

Running Head: NEED FOR AFFECT

A Short Measure of the Need for Affect

Markus Appel

University of Linz

Timo Gnambs

University of Osnabrück

Gregory R. Maio

Cardiff University

accepted for publication in the *Journal of Personality Assessment*

Corresponding author:

Markus Appel, Assoc. Prof., Dr.

Department of Education and Psychology

Johannes Kepler University of Linz

Altenberger Strasse 69, 4040 Linz, Austria

Email: markus.appel@jku.at

## Abstract

Two studies are presented to introduce a 10-item short form of the Need for Affect Questionnaire (NAQ-S; cf. Maio & Esses, 2001). Study 1 was based on four independent samples (German or English language;  $N_{\text{total}} = 2151$ ) and demonstrated the expected factorial structure of the NAQ-S, its measurement invariance with respect to gender, age, and education, and the predicted associations with relevant personality measures. A latent state-trait analysis conducted in Study 2 ( $N = 140$ ) suggests that most of the reliable variance of the NAQ-S represents stable individual differences.

89 words

### A Short Measure of the Need for Affect

The need for affect (Maio & Esses, 2001) is a construct that describes individual differences in the tendency to approach or avoid emotion-inducing situations and activities. Similar to the need for cognition, which taps the motivation to engage in effortful cognitive activity (Cacioppo & Petty, 1982; Petty, Brinol, Loersch, & McCaslin, 2009), the need for affect reflects a stable intrinsic motivation that can be measured with the help of self-report items. The aim of the present paper is to introduce a ten-item short version of the Need for Affect Questionnaire (NAQ; Maio & Esses, 2001). Results regarding the factorial structure, measurement invariance, construct validity, and latent state-trait variance are presented.

#### **The Need for Affect and the Need for Affect Questionnaire (NAQ)**

The current work is based on a broad definition of affect, including emotions, moods, preferences, and evaluations. Individuals prefer affective states of positive valence over states of negative valence; however, there are also meaningful individual differences in the approach and avoidance of affect on average. These differences are represented by the need for affect (Maio & Esses, 2001). The need for affect complements constructs that are focused on emotional abilities or deficits such as emotional intelligence (e.g., Mayer & Salovey, 1993; Cooper & Petrides, 2010) and alexithymia (e.g., Bagby, Taylor, Quilty, & Parker, 2007; Taylor, Ryan, & Bagby, 1985). It further complements constructs that refer to emotional style, such as affect intensity (Larsen & Diener, 1987; Engelberg & Sjöberg, 2004), emotion repression (e.g., Byrne, 1964; Krahé, Möller, Berger & Felber, 2011) or emotion expression (Carson et al., 2007; King & Emmons, 1990). While these constructs focus on how people react to emotion after it is being experienced, the need for affect focuses on people's attitude toward emotion as an end in itself – is emotion something they want to approach or avoid? Although higher need for affect will often lead to more involvement with emotion after people have begun to experience it (Maio & Esses,

2001; Maio, Esses, Arnold, & Olson, 2004), this kind of reaction to emotion *in situ* is only one consequence of the need for affect. For instance, people high in the need for affect become more deeply involved in emotion-inducing events such as the screening of a drama or a horror film, even when scores on the Big Five are statistically controlled (Bartsch, Appel, & Storch, 2010), but, crucially, they are more inclined to select emotional media in the first place (Maio & Esses, 2001).

In line with other motivation constructs and related theory (e.g., Elliot & Thrash, 2002; Miller, 1959; Heckhausen & Krug, 1982) the need for affect and its operationalization, the NAQ, consist of an approach component and an avoidance component. That is, people may simultaneously possess a motivation to approach emotion-inducing situations and activities and a motivation to avoid them. This distinction between approach and avoidance components is common for motivational constructs because of evidence that they may differ in their predictive power under certain circumstances (Miller, 1959). Thus, Maio and Esses (2001) recommended examination of the approach and avoidance components and their associations before risking the potential imprecision inherent in a total or aggregate (obtained by subtracting the avoidance from the approach score). This advice reflects similar procedures in the assessment of the need for achievement (cf., Heckhausen, 1991; Rheinberg & Engeser, 2010).

Nonetheless, most of the previous studies employed the aggregate NAQ score, because no specific predictions regarding the approach or avoidance component were involved, and findings for the components have been similar. For instance, regarding the Big Five, the total NAQ score was positively correlated with extraversion, agreeableness, and openness, and negatively correlated with neuroticism (Maio & Esses, 2001); most of these associations were reproduced when the emotion approach and avoidance components were examined as simultaneous predictors of the traits. According to Maio and Esses (2001), this pattern reflected

the common ways in which extraversion, agreeableness, and openness involve engagement with others (and the emotions this inevitably entails), while neuroticism entails greater self-preoccupation and withdrawal.

Consideration of the need for affect has led to provocative findings in research on a number of topics. For instance, research on political attitudes has found that high scores on the need for affect predict lower scores on social dominance orientation, right-wing authoritarianism, and support for conservative policies (Leone & Chirumbolo, 2008). In addition, higher need for affect predicts greater extremity of attitudes in different domains (Britt, Millard, Sundareswaran, & Moore, 2009; Maio & Esses, 2001), presumably because people higher in the need for affect are more likely to approach and encode polarizing emotional information that is relevant to their attitudes.

Nonetheless, most research on need for affect has focused on its ramifications for understanding reactions to emotional and cognitive messages. Contemporary models of persuasion indicate that people can choose to become more or less involved with messages (see, e.g., Petty & Wegener, 1999). In theory, people higher in the need for affect should be more strongly oriented to processing emotional messages than cognitive messages, resulting in greater persuasion from compelling emotional information than from cogent cognitive information. Indeed, whereas the need for cognition predicts greater persuasion from a cognition-based persuasive message (but not from an affect-based message), the need for affect predicts greater persuasion from an affect-based message (but not from a cognition-based message; Haddock, Maio, Arnold, & Huskinson, 2008; see also Mayer & Tormala, 2010). Consistent with these findings, a recent study of the effects of health communication found that an affective message was particularly effective at increasing exercise behavior in participants with high scores on the need for affect (Conner, Rhodes, Morris, McEachan, & Lawton, 2011).

These effects fit evidence that people higher in need for affect are more likely to become immersed in emotional information. For instance, participants who read an emotional story (vs. control text or less emotional story) are more inclined to endorse story-consistent beliefs (e.g., regarding organ donation) when their need for affect is high rather than low (Appel & Richter, 2010). This moderating effect is mediated by the participants' feeling of being transported into the world of a narrative (Gerrig, 1993; Green & Brock, 2000). This effect may help to explain why people who are higher in need for affect also show higher coherence between their affective reactions to an attitude object and their overall attitude than people with lower need for affect (Huskinson & Haddock, 2004). Moreover, people higher in need for affect exhibit more congruence between their affective evaluations of certain behaviors and their intentions to perform the behaviors (Trafimow et al., 2004).

Together, these findings suggest that the need for affect is a promising individual difference variable for understanding important processes in social psychology and communication science, including applied research agendas in these fields. Moreover, in the research thus far, the 26-item NAQ has been a reliable instrument with significant predictive power. Previous analyses showed good psychometric properties in the English language version of the NAQ (Maio & Esses, 2001), as well as its German (Appel, 2008) and Italian (Leone & Presaghi, 2007) adaptations. Nonetheless, the length of the NAQ makes it difficult to include in studies where researchers are incorporating a number of measures or wish to have the measure less salient (e.g., to avoid demand effects or priming). Thus, one key obstacle to further progress is the lack of a short-form of the NAQ.

The present research sought to develop and validate a short form measure of the construct. Research on many constructs tends to escalate dramatically after a more economic method is devised, as occurred after researchers developed a short-form measure of need for

cognition (Cacioppo, Petty, & Kao, 1984; see Cacioppo, Petty, Feinstein, & Jarvis, 1996). Thus, in response to this need (and many personal communications to the third author), the present research extended previous research on the NAQ by developing and evaluating a short-form alternative instrument.

In general, when developing a short form of an established instrument, researchers are faced with the challenge of lower reliability and validity of the shorter form (Smith, McCarthy, & Anderson, 2000). Thus, our general intention was to identify a short form with a substantially reduced number of items, which nonetheless exhibits levels of reliability and validity that are comparable to the long form. We conducted two studies on the psychometric properties of a short form of the Need for Affect Questionnaire (NAQ-S). The primary aims of Study 1 were to examine the factorial structure of the NAQ-S based on four independent samples, test for measurement invariance with respect to gender, age, and education, and to obtain evidence regarding construct validity. Study 2 complemented the findings by providing a latent state-trait analysis.

### **Study I: Factorial Structure**

The main aim of the first study was the analysis of the factorial structure of a short version of the NAQ (Maio & Esses, 2001). Items for the short scale were selected using factor loadings from norm samples reported in Maio and Esses (2001) and Appel (2008), together with theoretical considerations. The theoretical consideration entailed the extent to which the items best reflected the key facets of the need for affect. An equal number of items for both subfactors were chosen in order to preserve the general structure of the NAQ (cf. Smith et al., 2000). We selected high-loading items that reflected a general evaluation of emotional experiences (e.g., items 4, 9, 11 of the long form), including the motivation to approach or avoid emotional situations (e.g., items 3, 10), be in touch with one's own emotions (e.g., items 6, 18), or

empathize with others' emotions (e.g., item 19). The items of the short form are depicted in Table 1.

In the first step of our examination of this scale, the factor structure was tested in four independent samples. Second, the German-language samples were analyzed together and measurement invariance was analyzed across sex, age, and educational levels. Third, the relationships between scores from the short and the long versions were obtained, and construct validity was evaluated by comparing both scales' correlations with related constructs in personality and attitudinal research.

## Method

**Samples.** Following Steiger's advice that an "ounce of replication is worth a ton of inferential statistics" (1990, p. 176), we adopted a multi-sample strategy and analyzed the psychometric properties of the NAQ-S in four independent samples. Thus, each sample acts as a form of cross-validation for the results in the other samples.

**Student sample (DE/AT).** This sample consisted of  $N = 1160$  participants (673 women) who were recruited by student research assistants at universities in Germany (DE) and Austria (AT). Their age ranged from 18 to 35 years ( $M = 24.05$  years;  $SD = 3.67$ ).

**Adult sample (DE).** A mixed sample of the general population from Germany was recruited over the Internet. This resulted in  $N = 627$  participants (418 women) aged 18 to 77 years ( $M = 29.41$ ,  $SD = 11.31$ ). The sample was generally well educated, 30 % of the participants had obtained secondary level education, 40 % had obtained a university entrance qualification (Abitur), and 30 % had obtained a university degree (Bachelor or Master).

**Couple sample (AT).** The third sample consisted of 63 Austrian couples ( $N = 126$ ) of the opposite sex who were romantically involved (either married, engaged, or living together). Their age ranged from 18 to 61 years ( $M = 28.72$ ,  $SD = 8.63$ ). About 35 % reported having a secondary

level education, 45 % reported having a university entrance qualification (Matura), and 20 % reported having a university degree (Bachelor or Master).

***Adult sample (UK).*** Members of a British market research panel completed the NAQ online. This mixed sample of  $N = 236$  participants (136 women) had an average age of  $M = 31.00$  years ( $SD = 7.26$ ). About 35% of the participants had obtained a high school degree, 25% a degree equivalent to one or two years at a university, and about 40% had obtained a full degree at a university.

**Instruments.** All participants were administered either the English or the German language version of the NAQ (Appel, 2008; Maio & Esses, 2001). The instrument consists of 26 statements that operationalize two factors, affect approach and affect avoidance. Participants responded to each statement using 7-point response scales from -3 (strongly disagree) to 3 (strongly agree). The German version was rigorously constructed in line with state-of-the-art standards in cross-cultural research involving translation-back-translation method, followed by validation in several independent samples. In previous studies, the English and German language versions exhibited good reliability, with Cronbach's alpha exceeding  $\alpha = .80$  for the full scale as well as for both subfactors (e.g., Appel, 2008; Conner et al., 2011; Maio & Esses, 2001; Bartsch et al., 2010).

To analyze the construct validity of the NAQ-S (formed from 10 items in the NAQ described above), several additional instruments were administered to some participants. The 42-item version of the Big Five Inventory (Lang, Lüdtke, & Asendorpf, 2001) was used to assess the five basic traits of human personality: extraversion, neuroticism, agreeableness, conscientiousness, and openness to experiences. It was administered to a selection of the German sample of adults. Need for cognition was operationalized with a German language adaptation of the Need for Cognition Scale (16 items, Bless, Wänke, Bohner, Fellhauer, & Schwarz, 1994). In

all three German language samples, a selection of participants completed this scale. Sensation seeking and socially desirable responding were assessed among parts of the German adult sample with the help of a German language adaptation of the Sensation Seeking Scale-Form V (SSS-V, 16 items, Beauducel, Strobel, & Brocke, 2003), and the 17-item Impression Management Scale (Stöber, 1999), respectively. Finally, a selection of the student and the German adult sample read one of several short stories and subsequently completed items assessing their immersion or transportation into the narrative world of the story (14 items Transportation Scale, Green & Brock, 2000; German language version by Appel & Richter, 2010). Participants responded to the Impression Management Scale using dichotomous response options, whereas all other instruments were administered with 5- or 7-point response scales.

## Results and Discussion

**Factorial structure.** The factorial structure of measurement instruments is frequently studied by means of confirmatory factor analysis. This method entails specifying an item's loading on a single hypothesized latent factor and constraining the loadings on other factors to zero. However, the latter restriction is frequently untenable for instruments in personality research. Many authors (e.g., Marsh et al., 2010; Vassend & Skondral, 1997) have repeatedly noted that most items in multi-factorial self-report scales do not load on a single latent factor, but also exhibit minor secondary loadings on two or more other factors. As a consequence, model fits of traditional confirmatory factor models are frequently rather poor – despite being applied to reliable instruments with well-known factorial structures. Hence, we analyzed the proposed two factorial structure of the selected items by means of exploratory structural equation modeling (ESEM; Asparouhov & Muthén, 2009), a recent advancement in latent variable modeling. ESEM combines exploratory factor analysis with structural equation modeling (SEM) and incorporates

all the advantages of traditional SEM (e.g., access to typical goodness-of-fit indices) without the requirement of zero-loading constraints.

In line with the underlying theory and the factorial structure of the long form, two factors were proposed – emotion approach and emotion avoidance. This model was tested by means of ESEM with a robust maximum likelihood estimator. The respective results for the four samples are summarized in Table 1. Descriptive goodness-of-fit indices indicated an acceptable fit of the two-factorial model in all four samples, with Comparative Fit Index (CFI) values falling between .93 and .98, Tucker-Lewis Index (TLI) between .88 and .96 and Standardized Root Mean Square Residual (SRMR) of .03 to .05 (cf. Schermelleh-Engel, Moosbrugger, & Müller, 2003). Moreover, the items exhibited satisfactory loadings, greater than .40, on the hypothesized latent factors while exhibiting only minor loadings, less than .30, on the other factor. Compared to the Cronbach's alpha reliabilities reported for the English and German full version (Appel, 2008; Maio & Esses, 2001), which fall between .81 and .84, the reliabilities of the short form were only slightly lower, ranging from .72 to .82, despite containing less than half of the original items. As expected, the two latent factors were negatively correlated,  $r = -.34$  to  $-.46$ . These correlations were also comparable in size to those for the full version,  $r = -.43$  to  $-.48$  (Appel, 2008; Maio & Esses, 2001).

**Measurement invariance.** The comparison of means between groups requires that the instrument captures the same construct in a comparable manner in all groups; that is, measurement invariance across the groups must hold. If measurement invariance is not given, mean level differences cannot be interpreted in a meaningful way and attributed to group membership (see Schmitt & Kuljanin, 2008). The investigation of measurement invariance is conducted by a variant of confirmatory factor analysis known as mean and covariance structures analysis (MACS, Marsh et al., 2010). The three samples that completed the German language

version were analyzed together and the measurement invariance was examined across sex, age, and educational groups (Table 2). Measurement invariance encompasses invariance of factor loadings, intercepts, residual variances, and covariances (cf. Marsh et al., 2009). Latent mean comparisons require the first two forms of invariance.

Acceptable model fit was yielded in the multi-group models that specified two latent factors in each sex, age, and educational group, but did not impose any additional constraints (Model 1 in Table 2),  $CFI > .96$ ,  $TLI > .93$  and  $SRMR \leq .03$ . Hence, the measurement structure with two latent factors was comparable in all groups. To test for factorial invariance, the unconstrained multi-group models with two correlated latent constructs were compared to models that constrained the factor loadings across the groups (Model 2 in Table 2). The tests of intercept invariance additionally constrained the intercepts across groups (Model 3 in Table 2). Due to the well known problems with the  $\chi^2$ -difference test, authors usually recommend the CFI difference as a more appropriate indicator for model comparisons. The CFI difference should not exceed values of .01 (Cheung & Rensvold, 2002) or .005 (Chen, 2007). As summarized in Table 2, factorial invariance as well as intercept invariance can be assumed across sex, age and educational groups, as the two respective models (Model 2 and 3) did not fit significantly worse, all  $\Delta CFI < .005$  and  $p > .01$  for  $\Delta\chi^2$ , than the unconstrained Model 1. Hence, in our samples, the NAQ-S was a reliable instrument for comparing latent means across these socio-demographic groups.

**Latent mean differences.** The invariance of factor loadings and intercepts enabled us to compare latent means across groups. An omnibus test of mean differences across groups is achieved by constraining the latent means to zero (Model 4 in Table 2) and comparing the respective model to an unconstrained model (cf. Ployhart & Oswald, 2004). For all three criteria, sex, age, and educational level, this omnibus test revealed significant differences ( $p < .001$ ).

Hence, the latent means vary across groups. To interpret these results in more detail, we conducted pairwise, post-hoc comparisons by fixing the latent factor mean for one group to zero and estimating the means for the other groups. The former thus operates as a reference group for the others. The latent group mean can then be compared on the basis of the  $z$  statistic. As summarized in Table 3, women and younger respondents displayed significantly higher latent means in approach motivations, whereas avoidance motivations were slightly higher for men and respondents with secondary education.

**Correlation between short and long forms and construct validity.** To be consistent with the prevalent use of the total NAQ score as well as its underlying structure, we report validity correlations separately for the total score and the two subdimensions, emotion approach and emotion avoidance (see also Maio & Esses 2001, Tables 2 and 4). The zero order correlations between the long and the short forms of the NAQ underscore the equivalence of both versions (Table 4). In all four samples, the correlations between the NAQ and the NAQ-S reached or exceeded  $r = .92$ .

Correlations between both forms and the other personality constructs are summarized in Table 5. As expected, the long and short version did not differ in their correlations with most constructs under investigation. In line with prior evidence (Maio & Esses, 2001), people with higher NAQ scores exhibited higher levels of extraversion, agreeableness, and openness to experiences, commensurate with the prior suggestions that these traits all encompass a willingness to engage with others, along with the emotions this engagement entails. Relationships with neuroticism were a little smaller and relationships with conscientiousness were a little larger than expected from previous evidence (Maio & Esses, 2001), however, the general trend of these relationships regarding the aggregate need for affect as well as both subscales was corroborated. Moreover, we obtained the anticipated correlations with transportation, and the thrill and

adventure seeking subscale of sensation seeking. The correlations with need for cognition and impression management were small, but significant in our large sample. The only significant difference ( $p < .05$ ) between the long scale and the short scale emerged in the correlations between conscientiousness and avoidance. The respective difference in correlations, however, was rather small with  $\Delta r = .10$ .

To analyze the joint effect of approach and avoidance subscales on the various validity criteria, we regressed the latter on both subscales (Table 5, right columns). In line with the zero-order correlations, the regression weights that represent the shared variance unique to each subscale did not reveal noticeable differences between the long and the short version. Hence, the reduced number of items in the NAQ-S did not substantially impair its ability to predict the other constructs. It functioned as well as the long version for both the total score derivation and for the approach and avoidance components.

Consistent with the approach-avoidance distinction, the results revealed important differences in associations with the subscales. There were larger associations of the approach component with transportation and openness, and larger associations of the avoidance component with need for cognition, conscientiousness, extraversion, and agreeableness. Similar to Maio and Esses' findings, both affect approach and affect avoidance were positively related to neuroticism. The differences between subscales illustrate the utility of analyzing both subscales separately. Showing that these differences do not diminish when using the short form underscores the validity of the NAQ-S.

### **Study II: Latent State-Trait Analysis**

Although measures of personality reflect stable individual differences, previous research has found that most instruments capture small, albeit significant occasion-specific components as well (e.g., Schmukle & Egloff, 2005). Some personality instruments even include occasion-

specific effects of up to 22% of the measure's observed variance (Deinzer et al., 1995). Latent state-trait (LST) analysis is a method to quantify the impact of context factors on trait estimates by separating the observed variance in a trait-specific and an occasion-specific component (cf. Steyer, Schmitt, & Eid, 1999). For personality traits, the trait-specific component should ideally be high and the occasion-specific component low. Our second study tested whether the NAQ-S exhibits these characteristics by quantifying its trait- and occasion-specific variance in a test-retest design.

## Method

**Participants and procedure.** Participants were  $N = 140$  (76 women) members of a German market research panel. They were  $30.05$  ( $SD = 10.97$ ) years of age, on average, and somewhat well-educated. About 60% had obtained a university entrance qualification (Abitur) or a university degree. The sample was invited twice with an interval of one month to participate in an anonymous web-based questionnaire. The time between both measurements amounted to  $M = 32.58$  days on average (range: 31 to 43 days;  $SD = 2.30$ ).

**Instrument.** All participants completed the German language items of the NAQ-S as part of the long form on both measurement occasions. The NAQ-S scale resulted in a mean of  $1.11$  ( $SD = 0.88$ ) for the total score at the first measurement occasion, with  $M = 1.33$  ( $SD = 0.91$ ) for the approach and  $M = -0.88$  ( $SD = 1.18$ ) for the avoidance subscale. At the second occasion, the NAQ-S total mean was  $1.07$  ( $SD = 0.85$ ; approach:  $M = 1.28$ ;  $SD = 0.90$ ; avoidance  $M = -0.88$ ;  $SD = 1.25$ ). The internal consistency scores revealed satisfactory reliability of the NAQ-S at time 1 (total:  $\alpha = .80$ ; approach  $\alpha = .71$ ; avoidance,  $\alpha = .79$ ) and at time 2 (total:  $\alpha = .80$ ; approach  $\alpha = .76$ ; avoidance,  $\alpha = .84$ ). The internal consistency scores of the 26-item NAQ also revealed satisfactory reliability at both time points, with  $\alpha = .87 / .89$  (total score),  $\alpha = .83 / .85$  (approach), and  $\alpha = .85 / .87$  (avoidance). The correlation between the NAQ-S scores at both measurement

occasions pointed at minor transient error, with  $r = .87$  (total score),  $r = .74$  (approach), and  $r = .81$  (avoidance). Similarly, the test-retest correlations of the 26-item NAQ were  $r = .88$  (total score),  $r = .85$  (approach), and  $r = .83$  (avoidance).

## Results and Discussion

The latent state-trait analyses for the NAQ-S followed the approach outlined by Ziegler, Ehrlenspiel, and Brand (2009). In these analyses, the observed item variance is separated into three main variance components: (a) trait-specific variance (consistency) that assesses stable interindividual differences across measurement occasions, (b) occasion-specific variance (specificity) that represents systematic situation-specific interindividual differences, and (c) unsystematic measurement error of the instrument. First, we combined the observed item responses to form five parcels following the domain-representative parceling approach advocated by Kishton and Widaman (1994). Then, we specified a second-order model that modeled the item parcels by two latent first-order factors, one for each measurement occasion. These latent first-order factors represented the systematic variance components contained in the items, whereas the items' error variances represented unsystematic variance. To account for potential method effects that are unique to specific parcels, we also modeled correlated error terms between the same parcels at the two measurement occasions (cf. Ziegler et al., 2009). The second order was represented by one latent factor for the latent trait, need for affect. The latent second-order variance represented the systematic trait-specific variance (consistency), while the first-order residual captured the systematic occasion-specific variance (specificity). The respective model yielded an excellent fit to the data,  $\chi^2(45) = 57.66$ , CFI = .98, TLI = .98, SRMR = .08. The estimates of the two variance components, consistency and specificity, are summarized in Table 6. Generally, consistency was rather high compared to specificity. With only 3 percent of the total variance accounted for by the measurement occasion, most of the

reliable variance (47 to 49 percent of the total variance) represented stable individual differences that were not a result of situational effects. Examining the two subscales of the NAQ-S, emotion approach and emotion avoidance, separately yielded similar results. Although the avoidance scale had slightly higher occasion-specific variance (about 8 percent) as compared to the approach scale (about 5 percent) the total variance explained by the measurement occasion was generally low; particularly in comparison to respective results obtained for measures of the Big Five, which varied between 8% and 22% in similar previous analyses (Deinzer et al., 1995). Thus, the NAQ-S appears to be a valid instrument predominantly capturing stable individual differences independently from specific measurement occasions.

### **General Discussion**

In the ten years since the need for affect construct was introduced, it has been incorporated in a number of studies on diverse topics, ranging from studies of individual differences in ideology to processes of attitude change. This research has found ample support for the reliability, validity, and utility of the instrument used to measure need for affect, the NAQ. The measure exhibited these properties for both motivational subscales, approach and avoidance, as well as the total score. Thus, the scale is useful for examining the separate need for affect components, as Maio and Esses (2001) recommended.

The aim of the present research was to identify a subset of items that allows for a psychometrically sound assessment of the need for affect whenever practical circumstances prevent the inclusion of the original 26-item form. The results of two studies provided strong support for the viability of the short form that we devised, the NAQ-S. Despite the substantial reduction in length (by over 60%), the NAQ-S exhibited levels of reliability comparable to the NAQ. In addition, the NAQ-S revealed a highly similar pattern of correlations with other relevant personality constructs. Finally, the NAQ-S exhibited high levels of latent trait variance

with much lower levels of situation-specific state variance. These features were obtained across two different language versions of the NAQ-S (English and German) and, together, these results show that the NAQ-S is a viable alternative to the NAQ when researchers feel a need to use far fewer items to assess the need for affect.

Future research could examine the relationship between the need for affect and the Big Five personality factors in greater detail. Our findings corroborate the results of prior studies that linked NAQ-scores with extraversion, agreeableness, and openness – all of which are personality factors that involve the tendency to connect with others. Moreover, neuroticism was related to both affect approach and affect avoidance, with magnitudes of association very close to those obtained in past research (Bartsch et al., 2010; Maio & Esses, 2001). Nonetheless, a surprising new result was the positive association between conscientious and the aggregate need for affect, driven principally by a new negative association with the avoidance subscore (as evident in both the long and short scales). Future research could examine why these relationships emerged in our German sample (which completed the Big Five) and not in the Canadian sample that Maio and Esses (2001) examined. It is provocative to speculate that there may be cultural differences in the connections between conscientiousness and the need for affect.

A limitation of the present research is that our participants completed the items belonging to the NAQ-S and the items that belong to the NAQ long form only at one measurement occasion. As outlined by Smith and colleagues (2000), this procedure is frequent in short form developments (e.g., Cacioppo et al., 1984), but it is faced with a non-trivial limitation. The overlap between the short form and the long form is likely overestimated because random or error variance of the short form items is included in the results of the long form. Due to this obstacle, we encourage future research to extend our results on the validity of the short form while assessing the short form and the long form independently. Whereas the administration of the

short form and long form in the same session may elicit reactance or other confounding biases among the respondents, providing a time lag between short form and long form assessment appears to be a feasible approach. However, as test-retest aspects become important when the questionnaires are administered on different occasions, researchers are advised to compare the short form-long form relationship of the scale with the test-retest correlation of the long form (Smith et al., 2000).

In sum, the present evidence indicates that the NAQ-S provides a useful new tool for assessing the need for affect. With just 10 items, high reliability, and high trait variance, it may be both easy to use and powerful as a predictor of relevant processes. Its small size makes it easy to use in online studies, and potentially less salient in experimental research where demand and consistency issues are important.

## References

- Appel, M. (2008). Manche mögen' heiß. Ergebnisse der deutschsprachigen Version eines Instruments zur Erfassung des Emotionsmotivs. [Some like it hot. Results of the German language version of an instrument aimed at the assessment of the need for affect]. *Diagnostica, 54*, 2-15.
- Appel, M., & Richter, T. (2010). Transportation and need for affect in narrative persuasion. A mediated moderation model. *Media Psychology, 13*, 101-135.
- Asparouhov, T., & Muthén, B. O. (2009). Exploratory structural equation modeling. *Structural Equation Modeling, 16*, 397-438.
- Bagby, R. M., Taylor, G. J., Quilty, L. C., & Parker, J. D. A. (2007). Reexamining the factor structure of the 20-Item Toronto Alexithymia Scale: Commentary on Gignac, Palmer, and Stough. *Journal of Personality Assessment, 89*, 258-264.
- Bartsch, A., Appel, M., & Storch, T. (2010). Emotions and meta-emotions at the movies. The role of the Need for Affect. *Communication Research, 37*, 167-190.
- Beauducel, A., Strobel, A., & Brocke, B. (2003). Psychometrische Eigenschaften und Normen einer deutschsprachigen Fassung der Sensation Seeking Skalen, Form V [Psychometric properties and norms of a German version of the Sensation Seeking Scales, Form V]. *Diagnostica, 49*, 61-72.
- Bless, H., Wänke, M., Bohner, G., Fellhauer, R., & Schwarz, N. (1994). Need for Cognition: Eine Skala zur Erfassung von Engagement und Freude bei Denkaufgaben [Need for Cognition: A scale for the assessment of engagement and joy in cognitive tasks]. *Zeitschrift für Sozialpsychologie, 25*, 147-154.

- Britt, T. W., Millard, M. R., Sundareswaran, P. T., & Moore, D. (2009). Personality variables predict strength-related attitude dimensions across objects. *Journal of Personality*, 77, 859-882.
- Byrne, D. (1964). Repression-sensitization as a dimension of personality. In B. A. Maher (Ed.), *Progress in experimental personality research* (pp. 170-220). New York: Academic Press.
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116-131.
- Cacioppo, J. T., Petty, R. E., Feinstein, J. A., & Jarvis, W. B. G. (1996). Dispositional differences in cognitive motivation: The life and times of individuals varying in need for cognition. *Psychological Bulletin*, 119, 197-253.
- Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, 48, 306-307.
- Carson, J. W., Keefe, F. J., Lowry, K. P., Porter, L. S., Goli, V., & Fras, A. M. (2007). Conflict about expressing emotions and chronic low back pain: Associations with pain and anger. *The Journal of Pain*, 8, 405-411.
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, 14, 464-504.
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, 9, 233-255.
- Conner, M., Rhodes, R. E., Morris, B., McEachan, R., & Lawton, R. (2011). Changing exercise through targeting affective or cognitive attitudes. *Psychology & Health*, 26, 133-149.

- Cooper, A., & Petrides, K. V. (2010). A psychometric analysis of the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) using Item Response Theory. *Journal of Personality Assessment, 92*, 449-457.
- Deinzer, R., Steyer, R., Eid, M., Notz, P., Schwenkmezger, P., Ostendorf, F., & Neubauer, A. (1995). Situational effects in trait assessment: The FPI, NEOFFI, and EPI questionnaires. *European Journal of Personality, 9*, 1-23.
- Elliot, A. J., & Thrash, T. M. (2002). Approach-avoidance motivation in personality: Approach and avoidance temperaments and goals. *Journal of Personality and Social Psychology, 82*, 804-818.
- Engelberg, E., & Sjöberg, L. (2004). Emotional intelligence, affect intensity, and social adjustment. *Personality and Individual Differences, 37*, 533-542.
- Gerrig, R. J. (1993). *Experiencing narrative worlds: On the psychological activities of reading*. New Haven, CT: Yale University Press.
- Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology, 79*, 701-721.
- Haddock, G., Maio, G. R., Arnold, K., & Huskinson, T. (2008). Should persuasion be affective or cognitive? The moderating effects of need for affect and need for cognition. *Personality and Social Psychology Bulletin, 34*, 769-778.
- Heckhausen, H. (1991). *Motivation and action*. Berlin: Springer.
- Heckhausen, H., & Krug, S. (1982). Motive modification. In A. J. Stewart (Ed.), *Motivation and Society* (pp. 274-318). San Francisco: Jossey-Bass.
- Huskinson, T. L. H., & Haddock, G. (2004). Individual differences in attitude structure: Variance in the chronic reliance on affective and cognitive information. *Journal of Experimental Social Psychology, 40*, 82-90.

- King, L. A., & Emmons, R. A. (1990). Conflict over emotional expression: Psychological and physical correlates. *Journal of Personality and Social Psychology, 58*, 864-877.
- Kishton, J. M., & Widaman, K. F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational and Psychological Measurement, 54*, 757-765.
- Krahé, B., Möller, I., Berger, A., & Felber, J. (2011). Repression vs. sensitization in response to media violence as predictors of cognitive avoidance and vigilance. *Journal of Personality, 78*, 165-189.
- Lang, F. R., Lüdtke, O., & Asendorpf, J. (2001). Testgüte und psychometrische Äquivalenz der deutschen Version des Big Five Inventory (BFI) bei jungen, mittleren und alten Erwachsenen [Validity and psychometric equivalence of the German version of the Big Five Inventory in young, middle-aged, and old adults]. *Diagnostica, 47*, 111-121.
- Larsen, R. J., & Diener, E. (1987). Affect intensity as an individual difference characteristic: A review. *Journal of Research in Personality, 21*, 1-39.
- Leone, L., & Chirumbolo A. (2008). Conservatism as motivated avoidance of affect: Need for affect scales predict conservatism measures. *Journal of Research in Personality, 42*, 755-762.
- Leone, L., & Presaghi, F. (2007). Validity of the Need for Affect scales: factorial structure, invariance and validity in Italy. *TPM - Testing, Psychometrics, Methodology in Applied Psychology, 14*, 117-134.
- Maio, G. R., & Esses, V. M. (2001). The need for affect: Individual differences in the motivation to approach and avoid emotions. *Journal of Personality, 69*, 583-614.
- Maio, G. R., Esses, V. M., Arnold, K. H., & Olson, J. M. (2004). The function-structure model of attitudes: Incorporating the need for affect. In G. Haddock & G. R. Maio (Eds.),

*Contemporary perspectives on the psychology of attitudes* (pp. 9-33). London, UK: Psychology Press.

Marsh, H. W., Lüdtke, O., Muthén, B. O., Asparouhov, T., Morin, A. J. S., & Trautwein, U. (2010). A new look at the big-five factor structure through exploratory structural equation modeling. *Psychological Assessment, 22*, 471-491.

Marsh, H. W., Muthén, B. O., Atkinson, T. M., Lüdtke, O., Robitzsch, A., Morin, A. J. S., & Trautwein, U. (2009). Exploratory structural equation modeling, integrating CFA and EFA: Application to students' evaluations of university teaching. *Structural Equation Modeling, 16*, 439–476.

Mayer, J. D., & Salovey, P. (1993). The intelligence of emotional intelligence. *Intelligence, 17*, 433-442.

Mayer, N. D., & Tormala, Z. L. (2010). "Think" versus "feel" framing effects in persuasion. *Personality and Social Psychology Bulletin, 36*, 443-454.

Miller, N. E. (1959). Liberalization of basic S-R concepts: Extensions to conflict behavior, motivation, and social learning. In S. Koch (Ed.), *Psychology: A study of a Science. General and systematic formulations, learning, and special processes* (pp. 196-292). New York: McGraw Hill.

Petty, R. E., Briñol, P., Loersch, C., & McCaslin, M. J. (2009). The need for cognition. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 318-329). New York: Guilford Press.

Petty, R. E., & Wegener, D. T. (1999). The elaboration likelihood model: Current status and controversies. In S. Chaiken & Y. Trope (Eds.), *Dual-process theories in social psychology* (pp. 41-72). New York: Guilford.

- Ployhart, R. E., & Oswald, F. L. (2004). Applications of mean and covariance structure analysis: Integrating correlational and experimental approaches. *Organizational Research Methods*, 7, 27-65.
- Rheinberg, F., & Engeser, S. (2010). Motive training and motivational competence. In O. C. Schultheiss & J. C. Brunstein (Eds.), *Implicit Motives* (pp. 510-548). Oxford: University Press.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Test of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8, 23–74.
- Schmitt, N., & Kuljanin, G. (2008). Measurement invariance: Review of practice and implications. *Human Resource Management Review*, 18, 210–222.
- Schmukle, S. C., & Egloff, B. (2005). A latent state-trait analysis of implicit and explicit personality measures. *European Journal of Psychological Assessment*, 21, 100–107.
- Smith, G.T., McCarthy, D.M., & Anderson, K.G. (2000). On the sins of short-form development. *Psychological Assessment*, 12, 102-111.
- Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, 25, 173-180.
- Steyer, R., Schmitt, M., & Eid, M. (1999). Latent state-trait theory and research in personality and individual differences. *European Journal of Personality*, 13, 389-408.
- Stöber, J. (1999). Die Soziale-Erwünschtheits-Skala-17: Entwicklung und erste Befunde zur Reliabilität und Validität [The Social Desirability Scale-17 (SDS-17): Development and first findings on reliability and validity]. *Diagnostica*, 45, 191-199.
- Taylor, G. J., Ryan, D., & Bagby, R. M. (1985). Toward the development of a new self-report alexithymia scale. *Psychotherapy and Psychosomatics*, 44, 191-199.

Trafimow, D., Sheeran, P., Lombardo, B., Finlay, K. A., Brown, J., & Armitage, C. J. (2004).

Affective and cognitive control of persons and behaviors. *British Journal of Social Psychology*, 43, 207-224.

Vassend O., & Skrondal, A. (1997). Validation of the NEO Personality Inventory and the five-

factor model. Can findings from exploratory and confirmatory factor analysis be reconciled? *European Journal of Personality*, 11, 147-166.

Ziegler, M., Ehrlenspiel, F., & Brand, R. (2009). Latent state-trait theory: An application in sport

psychology. *Psychology of Sport and Exercise*, 10, 344-349.

Table 1

*Factor loadings of the NAQ short form*

	Students (DE/AT)		Adults (DE)		Couples (AT)		Adults (UK)	
	AP	AV	AP	AV	AP	AV	AP	AV
3.	I feel that I need to experience strong emotions regularly.	.53*	-.03	.57*	-.01	.39*	-.08	.57* -.10
4.	Emotions help people to get along in life.	.51*	-.10	.42*	-.19*	.61*	.02	.66* -.02
6.	I think that it is important to explore my feelings.	.69*	.05	.74*	.07	.52*	-.22	.81* -.00
18.	It is important for me to be in touch with my feelings.	.58*	-.09	.59*	-.13*	.50*	-.19	.86* .02
19.	It is important for me to know how others are feeling.	.57*	.05	.69*	-.00	.69*	.00	.70* .01
1.	If I reflect on my past, I see that I tend to be afraid of feeling emotions.	.19*	.63*	.26*	.71*	.06	.51*	-.00 .48*
8.	I find strong emotions overwhelming and therefore try to avoid them.	-.26*	.56*	-.22*	.57*	-.06	.69*	-.04 .75*
9.	I would prefer not to experience either the lows or highs of emotion.	-.27*	.42*	-.19*	.46*	-.03	.66*	.03 .61*
10.	I do not know how to handle my emotions, so I avoid them.	.01	.81*	-.05	.80*	.12	.86*	.08 .86*
11.	Emotions are dangerous – they tend to get me into situations that I would rather avoid.	-.01	.71*	.02	.74*	-.01	.66*	-.01 .72*
Factor correlation		-.34*		-.40*		-.46*		-.44*
CFI / TLI / SRMR		.96 / .93 / .03		.98 / .96 / .03		.93 / .88 / .05		.96 / .92 / .04
N		1160		627		126		236

Notes. AP = Approach, AV = Avoidance, CFI = Comparative fit index, TLI = Tucker-Lewis Index, SRMR = Standardized root mean residual; Five highest loading items per factor are in bold; Item numbers correspond to items in the full version (Maio & Esses, 2001); Exploratory SEM with robust maximum likelihood estimator. \*  $p < .05$ . Participants' origin: DE=Germany; AT = Austria, UK = United Kingdom

Table 2

*Tests for measurement invariance*

Model	$\chi^2$	df	CFI	TLI	SRMR	$\Delta\chi^2$	$\Delta df$	$\Delta CFI$	M
<i>Sex:</i>									
<i>female(N = 1091) vs. male (N = 696)</i>									
S1. Configural invariance	188	52	.961	.932	.029				
S2. Factor loadings invariance	218	68	.957	.943	.035	30	16	.004	S1
S3. Intercept invariance	226	76	.957	.949	.035	35	24	.004	S1
S4. Equal latent means	320	78	.930	.919	.063	135*	2		S3
<i>Age:</i>									
<i>20-24 (N = 907) vs. 25-29 (N = 417) vs. 30-40 (N = 225)</i>									
A1. Configural invariance	192	78	.964	.937	.030				
A2. Factor loadings invariance	221	110	.964	.956	.037	30	32	.000	A1
A3. Intercept invariance	247	126	.961	.958	.039	54	48	.003	A1
A4. Equal latent means	259	130	.959	.957	.044	13*	4		A3
<i>Educational level:</i>									
<i>Secondary level (N = 238) vs. University entrance qualification (N = 731) vs. University degree (N = 211)</i>									
E1. Configural invariance	160	78	.966	.941	.031				
E2. Factor loadings invariance	195	110	.964	.956	.041	36	32	.002	E1
E3. Intercept invariance	210	126	.965	.962	.042	49	48	.001	E1
E4. Equal latent means	225	130	.960	.959	.050	18*	4		E3

*Notes.* CFI = Comparative fit index, TLI = Tucker-Lewis Index, SRMR = Standardized root mean residual,  $\Delta\chi^2$  = Chi<sup>2</sup> difference to the comparison model,  $\Delta CFI$  = CFI difference to the comparison model. M = Comparison model. Exploratory SEM with robust maximum likelihood estimator.

\*  $p < .001$

Table 3

*Pairwise comparisons of latent means*

	Approach		Avoidance	
	Difference estimate	<i>z</i>	Difference estimate	<i>z</i>
<i>Sex</i>				
Male vs. female	.67	10.54*	-.17	3.25*
<i>Age groups</i>				
20-24 vs. 25-29 years	-.19	-2.72*	.08	-1.21
20-24 vs. 30-40 years	-.18	-2.17*	.13	-1.52
25-29 vs. 30-40 years	-.01	-0.12	.05	0.49
<i>Educational levels</i>				
Secondary level vs. university entrance qualification	.29	3.38*	-.23	-2.50*
Secondary level vs. university degree	.16	1.52	-.24	-2.19*
University entrance qualification vs. university degree	-.11	-1.23	-.01	-0.16

\*  $p < .01$

Table 4

*Descriptives and zero-order correlations of the short and the long form of the NAQ*

	<i>M</i>	<i>SD</i>	$\alpha$	1	2	3	4	5
<i>Sample 1 (Students)</i>								
1 NFA long	0.97	0.78	.87					
2 NFA short	1.33	0.86	.78	.92				
3 Approach long	0.74	0.89	.83	.84	.76			
4 Approach short	1.28	0.96	.71	.74	.79	.88		
5 Avoidance long	-1.20	0.94	.84	-.86	-.80	-.44	-.38	
6 Avoidance short	-1.39	1.12	.78	-.78	-.85	-.41	-.35	.90
<i>Sample 2 (Adults DE)</i>								
1 NFA long	0.90	0.79	.89					
2 NFA short	1.18	0.89	.81	.92				
3 Approach long	0.84	0.85	.85	.83	.76			
4 Approach short	1.29	0.92	.75	.74	.79	.90		
5 Avoidance long	-0.97	1.00	.86	-.88	-.82	-.46	-.41	
6 Avoidance short	-1.06	1.18	.80	-.81	-.88	-.44	-.41	.91
<i>Sample 3 (Couples)</i>								
1 NFA long	0.99	0.83	.89					
2 NFA short	1.34	0.89	.80	.92				
3 Approach long	0.67	1.02	.86	.86	.81			
4 Approach short	1.15	1.07	.72	.78	.85	.91		
5 Avoidance long	-1.30	0.95	.85	-.84	-.75	-.44	-.39	
6 Avoidance short	-1.50	1.07	.79	-.77	-.84	-.44	-.43	.89
<i>Sample 4 (Adults UK)</i>								
1 NFA long	0.51	0.77	.89					
2 NFA short	0.80	0.90	.82	.94				
3 Approach long	0.67	0.87	.87	.79	.72			
4 Approach short	1.02	1.00	.82	.77	.78	.92		
5 Avoidance long	-0.35	1.00	.87	-.84	-.81	-.33	-.37	
6 Avoidance short	-0.55	1.20	.81	-.78	-.87	-.33	-.36	.91

Note:  $\alpha$  = Cronbach's alpha;  $p < .001$  for all coefficients

Table 5

*Correlations and regression weights for the long form and the short form of the NAQ*

Measure	N	M	SD	$\alpha$	Zero-order correlations						
					Aggregate score		Approach		Avoidance		
					NAQ Long	NAQ Short	NAQ Long	NAQ Short	NAQ Long	NAQ Short	
Need for Cognition	954	4.88	0.80	.83	.15*	.17*	.05 <sup>a</sup>	.09* <sup>a</sup>	-.19*	-.19*	
Transportation	733	3.80	0.97	.84	.27*	.27*	.27*	.27*	-.17*	-.17*	
Impression management	115	0.60	0.18	.78	.22*	.18*	.05	.06	-.30*	-.22*	
<i>Sensation Seeking</i>											
Thrill and advent. seeking	95	0.52	0.31	.82	.30*	.25*	.19	.20*	-.25*	-.20	
Disinhibition	98	0.42	0.23	.64	.07	-.00	.02	-.09	-.04	-.06	
<i>Big Five of personality</i>											
Openness	126	3.61	0.63	.85	.31*	.31*	.35*	.35*	-.19*	-.18*	
Conscientiousness	131	3.42	0.59	.81	.25*	.19*	.13	.11	-.29* <sup>a</sup>	-.19* <sup>a</sup>	
Extraversion	131	3.40	0.69	.85	.46*	.42*	.28*	.25*	-.48*	-.44*	
Agreeableness	132	3.48	0.58	.74	.41*	.39*	.31*	.35*	-.40*	-.32*	
Neuroticism	129	2.89	0.80	.83	-.19*	-.16	.18*	.16	.41*	.38*	

Notes. M, SD,  $\alpha$  = Means, standard deviations, and Cronbach's alphas for the measures in the left columns; Superscript <sup>a</sup> indicates that correlations obtained for NFA-long differ from correlations obtained for NFA-short; B = unstandardized regression weight regressing the measures in the left column on emotion approach and avoidance; \*  $p < .05$

Table 5 (continued)

Measure	Regression weights			
	Approach		Avoidance	
	NAQ Long	NAQ Short	NAQ Long	NAQ Short
Measure	<i>B</i> ( $SE_B$ )		<i>B</i> ( $SE_B$ )	
Need for Cognition	-.02 (.03)	.02 (.03)	-.16* (.03)	-.12* (.02)
Transportation	.27* (.04)	.25* (.04)	-.07 (.04)	-.08* (.03)
Impression management	-.01 (.02)	-.00 (.02)	-.07* (.02)	-.04* (.02)
<i>Sensation Seeking</i>				
Thrill and advent. seeking	.05 (.04)	.06 (.04)	-.07* (.04)	-.04 (.03)
Disinhibition	.01 (.03)	-.03 (.03)	-.01 (.03)	-.02 (.02)
<i>Big Five of personality</i>				
Openness	.45* (.08)	.22* (.07)	-.06 (.06)	-.04 (.05)
Conscientiousness	.00 (.07)	.01 (.06)	-.17* (.06)	-.10* (.05)
Extraversion	.08 (.07)	.05 (.07)	-.28* (.06)	-.24* (.06)
Agreeableness	.14 (.06)	.16* (.06)	-.16* (.05)	-.10* (.04)
Neuroticism	.39* (.07)	.30* (.07)	.44* (.06)	.33* (.05)

Table 6.

*Variances, latent state-trait coefficients, and reliability estimates*

Situation	Trait	Latent variances			Coefficients		
		Occasion	Residual	Total	Consistency	Specificity	Reliability
<i>Total NAQ-S score</i>							
1	.60	.03	.66	1.29	.47	.02	.49 (.83)
2	.60	.04	.58	1.22	.49	.03	.53 (.85)
<i>Emotion approach</i>							
1	.50	.04	1.36	1.90	.26	.02	.28 (.66)
2	.50	.08	1.11	1.69	.29	.05	.34 (.72)
<i>Emotion avoidance</i>							
1	1.08	.01	1.47	2.57	.42	.00	.43 (.79)
2	1.08	.19	1.29	2.56	.42	.08	.50 (.83)

Notes. N = 140. Spearman-Brown corrected reliabilities for full test length in parentheses.

## Appendix

## The 10-item Need for Affect Questionnaire-Short Form (NAQ-S)

Item No.	Sub-scale	NAQ-S English	NAQ-S German
1. (1.)	AV	If I reflect on my past, I see that I tend to be afraid of feeling emotions.	Zurückblickend erkenne ich, dass ich dazu neige, Angst vor meinen Gefühlen zu haben.
2. (3.)	AP	I feel that I need to experience strong emotions regularly.	Ich glaube, dass ich regelmäßig starke Gefühle brauche.
3. (4.)	AP	Emotions help people to get along in life.	Gefühle helfen Menschen, mit ihrem Leben klar zu kommen.
4. (8.)	AV	I find strong emotions overwhelming and therefore try to avoid them.	Ich finde starke Gefühle erdrückend und vermeide sie daher.
5. (6.)	AP	I think that it is important to explore my feelings.	Ich glaube es ist wichtig, meinen Gefühlen auf den Grund zu gehen.
6. (9.)	AV	I would prefer not to experience either the lows or highs of emotion.	Ich würde es vorziehen, weder die Höhen noch die Tiefen der Gefühlswelt zu erleben.
7. (10.)	AV	I do not know how to handle my emotions, so I avoid them.	Ich weiß nicht, wie ich mit meinen Gefühlen umgehen soll, also weiche ich ihnen aus.
8. (18.)	AP	It is important for me to be in touch with my feelings.	Es ist wichtig für mich, mit meinen Gefühlen im Einklang zu sein.
9. (19.)	AP	It is important for me to know how others are feeling.	Es ist wichtig für mich zu wissen, wie andere sich fühlen.
10 (11.)	AV	Emotions are dangerous – they tend to get me into situations that I would rather avoid.	Gefühle sind gefährlich – sie bringen mich in Situationen, die ich lieber meiden möchte.

*Notes:* Items are presented with a seven-point scale (-3 = strongly disagree to 3 = strongly agree).

Item number within the NAQ long form in parentheses. AP = Approach Subscale, AV = Avoidance Subscale. To build an aggregate score of the Need for Affect, avoidance items must be reverse scored.