step 1	.18**	.53**			
ΔR^2	.00	.00			
β	.04	−.11			
O-Feedback			O-Humour		
adj. R^2 for step 1	.18**	.54**	adj. R^2 for step 1	.18**	.53**
ΔR^2	.00	.00	ΔR^2	.00	.00
β	−.00	−.03	β	.01	.07

Note. S-, self-ratings; O-, observer-ratings (COG); NA, negative affect; PA, positive affect; Step 1 includes sex of participant, pre-provocation affect and all reaction scales except the target reaction scale included in Step 2; for observer-rated reactions for Step 2 adj. $R^2_{NA} = .16$, adj. $R^2_{PA} = .53$.
*$p < .05$; **$p < .01$.

The above described analyses were repeated using observer ratings (COG) of the participants' reactions. These analyses led to a partly different pattern of results (see Table 5). Specifically, for the observer ratings, *venting* had no unique effect on NA, and *humour* had no unique effect on PA. Observer-rated *distancing* had a unique effect on PA (as did the self-rated distancing), but unlike self-rated distancing, observer-rated distancing also showed a unique negative effect on NA. As indicated by the variance explained, NA was more strongly associated with self-reported than observer-rated coping, which is likely due to shared method variance between the self-ratings. It is difficult to explain, however, why the differences between the two rating perspectives did not occur for PA.

DISCUSSION

In the present study we examined the personality judgments that were inferred from participants' behaviour in response to an interpersonal stressor staged in the laboratory. Overall, the results of the study supported our prediction that personality judgments based on coping behaviour mirror the relations between personality and coping that are

DOI: 10.1002/per

documented in the literature. A second notable result of this study was that the social consequences of the different coping reactions, as indicated by an (un)favourable personality impression, were only partly consistent with their impact on positive and NA following the stress induction.

Personality judgments inferred from coping behaviour

When controlling for other coping reactions in response to the provocation, feedback—that is assertive but non-hostile reactions—predicted the most favourable personality impression in terms of higher levels of E, C, A, O, intelligence and social attractiveness, as well as lower levels of N. In contrast, submission contributed significantly to an unfavourable impression—namely, higher N and lower E, O and intelligence. Venting anger contributed significantly to lower A.

These findings were largely similar for self- and other-rated venting, submission and—to a smaller extent—feedback. Given the generally modest correlations between self- and observer ratings, this convergence is remarkable. However, self- and other ratings differed with respect to distancing and humour: self-rated humour was more strongly predictive of a positive personality than was other-rated humour, while self-rated distancing was more predictive of an *un*favourable impression than was other-rated distancing. A possible explanation of this divergence between self-rated versus other-rated humour and distancing is that the items used to measure the two reactions (e.g. 'I look at it from the funny side', 'I don't take much notice of it') are more abstract than those used for the other reactions. Thus, participants and observers may have differed in how they interpreted the item content, in particular with respect to its evaluative connotations.

Overall, the personality judgments based on the participants' coping behaviour that we obtained in the present study mirror remarkably well the relations between personality and coping found in previous research (Bolger & Zuckerman, 1995; Bouchard et al., 2004; Connor-Smith & Flachsbart, 2007; David & Suls, 1999; DeLongis & Holtzman, 2005; Knoll et al., 2005; Lee-Baggley et al., 2005; Suls et al., 1996; Tobin, Graziano, Vanman, & Tassinary, 2000; Watson & Hubbard, 1996): problem solving (i.e. feedback) and cognitive restructuring (in particular humour) were related to higher levels of E, C, O; withdrawal and negative emotion focus were related to higher levels of N (submission) and lower levels of A (venting anger). Together, these findings strongly corroborate our assumption that coping behaviour is diagnostic of personality in a way that mirrors the associations between personality and coping documented in the literature. The convergence between the two approaches highlights a considerable consensus between scientific evidence and lay conceptions with respect to how personality is linked to coping behaviour.

At the same time, the convergence between personality inferred from coping and the correlations between personality and coping documented in the literature attest to the validity of the lay assessments of the coping persons' personality. While the relationship between the participants' self-ratings of their personality and coping behaviour was in line with previous research (Connor-Smith & Flachsbart, 2007), the correlations appeared to be less consistent across the five dimensions. This may be due mainly to the brief self-report measure used to assess the Big Five. In future research, it would be advisable to include a full-length measure of the Big Five, which would also facilitate analysing the relationship between coping and personality in terms of Brunswik's (1956) lens model. According to this model, observable cues (in our case, coping behaviour) serve as lenses through which observers perceive the targets' characteristics. The link between observable cues and

DOI: 10.1002/per

perceptions of the observers is referred to as cue utilization, which has been the focus of the present analyses. With sound data on self-reported personality, it would also be possible to analyse cue validity, which refers to the link between observable cues and the targets' actual score on a variable (as indicated by self-reports). Moreover, better measures of personality would enable an examination of the degree to which there is a match between cue validity and cue utilization.

In the present study, the judgments' validity was supported by positive, albeit low, correlations between self- and observer judgments of the participants' personality. Given the very short self-report measure for the Big Five dimensions, the correlations are in fact remarkable. Especially noteworthy is the comparatively high self–other agreement found for N, which is generally a more private and less observable trait (e.g. Watson, Hubbard, & Wiebe, 2000). A possible explanation for this unexpected finding is that, when coping with an interpersonal provocation, N manifests in overt, visible behaviour (such as unassertive reactions), which can be judged more easily.

The social versus affective impact of coping behaviour

A second goal of the present study was to compare the coping behaviours' social impact, as indicated by the evaluative implications of the personality impressions, with their impact on changes in affect following the provocation. With respect to the social consequences, the present results indicate substantial differences in how positively persons were perceived on the basis of their coping behaviour, suggesting that laypersons construe a link between positively valued personality traits and adaptive behaviour: Trait poles that are socially desirable (e.g. John & Robins, 1993; Paulhus et al., 1995)—i.e. higher levels of E, A, C, O, as well as intelligence—were predicted by coping behaviour that can be considered to be highly functional in the particular situation—i.e. providing non-hostile feedback (and exhibiting humour). In contrast, higher levels of N were related to dysfunctional behaviour, in particular submission. The positive judgments of participants who provided feedback and the negative judgment of those who reacted submissively are consistent with previous findings that taking corrective actions—especially when this is done in a non-aggressive manner—is the socially preferred response to anger-eliciting situations (Averill, 1982; Weber, 2004). In fact, feedback (when based on observer ratings) was the only reaction that uniquely predicted higher levels of social attractiveness. To a smaller extent, self-reported humour also predicted social attractiveness, which is consistent with the high esteem generally accorded to humour (Allport, 1961; Cann, Calhoun, & Banks, 1997).

The relationships between the coping reactions and affect following the stress induction revealed some remarkable discrepancies between the social impact of the particular coping reactions and their impact on affect. Most notably, feedback that yielded the most positive personality impression was found to be unrelated to changes in affect (as was submission that engendered a negative personality impression). Obviously, the social benefits of feedback did not appear to extend to affective relief, at least in the *short-term* perspective. A plausible explanation of these findings is that verbalizing and communicating the causes of anger maintains or revives feelings of anger and NA.

In contrast, those reactions that showed affective benefits—i.e. distancing and humour—elicited a less positive personality impression than did feedback. Hence, humour and distancing may be particularly instrumental in retaining PA following a provocation,

DOI: 10.1002/per

and may thus allow the distressed person to exploit the effects of PA on self-regulation (e.g. Folkman & Moskowitz, 2000; Fredrickson & Joiner, 2002; Isen, 1999; Lyubomirsky, King, & Diener, 2005). However, these behaviours lack the assertiveness that appeared to be particularly honoured by others.

LIMITATIONS AND FUTURE DIRECTIONS

Several limitations of the present study need be acknowledged in addition to those already mentioned. First, the present study was restricted to the perception of persons who acted in a laboratory context. Though laboratory stressors provide several methodological advantages, the study design did not allow examining the personality impressions that may be formed in actual social interactions.

Second, previous research suggests that the relations between personality and coping vary with the context (Lee-Baggley et al., 2005) and the severity of the stressor (Connor-Smith & Flachsbart, 2007). Therefore, future research is needed to test whether the present findings extend beyond the experimental situation used in our study to other types of stressful situations. For example, even within the narrow category of anger provocations, it would be interesting to compare situations that differ in regard to the status of the instigator and the type of target–instigator relationship–variables that have been found to influence anger-related behaviour in prior research (Kuppens, Van Mechelen, & Meulders, 2004; Weber, 2004). Two other issues that deserve attention in future research are the extent to which coping-based personality impressions are consistent across different stress situations (e.g. Borkenau et al., 2004), and the extent to which personality impressions remain stable when target persons are observed repeatedly in similar situations.

Third, while the present findings documented correlations between coping behaviour and personality, future research is needed to examine in more detail in which ways the personality impressions are formed. Other than research on behavioural manifestations of the Big Five dimensions in general (e.g. Borkenau & Liebler, 1992, 1995; Funder & Sneed, 1993), the task would be to determine the traits' specific—i.e. coping-related—behavioural manifestations. A promising way to identify relevant behavioural signs is offered by the act-frequency approach, which operationalizes traits by means of the acts that laypersons consider as prototypical manifestations of these traits (Buss & Craik, 1983). For example, in a previous study we determined the feelings, thoughts, intentions and, overt behaviours that laypersons rated as prototypical of optimists, pessimists, and realists in coping with (un)controllable stress-situations (Weber, Vollmann, & Renner, 2007). In similar ways, coping-related acts may be identified that are considered as prototypical for persons high versus low in the respective Big Five dimensions.

Future research on the mechanisms involved in inferring traits from coping behaviour should also consider to which extent trait judgments are based on implicit personality theories. Generally, implicit personality theories are characterized by expectancies about co-occurrences among traits—such as the Big Five dimensions—and behaviour (Borkenau, 1992). With respect to coping behaviour, it would be particularly interesting to examine whether such implicit theories reflect dimensions that are specific to coping. For example, in coping with interpersonal stressors, traits may be expected to co-occur that reflect social competence, such that persons who are perceived as talkative may likely be judged as assertive and witty.

DOI: 10.1002/per

CONCLUSIONS

In the present study, coping behaviour that can be considered highly functional in response to an interpersonal stressor predicted a highly positive personality impression, while dysfunctional behaviour contributed to an unfavourable impression. Most notably, the personality impressions that unacquainted observers—laypersons—formed from observing target persons cope mirror remarkably well the relations between personality and coping documented in the research literature. This correspondence suggests a high consensus between scientific evidence and lay conceptions with respect to the link between coping behaviour and personality. Generally, it can be assumed that the personality judgments inferred from observing persons cope with stress and adversity may have serious consequences for the target persons' interpersonal attraction and social functioning. Hence, future research on personality and coping should address in more detail the processes by which coping-based personality impressions are formed and the social consequences that follow from different personality judgments.

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