TPM

VALIDITY OF THE NEED FOR AFFECT SCALES: FACTORIAL STRUCTURE, INVARIANCE AND VALIDITY IN THE ITALIAN CONTEXT

LUIGI LEONE
FABIO PRESAGHI
UNIVERSITY OF ROMA "LA SAPIENZA"

Maio and Esses (2001) developed an individual difference measure of the Need for Affect. This construct reflects the individual's motivation to approach or avoid emotion-inducing situations. In the present research, we sought further support for validity of the measure among Italian groups. Different groups of participants were analyzed (total $N = 1159$), with age ranging from 15 to 75. The factor structure of the scale was tested, and compared with results reported by developers of the instrument. Factorial invariance of the measure was investigated across gender and across age levels. We thus sought to replicate and extend previous results on convergent and discriminant validity of the need for affect measure. Results support the validity of the Need for Affect Scales in Italian groups.

Key words: Need for Affect; Validity; Cultural generalizability; Motivation.

Correspondence concerning this article should be addressed to Luigi Leone, Dipartimento di Psicologia dei Processi di Sviluppo e Socializzazione, Università degli Studi di Roma "La Sapienza", Via dei Marsi 78, 00185 ROMA (RM), Italy. E-mail: luigi.leone@uniroma1.it

INTRODUCTION

The Need for Affect Scales (NAS; Maio & Esses, 2001) measure individual differences in the motivation to approach and avoid emotions. The NAS are concerned with how individuals differ in their need to seek out emotions and emotional experiences. In a similar vein, individual differences research on cognitive processes has addressed the "need for cognition," the motivation to engage in cognition-demanding activities and challenging cognitive tasks (Cacioppo & Petty, 1982), or the "need for closure," the motivation to avoid ambiguity and close rapidly the information-seeking phase of decision-making. As such, the Need for Affect Scales are a further example of empirical interest on individual differences in processes and styles, rather than on individual preferences on specific contents or outcomes.

Individual differences in motivations to approach emotions are a novel goal in affect-related research. Most measures examining individual differences in affect mainly focus on emotional ability and emotional tone. For instance, emotional ability measures assess how well or efficiently people perceive, express, recognize and regulate emotions. One of such emotional ability measures are Alexithymia scales (e.g., Bagby, Parker, & Taylor, 1994), since they measure difficulties in self-regulation of affect involving incapacity to discriminate among different emotions and communicate feelings. On the other hand, emotional tone measures focus on individual differences in expressing or repressing emotion, on intensity of emotional experience, and on chronic prevalence of positive or negative affective tone (such as the positive and negative affect

scales, PANAS, by Watson, Clark, & Tellegen, 1988). Unlike measures of emotional ability and emotional tone, the NAS is not concerned with how emotions are experienced or expressed, but with the motivation to approach or avoid emotions and emotional-eliciting events and situations. The motivations to approach and avoid emotions reflect the processes underlying individual differences in the pursuit of affect "on average," regardless of affective valence, rather than a motivation to experience positive moods. This is an important difference with the notion of affect regulation, which is mainly concerned with how individuals maximize the experience of *positive* emotions, or how people achieve an optimal emotional balance (Thayer, Newman, & McClain, 1994). The NAS aim instead to discriminate people seeking for diverse emotional experience and attending to emotional information, when shaping judgments and forming attitudes (emotion "approachers"), from individuals who regard emotions as disturbing and inefficiently interfering with judgments and decision making processes (emotion "avoiders"). The motivations to avoid and approach emotions are then formally similar to other non-directional motivations (need for closure, need for cognition). Unlike directional motivational constructs, which are concerned with end-states and outcomes, need for closure, need for cognition, and the need for affect constructs represent non-directional motivations concerned with the processes employed and the styles adopted for delivering outcomes, rather than concerned with the specific outcomes per se (see Jost, Glaser, Kruglansky, & Sulloway, 2003, p. 341).

The Need for Affect Scales

The Need for Affect Scales consist of 26 agree/disagree items (Maio & Esses, 2001). As suggested by psychological theory and research on approach and avoidance motivations (Carver, 2004; Carver & Scheier, 1998; Higgins, 1997, 1998), the motivations to approach and to avoid emotions were conceived as two distinct constructs, measured in the NAS with two different scales (13 items each). Approach motivation was measured with items as "I approach situations in which I expect to experience strong emotions," and "It is important for me to be in touch with my feelings." Examples of Avoidance motivation items are "I do not know how to handle my emotions, so I avoid them," and "I would prefer not to experience either the lows or highs of emotion." Emotion approach and emotion avoidance scores are conceived as theoretically independent factors, but low to moderate correlations could be also expected. Although the two scale scores have been combined in a total net Need for Affect score (emotion approach minus emotion avoidance) to represent which motivation predominates in each individual (Maio & Esses, 2001), the separate scale scores can also be used.[1]

Maio and Esses (2001) reported exploratory and confirmatory factor analyses supporting the expected two-factor solution. The Authors ascertained convergent and discriminant validity of the NAS investigating associations with emotional expression and emotional tone measures, and with other non-directional motivations. The motivation to approach emotions correlated positively with both Positive Affect, *and* Negative Affect, whilst the motivation to avoid emotions correlated negatively with Positive Affect and positively with Negative Affect (measured by the PANAS); negative correlations with alexithymia were also found. The NAS correlated negatively with Cognitive Need for Closure, another non-directional motivational construct. Positive correlations were reported with the behavioral activation system scales (Carver & White, 1994). These

associations confirm theorizing describing the need to *approach* affect as a motivational tendency related to the experience of *both* positive and negative emotions (with a prevalence of positive emotions, though), expression of *both* positive and negative emotional states, and to high sensitivity of the behavioral activation system, which regulates behavioral impulses related to attainment of rewards states (Gray, 1990). On the other hand, the associations reported by Maio and Esses (2001) are consistent with a definition of the need to *avoid* emotions as a preference for low arousal emotional states, as a vulnerability to high arousal negative emotional states, as difficulties in emotional expression, and as related to low sensitivity of the behavioral activation system.

AIMS OF THE STUDY

The present study sought to provide further support for validity of the NAS: 1) the factor structure of an Italian adaptation of the NAS was investigated by means of exploratory and confirmatory factor analyses; 2) congruence between the factor structure recovered in Italy and that reported in Maio and Esses (2001) using an UK sample was assessed; 3) generalizability of factor structure across gender and different age groups was investigated; 4) test-retest stability of measures was assessed; 5) finally, we tried to extend the evidence on convergent and discriminant validity investigating how need for affect scales relate with other constructs. We focused on associations between the NAS and measures of emotion regulation (Cognitive Emotion Regulation Questionnaire, CERQ; Garnefsky, Kraaij, & Spinhoven, 2001), and emotional expression (King & Emmons, 1990). Also, like Maio and Esses, we tested relationships of the need for affect constructs with need for cognitive closure. We expect the need to approach emotions to correlate positively with both behavioral activation and inhibition because both systems are responsible for several emotional reactions, and to correlate negatively with alexithymia, and need for cognitive closure. On the other hand, we expect the need to avoid emotions to show positive correlations with alexithymia, and negative-focused cognitive regulation, because emotion avoidance can develop as a strategy to cope with greater vulnerability to negative emotions (Block & Block, 2006). Positive correlations with need for cognitive closure are expected because both affect avoidance and preference for cognitive closure provide protection from ambiguity-enhancing affective processes. This predicted pattern of correlations should support validity of the NAS in Italian samples.

METHOD

Participants and Procedure

Different groups were involved in our study. The largest group (N = 608) included 350 males, and 258 female adolescents (mean age = 17.33, SD = 1.27) recruited in different high schools in Rome (Italy). Questionnaires were completed in classroom during school time. This group provided measures for the NAS, the BIS/BAS scales (Carver & White, 1994), the Toronto

Alexithymia Scale (TAS-20; Bagby et al., 1994), the Cognitive Emotional Regulation Questionnaire (Garnefsky et al., 2001), and the Emotional expression measures (King & Emmons, 1990).

A second sample (N = 281) of female high school students (mean age = 17.61, SD = 4.40) participated in the test-retest study, providing measures for the need for affect items in two occasions, two weeks apart.

A third group (N = 272) of adult (non high school students) participants (120 males, 152 females; mean age = 31.8, SD = 12.12) contacted in a large Southern Italian region provided responses for the need for closure (Webster & Kruglansky, 1994), and for the need for affect scales. We deemed important to gather data on an adult sample, comprised mainly of non-college student participants (69.5% of respondents were non-college students) to extend generalizability of results.

Measures

Need for Affect. The 26-item NAS by Maio and Esses (2001) was used. The Italian version was prepared using the translation and back-translation procedure. The questionnaire measures motivations to avoid (13 items), and approach (13 items) emotions. Seven-point *disagree*/*agree* response scales were used.

BIS-BAS scales. Carver and White (1994) developed a self-report measure for the assessment of individual differences in sensitivity to behavioral inhibition (BIS) or activation (BAS). Following Gray's theory (1990), BAS is responsible for initiating and maintaining active goal pursuit and for controlling the experience of positive affect, whilst BIS inhibits harmful behavior, and activates fear-related and agitation-related emotional reactions. Three facets of the BAS are measured: Reward Responsiveness (5 items), Drive, and Fun Seeking (4 items each). BIS is measured by seven items (Carver & White, 1994). The Italian version of the scales (Leone, Perugini, Bagozzi, Pierro, & Mannetti, 2001) was administered to the adolescent sample with 5-point response scales, anchored by *Does not describe me at all* (1), *Describes me completely* (5). An aggregate BAS score was computed from the 3 BAS-related facets (α = .81). Reliability for the BIS was also satisfactory (α = .73).

Toronto Alexithymia Scale. TAS-20 is a 20-item measure of Alexithymia (Bagby et al., 1994) defined as a difficulty in self-regulation of affect involving incapacity to discriminate among different emotions and communicate feelings, and characterized by an externally oriented thinking. Respondents are asked to rate the degree with which they are described by each proposition using a response scale ranging from 1 (*not at all*) to 5 (*completely*). For the purposes of our study, the Italian translation of TAS-20 (Bressi et al., 1996) was administered to the adolescent sample; the Alexithymia total score was used (α = .74).

Cognitive Emotion Regulation Questionnaire, CERQ. The CERQ (Garnefsky et al., 2001; Italian version by Presaghi & Ercolani, 2005) is a 36-item questionnaire that measures two broad dimensions representing strategies people use to cope with emotional, stressing situations, and with negative emotional stimuli: the first dimension is made up of adaptive strategies and is named "positive-focused cognitive emotion regulation" (α = .84); the second dimension is comprised of less adaptive strategies and is named "negative-focused cognitive emotion regulation"

(α = .81). Measures of these constructs were administered to the adolescent sample using a 5-point response scale.

Emotional Expressiveness Questionnaire, EEQ. King and Emmons (1990) developed a 14-item measure of the tendency to express negative and positive emotions. The scale measures three factors: Expression of Positive Emotions (α = .58); Expression of Negative Emotions (α = .59), and Expression of Intimacy (α = .39). Seven-point response scales were used (1 *it does not describe me at all*; 7 *it describes me completely*). Due to low reliability, Expression for Intimacy was not considered further in the analyses.

Cognitive Need for Closure was measured by a 35-item scale developed by Webster and Kruglansky (1994; Italian version by Pierro et al., 1995). The measure reflects the individual's desire for a firm answer to a question, and his/her aversion toward ambiguity. Agree-disagree 7-point response scales were used (α = .86).

RESULTS

Factor Structure

On the largest sample (N = 608) an exploratory factor analysis (EFA) with the Minimum Residuals estimation (MINRES; Harman, 1960; Joreskog, 2003) was carried out. This method was preferred to the most widely used Maximum Likelihood (ML) estimation method because ML makes the assumption of multivariate normality. Unfortunately, our data did not satisfy this assumption (numerous skewness and kurtosis indexes above |1|). MINRES, like Unweighted Least Squares (ULS) estimation, does not require any distributional assumptions and thus it conforms nicely to our data. In any event "… when the common factor model holds reasonably well in the population and severe violations of distributional assumptions are not present, solutions provided by these methods are usually very similar" (Fabrigar, Wegener, MacCallum, & Strahan, 1999, p. 277). To determine the optimal number of factors to retain (i.e., the best trade-off between under- and over-factoring; see Fabrigar et al., 1999) we recurred to several methods (for a review see Hayton, Allen, & Scarpello, 2004): Parallel Analysis (PA; Horn, 1965) and the Velicer's (1976) Minimum Average Partial method (MAP). As stated by O'Connor (2000, p. 398; Hayton et al., 2004) the two methods complement each other and typically tend to converge in retaining the same number of factors. Both methods indicated a two-factor solution. In Parallel Analysis, as shown by Figure 1, only the first two eigenvalues obtained from real data (respectively 5.49 and 4.62) were greater than randomly generated eigenvalues (for both the average and 95° Percentile distribution of eigenvalues obtained from 100 random data sets). For the MAP method the minimum average squared partial correlation (.009879) was reached at the second factor and hence just two factors were extracted. The two factors accounted for 38.88 % of the observed variance. Table 1 shows the pattern of factor loadings after PROMAX rotation (PROMAX was preferred to allow for possible correlations — expected in the low to moderate range — between factors). The rotated factors correlated .10.

All items loaded on their respective theoretical factor, with no secondary loadings above .30. As Maio and Esses (2001). We labelled these factors "Approach" and "Avoidance." Satisfactory reliabilities were found for Avoidance (α = .83), and Approach (α = .86) scale composites.

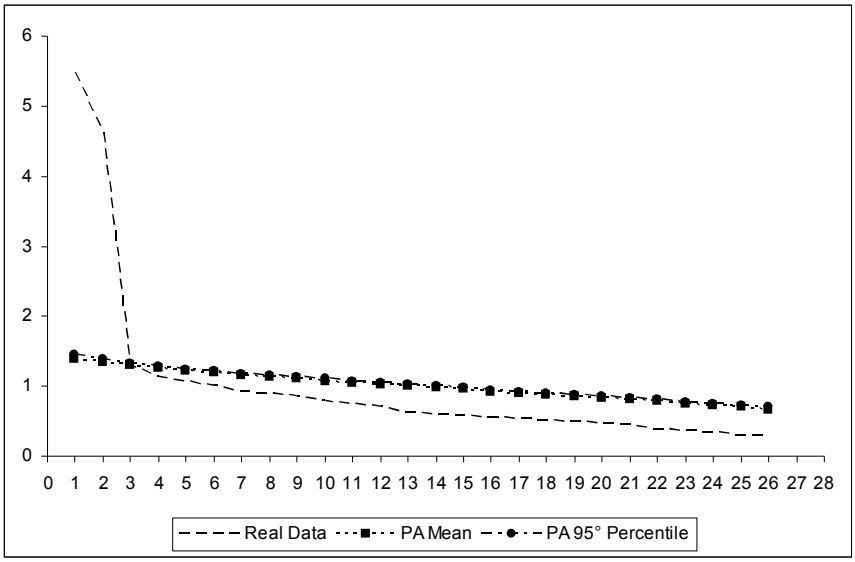

FIGURE 1
Plot of Observed vs Randomly Generated Eigenvalues.

TABLE 1
Rotated factor loadings ($N = 608$)

Original English Item	Italian Item	Indicator of	F1 (Approach)	F2 (Avoidance)	Unique Variances
1. If I reflect on my past, I see that I tend to be afraid of feeling emotions	1. Se rifletto sul mio passato, mi rendo conto di aver paura di provare emozioni	*AV*	--	.386	.783
2. I have trouble telling the people close to me that I love them	2. Ho difficoltà a dire alle persone care quello che provo per loro	*AV*	--	.303	.895
3. I feel that I need to experience strong emotions regularly	3. Sento di aver bisogno di provare spesso delle forti emozioni	*AP*	.638	--	.594
4. Emotions help people to get along in life	4. Le emozioni aiutano la gente a vivere	*AP*	.725	--	.472
5. I am a very emotional person	5. Sono una persona molto emotiva	*AP*	.493	--	.746
6. I think that it is important to explore my feelings	6. Penso sia importante esplorare i miei sentimenti	*AP*	.656	--	.568
7. I approach situations in which I expect to experience strong emotions	7. Tendo a cercare situazioni che mi diano forti emozioni	*AP*	.595	--	.650
8. I find strong emotions overwhelming and therefore try to avoid them	8. Penso che le emozioni forti siano incontrollabili e quindi cerco di evitarle	*AV*	--	.638	.590
9. I would prefer not to experience either the lows or highs of emotions	9. Preferirei evitare gli alti e bassi delle mie emozioni	*AV*	--	.456	.748

(*table continues*)

TABLE 1 (continued)

Original English Item	Italian Item	Indicator of	F1 (Approach)	F2 (Avoidance)	Unique Variances
10. I do not know how to handle my emotions, so I avoid them	10. Non sono in grado di gestire le mie emozioni, e quindi le evito	*AV*	--	.765	.405
11. Emotions are dangerous — they tend to get me into situations that I would rather avoid	11. Le emozioni sono pericolose perché mi mettono in situazioni che vorrei evitare	*AV*	--	.703	.512
12. Acting on one's emotion is always a mistake	12. Agire sulla base delle proprie emozioni è sempre un errore	*AV*	--	.570	.674
13. We should indulge our emotions	13. Dovremmo lasciarci andare alle emozioni	*AP*	.599	--	.646
14. Displays of emotions are embarrassing	14. L'aperta espressione delle proprie emozioni è imbarazzante	*AV*	--	.398	.770
15. Strong emotions are generally beneficial	15. Le emozioni forti sono in genere un bene	*AP*	.634	--	.601
16. People can function most effectively when they are not experiencing strong emotions	16. Una persona può essere più efficiente quando non prova emozioni forti	*AV*	--	.482	.771
17. The experience of emotions promotes human survival	17. La capacità di provare emozioni favorisce la sopravvivenza degli esseri umani	*AP*	.589	--	.656
18. It is important for me to be in touch with my feelings	18. Per me è importante essere in contatto con i miei sentimenti	*AP*	.747	--	.448
19. It is important for me to know how others are feeling	19. Per me è importante sapere ciò che stanno provando gli altri	*AP*	.609	--	.618
20. I like to dwell on my emotions	20. Mi piace rimuginare sulle mie emozioni	*AP*	.503	--	.683
21. I wish I could feel less emotion	21. Desidererei poter provare le emozioni in modo meno forte	*AV*	--	.616	.617
22. Avoiding emotional events helps me sleep better at night	22. Evitare le situazioni emotive mi aiuta a dormire meglio la notte	*AV*	--	.504	.733
23. I am sometimes afraid of how I might act if I become too emotional	23. A volte ho paura di come potrei comportarmi se cadessi preda delle emozioni	*AV*	--	.588	.627
24. I feel like I need a good cry every now and then	24. Sento di aver bisogno di un bel pianto ogni tanto	*AP*	.416	--	.768
25. I would love to be like "Mr. Spock" who is totally logical and experiences little emotion	25. Mi piacerebbe essere come il dottor Spock di Star Treck, una persona totalmente razionale che prova poche emozioni	*AV*	--	.515	.712
26. I like decorating my bedroom with a lot of pictures and posters of things emotionally significant for me	26. Mi piace decorare la mia stanza con numerose fotografie e immagini di cose emotivamente importanti per me	*AP*	.393	--	.846

Note. *AP*: Affect Approach indicator; *AV*: Affect Avoidance indicator. Loadings < .30 are omitted.

Factor Congruence

To compare more formally the equivalence of the Italian structure with the original one, we computed convergence between the factor pattern reported in Table 1 and Maio and Esses' pattern of factor loadings. Congruence coefficients were computed using the factor loading estimates reported by Maio and Esses (2001, Table 1, p. 591) as the target matrix. Strong convergence among structures was found: Tucker's *phi* .97 for Avoidance, .98 for Approach. Coefficients were above the .95 threshold indicated recently as suggesting equivalence between factor patterns (Lorenzo-Seva & ten Berge, 2006).

Generalizability of Factor Structure

Maio and Esses (2001) reported gender differences in need for affect scores. Also, age-related effects have been reported. But as a matter of fact, mean differences across samples may be due to both a non invariant factor structure across samples and/or to real gender or age-related differences in the two populations. To tackle the problem, we proceeded to ascertain factor invariance across gender and across different age groups.

As a first step, we computed congruence coefficients. We considered four groups obtained combining gender with age-group (Table 2). Factor patterns recovered in each of these groups were compared. As shown in Table 2, strong congruence coefficients were found. Coefficients ranged from .96 to .98 (average .97). The average congruence for Approach was .96, and .97 for Avoidance. All the coefficients were above the .95 threshold, suggesting "that the two factors or components compared can be considered equal" (Lorenzo-Seva & ten Berge, 2006, p. 57).

TABLE 2
Factor congruence coefficients

	Adolescent Males	Adult Males	Adolescent Females	Adult Females
Adolescent Males	350	.97	.97	.96
Adult Males	.96	120	.98	.99
Adolescent Females	.98	.96	258	.98
Adult Females	.96	.96	.96	152

Note. Coefficients for the Approach factor are reported in the lower triangle; coefficients for the Avoidance factor are reported in the upper triangle; *N*s in the diagonal.

Congruence coefficients suggested remarkable stability of the NAS structure at the item-level of analysis. To gain further insight on measurement invariance, Means and Covariance Structure (MACS) analyses via multi-group confirmatory factor analyses models were tested. Non-normality of individual items prevented safe estimation of standard error for parameter es-

timates of confirmatory models based on item-level data (e.g., West, Finch, & Curran, 1995). We turned then to parcel-level data (composites of individual items) models (e.g., Bandalos & Finney, 2001). Using parcels as indicators may help to reduce problems due to non-normality of individual items. Parcelling has been shown to reduce the downward bias in standard error estimation caused by non-normal indicators (e.g., Hau & Marsh, 2004). Although parcelling is a controversial procedure (e.g., Little, Cunningham, Shahar, & Widaman, 2002), it has also been credited with some merits. Parcelling reduces the number of parameter estimates, favoring stability of parameter estimates with moderate sample sizes (Marsh & Hocevar, 1988); also, parcels have more narrow and more equal intervals between scale points (making parcels more continuous and interval scaled) than do items (e.g., Bagozzi & Edwards, 1998). Compared with item-level data, models based on parcel-level data lead also to reduction of various sources of sampling error (McCallum, Widaman, Zhang, & Hong, 1999). Finally, parcelling deals with measurement error in an efficient way and it is a procedure grounded on basic classic psychometric theory (Bagozzi, 1993; Bentler, 1990; Hull, Lehn, & Tedlie, 1991; Little, Lindenberger, & Nasselroade, 1999). Of course parcelling has its cons, being inherently less informative than item-level data (Little et al., 2002). Given the ill-shaped distribution of the individual items, and the more normal distributions of parcels (our parcels, described below, showed kurtosis and skewness indexes below |.6|), we believe that the trade-off between more informative analyses (item-level) and safer estimation (parcel-level) pointed to favor parcel-level modelling. We acknowledge this implies some loss of more fine-grained information on items functioning. Notwithstanding, parcel-level data are not uncommon in multigroup analyses (e.g., Bagozzi & Edwards, 1998; Cooper, Perkins, & Corr, 2007); therefore, we are confident valuable information could be extracted from parcel-level modelling.

Three aggregated indicators for each factor were obtained by splitting randomly the 13 items of each dimension in a composite of five items, and two composites of four items each. In testing the level of invariance of NFA factor structure we adopted the ordered sequence of tests for hierarchical models summarized (among others) by Meredith (1993), Widaman and Reise (1997), and Vandenberg and Lance (2000). The following tests of measurement invariance will be carried out: 1) Configural Invariance (same items load on the same factors in different groups; factor loadings are free to vary); 2) Metric Invariance (all the preceding constraints plus factor loadings constrained to be invariant across samples); 3) Scalar Invariance (all the preceding constraints plus indicators' intercepts constrained to be invariant across samples); 4) Invariance of Residual Variances or Item Uniqueness (all the preceding constraints plus indicators' unique variances constrained to be invariant across samples); 5) Invariance of Latent Factor Variances (all the preceding constraints plus latent factor variances constrained to be invariant across samples); 6) Invariance of Latent Factor Covariances (all the preceding constraints plus latent factor covariances constrained to be invariant across samples); finally, 7) Invariance of Latent Factor Means (all the preceding constraints plus constraints on equality of latent factor means across sample). Male Adolescents (the larger group, $N = 350$) were used as the reference group. The other groups were somewhat smaller: Adult Males, $N = 120$; Adolescent Females, $N = 258$; Adult Females, $N = 152$.

We will focus on several indexes to evaluate fit, and on the chi-square difference test for evaluating invariance hypotheses. Also, conducting hierarchical tests we will consider the differences in CFI (ΔCFI). According to Cheung and Rensvold (2002), differences between models

yielding ΔCFIs ≤ .01 are suggestive of equivalent fit of the compared models. Table 3 presents fit indexes, and hierarchical tests.

TABLE 3
Measurement and structural invariance tests for the Need For Affect

Model	χ^2	*df*	RMSEA	NNFI	CFI	Model Comparison	$\Delta\chi^2$	Δdf	*p*	ΔCFI
Configural Invariance	53.82 **	32	.056	.986	.992					
Metric Invariance	71.05**	44	.046	.987	.991	Metric vs Configural	17.23	12	.14	–.001
Scalar Invariance	261.26**	62	.121	.915	.912	Scalar vs Metric	190.21	18	.00	–.079
Partial Scalar Invariance	83.19**	50	.055	.986	.988	Partial Scalar vs Metric	12.14	6	.06	–.003
Item Uniqueness	106.12**	68	.040	.991	.989	Item Uniqueness vs Partial Scalar	22.93	18	.19	.001
Factor Variances	138.34**	74	.053	.983	.980	Factor Variances vs Item Uniqueness	32.22	6	.00	–.009
Latent Means (1)	102.51**	65	.041	.990	.990	Latent mean difference	3.61	3	.31	.001

Note. Only the Avoidance latent mean parameter across the samples was allowed to be estimated. The latent mean of the first sample (Adolescent Males, $N = 350$) was taken as the reference parameter against which the others were contrasted.
* $p < .05$. ** $p < .01$.

Although the baseline model implying Configural Invariance across all samples reported a significant chi-square ($\chi^2(32) = 53.82$, $p < .01$), other indices (NNFI = .986; CFI = .992; RMSEA = .056, 90% Confidence Interval for RMSEA, c.i., 0.0176 – 0.0759) pointed to good fit from a practical standpoint (e.g., Hu & Bentler, 1999). Metric Invariance has been identified as the crucial test to ascertain factor generalizability across samples (e.g., Reise, Widaman, & Pugh, 1993; Vandenberg & Lance, 2000). This model reported a significant likelihood ratio ($\chi^2(44) = 71.05$, $p < .01$), but the remaining indices pointed to good fit (NNFI = .987; CFI = .991; RMSEA = .046, c.i. 0.0182 – 0.0694). More importantly, the χ^2 difference between the invariant factor loading model and the baseline model was not significant ($\Delta\chi^2(12) = 17.23$, $p = .14$; ΔCFI = –.001), indicating that the null hypothesis of metric invariance could not be rejected. Estimated factor loadings were all high and significant, ranging from .73 to .88 (average .81). Then, the Scalar Invariance model was tested. Model fit worsened significantly compared with the metric invariance model, and ΔCFI was close to the upper limit (.01) indicated by Cheung and Rensvold (2002). This is suggestive that at least for some indicators scalar differences do exist. Inspection of estimated parameters, modification indexes, and residuals suggested that Approach indicators differed substantially across samples, whilst two of the three Avoidance indicators showed only negligible intercept differences across samples. We fitted then a partial Scalar Invariance model

for the Avoidance factor, where intercepts for two out of three Avoidance indicators were constrained to be invariant across groups. This model fitted reasonably well, and the hypothesis of partial scalar invariance for the Avoidance factor could not be rejected: $\Delta\chi^2(6) = 12.14$, $p = .06$; ΔCFI = –.003. The further level of invariance implied the invariance of error variances of indicators (uniqueness). This model fitted well ($\chi^2(68) = 106.12$, $p < .00$; RMSEA = 0.040, c.i. 0.0144 – 0.0599; NNFI = .991; CFI = .989); more importantly, the model did not fit significantly worse than the partial scalar invariance model ($\Delta\chi^2(18) = 22.93$, $p = 0.19$; Δ CFI = .001). The next invariance hypothesis concerned equality of factor variances (Invariant Latent Factor Variances). The fit of this model worsened significantly compared with the item uniqueness invariant model ($\Delta\chi^2(6) = 32.22$, $p \cong .00$; ΔCFI = –.009). Therefore, the hypothesis of equal variances across groups was rejected. Consequently, we did not test for invariance of latent covariances.

Turning to latent mean differences, tests of scalar invariance revealed that indicators for Approach were not scalar invariant, whilst partial invariance could be established for Avoidance. This pattern of results allows testing for mean differences in latent Avoidance (Byrne, Shavelson, & Muthén, 1989), but not for latent mean differences in the Approach factor (e.g., Steenkamp & Baumgartner, 1998). We contrasted the model with the partial scalar invariance constraints (where latent factors means were fixed to zero across groups) with a less constrained model where the latent factor means for Avoidance were free to vary. The model fitted reasonably well ($\chi^2(65) = 102.51$, $p \cong .00$; RMSEA = 0.041, c.i. 0.0142 – 0.0606; NNFI = .990; CFI = .990), but it did not fit significantly better than the partial invariance and fixed factor means model ($\Delta\chi^2(3) = 3.61$, $p = 3.61$; ΔCFI = .001). This is indicative of no reliable mean difference in latent factors, once partial invariance of indicators has been controlled for (Byrne et al., 1989; Vandenberg & Lance, 2000).[2]

To summarize, very high congruence coefficients across age and gender groups revealed a close similarity between factor patterns at the item level. Means and covariance structure analyses showed that metric invariance held across groups, but that only partial scalar invariance held for the Avoidance factor, whilst even partial scalar invariance was untenable for the Approach factor. Apparently, item bias and/or other systematic influences were at work, causing differential indicator functioning across groups. We cannot say whether this problem is limited to the Italian version of the NAS, or if it could be detected in the original English version as well, for no hypotheses on scalar invariance were investigated by Maio & Esses (2001). It is possible that the same degree of differential indicator functioning (as far as scalar invariance is concerned) would have appeared across English-speaking samples. As a matter of fact, scalar invariance is rarely found, with most applications detecting no invariance, or — at best — partial scalar invariance (e.g., Burns, Walsh, Gomez, & Hafetz, 2006; Byrne & Stewart, 2006; Campbell-Sills, Liverant, & Brown, 2004; Gomez, 2006; Roesch & Vaughn, 2006; Wasti, Bergman, Glomb, & Drasgow, 2000; Williams, Fletcher, & Ronan, 2007; Yoo, 2002). Since scalar invariance tests are so rarely performed in psychological research, one can suspect many mean difference tests routinely performed in psychological research could be biased.

Had we investigated mean differences without checking for metric and scalar invariance, we would have obtained different conclusions. For Avoidance, means did not differ across gender ($F(1, 876) = 1.90$, $p = .17$), but a significant effect for age group would have been found ($F(1, 876) = 6.08$, $p < .02$) with adult participants scoring slightly higher ($M = 3.03$) than adolescents

(M = 2.86, d = .16). Recall that ANOVA assumes full scalar invariance. Since only partial invariance was supported, ANOVA results are biased. We refrained from testing for latent mean differences in Approach, given no scalar invariance could be sustained. Performing an ANOVA on Approach scale scores would have revealed main effects for age (F(1, 876) = 53.27, p < .001) and gender (F(1, 876) = 53.27, p < .001). As found by Maio and Esses (2001) females scored much higher (M = 4.97) than males (M = 4.38, d = .56), and adults scored higher (M = 4.84) than adolescents (M = 4.57, d = .26). These results might not be interpretable, since lack of scalar invariance is consistent with presence of differential response bias across groups (Bollen, 1989).[3] We will mention in the discussion other possible interpretations for lack of scalar invariance (Vandenberg & Lance, 2000).

Although we already investigated age-related effects via MACS, we also computed correlations between age and NAS scores combining the adolescent (N = 608) and adult (N = 272) samples (total N = 880). This analysis gives a more fine-grained picture of age effects, since it allows considering the complete span of the age variable in our samples (15-75), instead that just differences between two age groups, as we did in MACS. Moreover, such correlation can be compared with that reported by Maio and Esses (2001). The Authors summarized their results using the net Need for Affect score and reported a significant negative correlation between age and the net need for affect score (–.11). Computing the net need for affect score in our data yielded the same negative weak association (–.11, p < .001) reported by the Authors. Using the separate Approach and Avoidance scores we found a weak positive avoidance-age correlation (r = .19, p < .001), whilst emotion approach was uncorrelated with age (r = .04, *ns*).

Test-Retest Reliability

As a final issue of the psychometric attributes of the NAS in Italian groups, test-retest reliability was investigated, using a sample of 281 female adolescents that filled out the NAS twice, two weeks apart. Test-retest correlations were .80 for emotion avoidance, and .74 for emotion approach. To estimate more precise test-retest coefficients, a confirmatory factor analysis approach was used. Correlations between latent variables across measurement occasions provided estimates for test-retest reliability. To control for shared method variance, correlations among disturbances for the same indicators across the two occasions were included in the model. The model fit the data well (χ^2(42) = 59.39, p = .04; NNFI = .970; CFI = .990; RMSEA = .039). Structural parameters showed a test-retest coefficient of .87 for emotion avoidance, and of .82 for emotion approach.

Convergent and Discriminant Validity

Confirmatory factor analyses models were used to obtain validity estimates disattenuated for measurement error. Parcels were used as indicators for all the constructs, to simplify the models. As indicated in Table 4, measures relevant for convergent and discriminant validity of NAS come from different samples.

TABLE 4
Correlations among measures

	Approach	Avoidance
BIS/BAS [a]		
BIS	.52**	.25**
BAS	.73**	.00
Alexythimia total score [a]	.11*	.63**
CERQ [a]		
Positive-Focused Cognitive Emotion Regulation	.43**	–.01
Negative-Focused Cognitive Emotion Regulation	.48**	.58**
Emotional Expression [a]		
Expression of Positive Emotions	.49**	–.04
Expression of Negative Emotions	.45**	.11*
Cognitive Need for Closure [b]	–.20**	.42**

Note. [a] Measure administered to the adolescent sample ($N = 608$). [b] Measure administered to the adult sample ($N = 272$).
* $p < .05$; ** $p < .01$.

The Adolescent sample ($N = 608$) was used to investigate relationships between need for affect and behavioral inhibition and activation systems (Carver & White, 1994). Individuals motivated to approach emotions should experience more intensely the emotional effects regulated by both the behavioral activation and the behavioral inhibition systems. On the other hand, emotion avoiders should be sensitive only to the alert-related emotions controlled by the BIS, and be irresponsive to BAS. Results confirm these expectations. Emotion approach correlates with BIS, and with BAS, whilst emotion avoidance is only associated to BIS, and uncorrelated with BAS. As was the case in Maio and Esses (2001), Alexithymia was strongly correlated with emotion avoidance and barely associated to emotion approach. We also observed positive and significant correlations of emotion approach with the subscales of the Emotional Expression questionnaire, showing that emotion approachers express both positive and negative feelings, regardless of valence. On the contrary, emotion avoidance was uncorrelated or weakly correlated with expression of positive and negative emotions. Interestingly, both emotion avoidance and emotion approach correlated with negative-focused emotional regulation tactics, whilst only emotion approach correlated with positive-focused emotional regulation. Apparently, emotion avoiders cope with emotions in a biased way, and tend to be oblivious of positive-focused cognitions. Unlike emotion avoiders, it seems emotion approachers manage emotions in a flexible way, using more diverse and adaptive regulation strategies.

The adults group ($N = 272$) provided measures for cognitive need for closure. Supporting previous results (Maio & Esses, 2001) the need to avoid emotions was positively correlated with cognitive need for closure, whilst emotion approach was negatively related to need for closure. Both need for closure and need for affect are motivational non-directional constructs (Jost et al., 2003), concerned with individual differences in processing styles, rather than with specific out-

comes stemming from the processes. A positive association must be expected because both need for closure and affect avoidance promote simplicity, and reduce ambiguities.

To summarize, our results on convergent and discriminant validity support and expand previous findings. Need for affect correlates as expected with measures of regulatory systems (BIS and BAS), with measures of individual differences in cognitive style (need for closure), and with emotional regulation measures.

DISCUSSION

The Need for Affect Scales performed well in Italian samples. The factorial structure of the scale supported theoretical expectations, and the observed factor patterns in the Italian samples converge well with the factorial patterns reported in UK samples. The factor pattern was also remarkably convergent across Italian groups. Confirmatory analyses supported metric invariance, and partial scalar invariance for the Avoidance factor. Finally, test-retest reliabilities were high, and correlations with other constructs support convergent and discriminant validity. We will focus our discussion on some implications concerning Need for affect meaning and functioning. However, we first turn to discuss further the lack of scalar invariance found for the Approach factor.

Lack of Scalar Invariance: Meaning and Interpretations

Absence of scalar invariance for the Approach measures prevented us from investigating latent mean differences across samples. Strictly speaking, absence of scalar invariance would also prevent us from investigating mean differences on observed scores. ANOVA models assume equality of intercepts (that measures are in the same scale across groups), and it would not make much sense to investigate mean differences on scale scores if we suspect that each item score is differentially affected by response bias in the samples we want to compare.

However, we must point out that response bias is not the only possible interpretation for absence of scalar invariance. It has been proposed that scalar differences may represent real response thresholds, linked with reliable differences in the latent construct (Vandenberg & Lance, 2000), and not only bias. For instance, one could expect that groups differing in some ability (the latent factor) may show different thresholds for correct responses to every single task that builds up the latent ability. In such cases we contend that it could make sense to compare means on the scale score, since the obtained differences would be theoretically interpretable, and not due to "bias" or "error". We are not claiming that this was the case for the scalar differences we found for the Approach factor. However, we suspect that many comparisons across non arbitrary groups (such as gender, different age levels, or groups exposed to different experimental conditions) may reveal similar levels of scalar differences. Indeed, scalar differences are a frequent finding in those relatively rare researches that test scalar invariance, as already cited. Scalar invariance is severely under-researched, yet investigators routinely perform mean comparisons. The question of whether these mean comparisons are justifiable, or are misleading because of response bias needs much more research on the meaning of scalar invariance than is available to-date.

Need for Affect Motivations: Meaning and Function

Emotion approach correlates with both positive and negative emotional expression, and with both behavioral inhibition and activation systems. These systems play an important role regulating both positive and negative emotions. Emotion avoidance correlates only with behavioral inhibition, a system related to negative high arousal emotions (agitation, anxiety), and to low-arousal positive emotions (calmness). It may be speculated that emotion avoiders learn to reduce the intensity of their emotional arousal to cope with their emotional vulnerability to high arousal emotions. The pattern of correlations observed with positive- and negative-focused cognitive emotional regulations is consistent with such hypothesis. Emotion avoiders engage in negative-focused cognitive emotion regulation but not in positive-focused regulation. Possibly, as devised by Tomkins (1962, 1963), different thresholds for the experience of positive and negative emotions exist for different individuals. People with lower thresholds for negative emotions and higher thresholds for positive emotions may learn to avoid negative affect by distancing from all kinds of emotions, and emotion-eliciting contexts; notwithstanding, emotion avoiders would remain concerned with the adverse effects of negative emotional states because they are more vulnerable to (have lower thresholds for) negative emotions.

The observed pattern of correlations supports the notion that Emotion Approach is linked with positive emotional tone and with effective emotional regulation. Most individuals high in the need for affect may pursue emotions partly because they *expect* to experience positive emotions, and are confident of efficiently overcoming emotional setbacks, perhaps because of their superior skill at managing both positive and negative affect. On the other hand, individuals motivated to avoid affect probably do so because most of the emotions they feel are negatively valenced. Future research may investigate this issue.

The NAS may turn out a useful research tool for different research areas. For example, the NAS may help to shed lights on the relationships between affect, attitudes, evaluations and intentions in decision making. Recent research and theorizing has emphasized the role of affect in decision making (e.g., Schwarz & Bohner, 1996). It has been shown that different kinds of emotions may direct to different decisional outcomes (e.g., Raghunathan & Pham, 1999). Also, it has been reported that self-regulatory processes moderate (enhance or inhibit) the impact of different emotions on decision making (Leone, Perugini, & Bagozzi, 2005). In a different research domain, need for affect constructs may turn out to be related with social and political attitudes. Preliminary evidence has been gathered on this hypothesis (Leone & Chirumbolo, in press).

Limitations

Some limitations need to be acknowledged. First, none of our groups was formally sampled. This limits generalizability of findings. However, within the generalizability limits posed by convenient sampling, we tried to contact individuals pertaining to different populations (high-school students, college students, adults non-students). At the very least, we could claim that results are more generalizable than those obtained from the all-college-student samples ubiquitous in psychological research. Second, ill-shaped distributions of individual items of the NAS prevented more fine-grained item-level analyses on measurement invariance. Nevertheless, we believe the whole pattern of results (factor pattern congruence, MACS analyses, and associations

with related constructs) conveys a consistent picture of the NAS as valid instrument across Italian groups. Finally, other constructs could have been measured to gather more information on the meaning and function of need for affect constructs. Future research should fill this gap.

NOTES

1. We prefer the latter possibility, given the moderate to low correlation between scale scores.
2. We also performed analyses at the item level, and we summarize here the results. Though, the following results should be taken with caution because of the ill-shaped distribution of most of the individual items. Moreover, having 26 observed variables forced us to perform such analyses separately for gender and for age groups. Concerning metric invariance across gender, full metric invariance could not be established, as it is frequent when models deal with a conspicuous number of observed indicators. However, partial metric invariance could be supported since 17 out of the 26 items show invariant factor loadings (Stenkamp & Baumgartner, 1998, Reise et al., 1993). Turning to the adolescent and adults samples comparisons, 24 out of 26 indicators turned out to be invariant, supporting partial metric invariance. As for scalar invariance, we found that most intercepts for the Approach indicators differed across groups. Thus, we reckoned that not even partial scalar invariance could be established for Approach. On the other hand, partial scalar invariance was defensible for Avoidance indicators. These results parallel those reported for the parcel-level data. Similarly, as shown by parcel-level modelling, no significant differences in Avoidance latent means were found. From a substantive and practical point of view, results obtained with item-level data lead to the same conclusions suggested by analyses at the parcel-level.
3. No significant interactions were detected in these ANOVAs.

REFERENCES

Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale — I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, *38*, 23-32.

Bagozzi, R. P. (1993). Assessing Construct Validity in Personality Research: Application to Measures of Self Esteem. *Journal of Research in Personality*, *27*, 49-87.

Bagozzi, R. P., & Edwards, J. R. (1998). A general approach for representing constructs in organizational research. *Organizational Research Methods*, *1*, 45-87.

Bandalos, D., & Finney, S. (2001). Item parceling issues in structural equation modeling. In G. Marcoulides & R. Schumacker (Eds.), *New developments and techniques in structural equation modeling* (pp. 269-296). Mahwah, NJ: Erlbaum.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238-246.

Block, J., & Block, J. H. (2006). Nursery school and political orientation two decades later. *Journal of Research in Personality*, *40*, 734-749.

Bollen, K. (1989). *Structural equation models with latent variates*. New York: Wiley.

Bressi, C., Taylor, G., Parker, J., Bressi, S., et al. (1996). Cross validation of the factor structure of the 20-item Toronto Alexithymia Scale: An Italian multicenter study. *Journal of Psychosomatic Research*, *41*, 551-559.

Burns, G. L., Walsh, J. A., Gomez, R., & Hafetz, N. (2006). Measurement and structural invariance of parent ratings of ADHD and ODD symptoms across gender for American and Malaysian children. *Psychological Assessment*, *18*, 452-457.

Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance: The issue of partial measurement invariance. *Psychological Bulletin*, *105*, 456-466.

Byrne, B. M., & Stewart, S. M. (2006). The MACS approach to testing for multigroup invariance of a second order structure: A walk through the process. *Structural Equation Modeling*, *13*, 287-321.

Cacioppo, J. T., & Petty, R. E. (1982). The Need for Cognition. *Journal of Personality and Social Psychology*, *42*, 116-131.

Campbell-Sills, L., Liverant, G. I., & Brown, T. A. (2004). Psychometric evaluation of the behavioral inhibition/behavioral activation scales in a large sample of outpatients with anxiety and mood disorders. *Psychological Assessment,* 16, 244-254.

Carver, C. S. (2004). Negative affects deriving from the Behavioral Approach System. *Emotion*, *4*, 3-22.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology*, *67*, 319-333.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*, 233-255.

Cooper, A. J., Perkins, A. M., Corr, P. J. (2007). A confirmatory factor analytic study of anxiety, fear, and behavioral inhibition system measures. *Journal of Individual Differences*, *28*, 179-187

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*, 272-299.

Garnefsky, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences*, *30*, 1311-1327.

Gomez, R. (2006). Gender invariance of the five-factor model of personality among adolescents: A mean and covariance structure analysis approach. *Personality and Individual Differences*, *41*, 755-765.

Gray, J. A. (1990). Brain system that mediate both emotion and cognition. *Cognition and Emotion*, *4*, 269-288.

Harman, H. H. (1960). Modern factor analysis. Chicago: University of Chicago Press.

Hau, K. T., & Marsh, H. W. (2004). The use of item parcels in structural equation modelling: Non normal data and small sample sizes. *British Journal of Mathematical Statistical Psychology*, *57*, 327-351.

Hayton, J. C., Allen, D. G., & Scarpello, V., (2004). Factor Retention Decisions in Exploratory Factor Analysis: A Tutorial on Parallel Analysis. *Organizational Research Methods, 7*(2), 191-205.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*, *52*, 1280-1300.

Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 30, pp. 1-46). New York: Academic Press.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 32*, 179-185.

Hu, L., & Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55.

Hull, J. G., Lehn, D. A., & Tedlie, J. C. (1991). A general approach to testing multifaceted personality constructs. *Journal of Personality and Social Psychology*, *61*, 932-945.

Joreskog, K. G. (2003). Factor analysis by MINRES. Chicago: Scientific Software. Retrieved October 26, 2007, from http://www.ssicentral.com/lisrel/techdocs/minres.pdf

Jost, J. T., Glaser, J., Kruglansky, A. W., & Sulloway, F. J. (2003). Political Conservatism as motivated social cognition. *Psychological Bulletin*, *129*, 339-375.

King, L. A., & Emmons, R. A. (1990). Conflict over Emotional expression: Psychological and physical correlates. *Journal of Personality and Social Psychology*, *58*, 864-877.

Leone, L., & Chirumbolo, A. (in press). Conservatism as motivated avoidance of affect: Need for affect scales predict conservatism measures. *Journal of Research in Personality*. doi:10.1016/j.jrp. 2007.08.001

Leone, L., Perugini, M., Bagozzi, R. P. (2005). Emotions and decision making: Regulatory focus moderates the influence of anticipated emotions on action evaluations. *Cognition and Emotion*, *19*, 1175-1198.

Leone, L., Perugini, M., Bagozzi, R. P., Pierro, A., & Mannetti, L. (2001). Construct Validity and Generalizability of the Carver-White Behavioural Inhibition System/Behavioural Activation System Scales. *European Journal of Personality*, *15*, 373-390.

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling, 9,* 151–173.

Little, T. D., Lindenberger, U., & Nesselroade, J. R. (1999). On selecting indicators for multivariate measurement and modeling with latent variables: When "good" indicators are bad and "bad" indicators are good. *Psychological Methods, 4*, 192-211.

Lorenzo-Seva, U., & ten Berge, J. M. F. (2006). Tucker's congruence coefficient as a meaningful index of factor similarity. *Methodology, European Journal of Research Methods for the Behavioral and Social Sciences, 2*, 57-64.

Maio, G. R., & Esses, V. M. (2001). The need for affect: individual differences in the motivation to approach or avoid emotions. *Journal of Personality*, *69*, 583-615.

Marsh, H. W., & Hocevar, D. (1988). A new, more powerful approach to multitrait-multimethod analyses: Application of second-order confirmatory factor analysis. *Journal of Applied Psychology, 73*, 107-117.

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods, 4*, 84-99.

Meredith, W. (1993). Measurement invariance, factor analysis and factorial invariance. *Psychometrika*, *58*, 525-543.

O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments, & Computers, 32*(3), 396-402.

Pierro, A., Mannetti, L., Converso, D., Garsia, V., Miglietta, A., et al. (1995). Caratteristiche strutturali della versione italiana della scala di bisogno di chiusura cognitiva di Webster Kruglansky [Structural characteristics of the Italian Version of the Cognitive Need for Closure Scale by Webster & Kruglansky]. *Testing Psicometria Metodologia*, *2*, 125-141.

Presaghi, F., & Ercolani, A. P. (2005). Exploratory and confirmatory factor structure of Italian version of CERQ. Unpublished Manuscript. University of Roma "La Sapienza".

Raghunathan, R., & Pham, M. T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision making. *Organizational Behavior and Human Decision Processes*, *79*, 56-77.

Reise, S. P., Widaman, K. F., & Pugh, R. H. (1993). Confirmatory factor analysis and item response theory: Two approaches for exploring measurement invariance. *Psychological Bulletin*, *114*, 552-566.

Roesch, S. C., & Vaughn, A. A. (2006). Evidence for the factorial validity of the Dispositional Hope Scale. *European Journal of Psychological Assessment*, *22*, 78-84.

Schwarz, N., & Bohner, G. (1996). Feelings and their motivational implications. In P. M. Gollwitzer & J. A. Bargh (Eds.) *The psychology of action* (pp. 119-145). New York: Guilford Press.

Steenkamp, J. E. M., & Baumgartner, H. (1998). Assessing measurement invariance in crossnational consumer research. *Journal of Consumer Research*, *25*, 78-90.

Thayer, R. W., Newman, J. R., & McClain, T. M., (1994). Self-regulation of mood: Strategies for changing a bad mood, raising energy, and reducing tension. *Journal of Personality and Social Psychology*, *67*, 910-925.

Tomkins, S. S. (1962). *Affect, imagery, consciousness: Vol. I. The positive affects.* New York: Springer.

Tomkins, S. S. (1963). *Affect, imagery, consciousness: Vol. II. The negative affects.* New York: Springer.

Velicer, W. F. (1976). Determining the number of components from the matrix of partial correlations. *Psychometrika, 41*, 321-327.

Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods, 3*, 4-70.

Wasti, S. A., Bergman, M. E., Glomb, T. M., & Drasgow, F. (2000). Test of the cross-cultural generalizability of a model of sexual harassment. *Journal of Applied Psychology, 85*(5), 766-778.

Watson, D., Clark, L. A.,& Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063–1070.

Webster, D. M., & Kruglansky, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, *67*, 1049-1062.

West, S. G., Finch, J. E., & Curran, P. J. (1995). Structural equation models with nonnormal variables: Problems and remedies. In R. H. Hoyle (Ed.), *Structural equation modelling: Concepts, issues, and applications* (pp 56-75). Thousand Oaks, CA: Sage.

Widaman, K. F., & Reise, S. P. (1997). Exploring the measurement invariance of psychological instruments: Applications in the substance use domain. In K. J. Bryant, M. Windle, & S. G. West (Eds.), *The science of prevention: Methodological advances from alcohol and substance abuse research* (pp. 281-324). Washington, DC: American Psychological Association.

Williams, M. W. M., Fletcher, R. B., & Ronan, K. R. (2007). Investigating the theoretical construct and invariance of the self-control scale using confirmatory factor analysis. *Journal of Criminal Justice*, *35*, 205-218.

Yoo, B. (2002). Cross-group comparisons: A cautionary note. *Psychology & Marketing,* 19, 357-368.