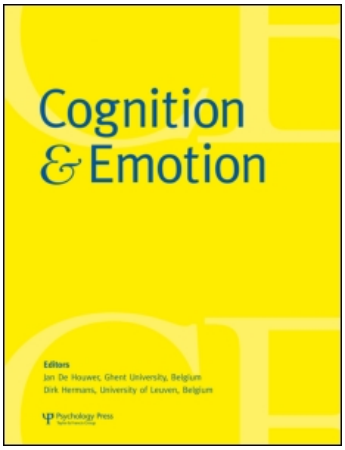

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A cognitive and an affective dimension of alexithymia in six languages and seven populations

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BRIEF REPORT

A cognitive and an affective dimension of alexithymia in six languages and seven populations

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The Dutch Bermond–Vorst Alexithymia Questionnaire (BVAQ) is translated into various languages. The aim of this research was to establish the factor structure of subscales on seven cultural groups. The BVAQ consists of five subscales of eight items each: Emotionalising, Fantasising, Analysing, Identifying, and Verbalising emotions. The BVAQ was administered to a group of Dutch students ($n = 375$), a group of English students ($n = 175$), a group of Australian students, university employees and visitors ($n = 216$), a group of French speaking Belgian students ($n = 175$), a group of Italian people ($n = 791$; a mix of various clinical groups), a group of Polish people ($n = 427$; also a mix of various clinical groups) and a group of Russian people ($n = 141$; general population). The hypothesised two-factor structure of an affective alexithymia dimension (Emotionalising, Fantasising) and a cognitive alexithymia dimension (Insight and Verbalising), with "Analysing emotions" loading on both factors, was clearly supported by confirmatory factor analyses (CFA). Both orthogonal and oblique principal components analyses (PCA), without restriction concerning the number of factors, provided the same two-factor solution in all groups explaining between 55% and 64% of the variance.

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Oblique rotation further demonstrated that the correlations between these two factors were low in all populations. The combined CFA and PCA results, therefore, indicated that a model with two independent factors has to be preferred over the model assuming two correlated factors.

INTRODUCTION

There is an increasing interest in the field of alexithymia, since it seems to result in, or be related to, a great number of psychological as well as physical complaints (see Taylor, Bagby, & Parker, 1997, for a review).

On the basis of the clinical descriptions of the founding fathers of the alexithymia concept (Marty & M'Uzan, 1963; Nemiah, 1977, 1996; Nemiah & Sifneos, 1970; Sifneos, 1973, 1991, 2000) alexithymia has been defined by a combination of five specific traits: (1) "*Identifying emotions"* or reduced ability to differentiate between various emotional feelings; (2) "*Fantasising"* or reduced ability to fantasise; (3) "*Verbalising emotions"* or reduced ability to verbalise emotional experiences; (4) "*Emotionalising"*, the reduced ability to emotionalise, indicating the ease or difficulty by which an emotional feeling is induced by internal or external stimuli; and (5) "*Analysing emotions"* the reduced tendency or capacity to reflect upon these feelings, or the opposite of external thinking or Marty and M'Uzan's (1963) "*Pensé opératoire*" (Bermond, Vorst, Vingerhoets, & Gerritsen,1999; Hendryx, Haviland, & Shaw, 1991; Taylor, Ryan, & Bagby, 1985; Vorst & Bermond, 2001).

On the basis of neuropsychological data concerning emotional experience, Bermond (1997) hypothesised that two types of alexithymia should be expected. According to this author alexithymia type I is characterised by severe reductions in both emotionalising and emotion-accompanying cognitions. Whereas type II alexithymia is, according to this author, characterised by the unreduced (full-blown) presence of the emotional feeling in combination with severe reductions in the cognitions normally accompanying the emotional feeling.

There are various reasons to assume that "Fantasising" is closely related to "Emotionalising". For instance, Bell (1919)/1975) saw the emotional experience as the source for the creative impulse. In fact, this is exactly what Freud (1916)–1917/1950) meant with primary process thinking, a regression in the service of the Ego, which enables a return to more primitive, childish ways of thinking with plenty of room for fantasy. Moreover, the functional presence of the prefrontal cortex is required for both emotionalising and various forms of fantasising (creativity, originality, imaginative powers, mental imagery, and divergent thinking; Damasio, 1994; Damasio & Anderson, 1993; Kolb & Whishaw, 1996). In addition, various authors assume that the emotional feeling, somehow forces people to emotional reflection (Damasio, 1994, 1999; Laird & Bresler, 1992). Such reflection

demands, among other things, the capacity to fantasise in order to create hypotheses about what is going on at the emotional level. Further, the idea of emotional-feeling-induced reflection implies that "Analysing emotions" should also be linked to "Emotionalising". However, "Analysing emotions" also demands emotional cognitions.

For these reasons, two alexithymia dimensions are expected; an affective alexithymia factor ("Emotionalising" & "Fantasising"), and a cognitive alexithymia factor ("Identifying " & "Verbalising" emotions), with "Analysing emotions" loading on both factors. Indications for such a factor structure were found in previous research (Vorst & Bermond, 2001). The aim of this study was to verify, the expected factor structure in seven samples from six different countries.

METHOD

Subjects

Psychology students were the subjects in most language samples (French, Dutch, English). The Australian group consisted of students, university employees, and university visitors. The Italian and Polish groups were a mix of various clinical groups and subjects out of the general population. The Russian sample was taken out of the general population. The sex ratios, mean age and standard deviations and number of subjects in the various samples are presented in Table 1.

Instrument

The Bermond–Vorst Alexithymia Questionnaire (BVAQ) is intended to measure the five latent continuous traits, mentioned in the introduction, that play an important role in the description and diagnosis of alexithymia

TABLE 1
Demographic data of respondents

	Age			
	Mean	*SD*	*N*	*Females (%)*
The Netherlands	21.29	11.18	375	66
Belgium (French)	20.61	4.01	175	84
Australia	21.29	11.18	216	75
United Kingdom	23.38	6.74	174	78
Italy	48.45	10.27	791	59
Poland	31.08	14.86	427	65
Russia	27.33	11.54	141	73

(Bermond & Vorst, 1994). The five psychometric subscales are balanced by four indicative items (positively formulated in reference to the trait), and four contra-indicative items (negatively formulated in reference to the trait). *Emotionalising* (NB the items are formulated in such a way that the emotional feeling can remain unspecified). An example of the items of the scale Emotionalising is: "When friends around me argue violently, I become emotional" (pos). *Fantasising*, an example is: "Before I fall asleep, I make up all kinds of events, encounters and conversations" (pos). *Identifying*, an example is: "When I am distressed, I know whether I am afraid or sad or angry" (pos). *Analysing*, an example is: "I hardly ever go into my emotions" (neg). *Verbalising*, an example is: "I find it difficult to verbally express my feelings" (neg). For practical purposes the scores of the subscales are mirrored to alexithymia. High scores represent low strength of traits and high proneness to alexithymia.

Respondents respond to the statements by using a 5-point response scale (from 1 "*This definitely applies"* to 5 "*This in no way applies"*). The scores of each subscale can vary between 8 and 40. The BVAQ has good psychometric properties, and its validity has been demonstrated in various studies (Berthoz, Ouhayoun, Perez-Dias, Consoli, & Jouvent, 2000; Houtveen, Bermond, & Elton, 1996; Moormann, Bermond, & Albach, 2004; Moormann, Bermond, Albach, & van Dorp, 1997; Müller, Bühner, & Elligring, 2004; Näring & Van der Staak, 1995; Vorst & Bermond, 2001; Zech, Luminet, Rimé, & Wagner, 1999).

In co-operation with researchers in various countries the BVAQ has been translated into various languages. Each translation is carried out following the recommendations in the literature (Hulin, 1987; Jackson, 1991; Sperber, Devellis, & Boehlecke, 1994; Trandis, 1976). The steps can be summarised as follows. The first translation was carried out by a professional translator or one or two native speakers who were experts on the domain of the questionnaire. The translations were reverse-translated by one of the original BVAQ authors, or another professional translator instructed by the one of the BVAQ authors. Differences between the original items and the reverse-translated items were judged by one of the BVAQ authors. The significance of the differences was discussed between one of BVAQ authors, the reverse-translator and the native speaker expert, leading to proposals for changes of the translations. These changes were back translated and then again discussed with the translator and/or the native speaker expert and the final translation was established by agreement.

Analyses

Two types of analyses were applied to the seven data sets. First, the idea of the two dimensions in alexithymia was explored by means of multigroup

confirmative factor analyses (CFA), in which the following models were tested: (I) a two-factor model with correlated factors, an affective factor (emotionalising and fantasy) and a cognitive factor (identifying, verbalising) with analysing of emotions, loading on both dimensions; (II) like model I, however, with two independent factors; (III) a model with two correlated factors, an affective factor (Emotionalising and Fantasising) and a cognitive factor (Identifying, Verbalising and Analysing emotions; and (IV) a one-factor model with all subscales loading on one alexithymia factor. Models III and IV were added in order to see whether or not such simpler models provide diminished fits, compared to models I and II. The reader may miss a fifth model here: (V) two independent factors, an affective factor (Emotionalising and Fantasising) and a cognitive factor (Identifying, Verbalising and Analysing emotions). However, such a model cannot be identified, since it assumes an independent factor (i.e., affective factor) with only two variables loading on that factor. Comparative fit of the various models will be judged by the following fit-indices: Chi-square/DF, SRMR, NFI, CFI, and the less well known CAIC. The CAIC (Bozdogan, 1987) is a relative fit measure that takes into account both the fit and the parsimony of models, with lower CAIC values indicating better fit. Second, the results of the confirmatory factor analyses were delineated by principal components analyses (PCA), without restriction concerning the number of factors, on the intercorrelations of subscales of each data set, as well with orthogonal and oblique rotation (oblimin).

RESULTS

Statistical data of the BVAQ in the various populations

Means, standard deviations and Cronbach's alphas, for the various samples, are presented in Table 2. As can be seen from this table, in all language groups, the Cronbach's alphas of the BVAQ subscales were of an acceptable level, although of the 35 alphas calculated seven were below .7, but still above .6. In all these cases it concerns the subscales Emotionalising and Analysing.

Confirmative factor analyses

The model fit of the four confirmatory models are presented in Table 3. Both the one-factor model (Model IV) and the simple structure model (Model III)—two correlated factors, an affective factor (Emotionalising and Fantasising) and a cognitive factor (Identifying, Verbalising and Analysing emotions)—show insufficient model fit. The chi-squares of these models are quite large and the NFI and CFI values are considerably below the cut-off

TABLE 2
Statistical data of the BVAQ

Country	*Mean*	*SD*	*Minimum*	*Maximum*	*Cronbach's alpha*
The Netherlands ($n = 375$)					
Emotionalising	18.28	5.46	8.00	36.00	.75
Fantasising	16.19	6.17	8.00	38.00	.82
Analysing	13.68	4.68	8.00	33.00	.77
Identifying	17.72	5.64	8.00	34.00	.76
Verbalising	20.49	7.65	8.00	39.00	.87
Belgium (French) ($n = 175$)					
Emotionalising	16.77	4.78	8.00	29.00	.71
Fantasising	15.64	6.38	8.00	33.00	.80
Analysing	13.37	4.08	8.00	25.00	.79
Identifying	18.54	6.02	8.00	34.00	.78
Verbalising	22.71	7.50	8.00	40.00	.87
Australia ($n = 216$)					
Emotionalising	19.56	5.61	8.00	38.00	.71
Fantasising	18.73	6.70	8.00	38.00	.78
Analysing	15.80	5.56	8.00	33.00	.77
Identifying	18.73	5.76	8.00	40.00	.75
Verbalising	20.70	6.97	8.00	39.00	.83
United Kingdom ($n = 175$)					
Emotionalising	17.93	5.28	8.00	33.00	.76
Fantasising	17.70	6.54	8.00	37.00	.83
Analysing	14.26	4.68	8.00	29.00	.76
Identifying	20.08	6.13	9.00	40.00	.82
Verbalising	20.30	7.36	8.00	40.00	.88
Italy ($n = 791$)					
Emotionalising	17.16	5.68	8.00	37.00	.61
Fantasising	24.54	7.68	8.00	40.00	.75
Analysing	17.12	5.53	8.00	34.00	.62
Identifying	18.39	6.79	8.00	40.00	.71
Verbalising	23.76	7.71	8.00	40.00	.77
Poland ($n = 427$)					
Emotionalising	18.39	5.89	8.00	36.00	.68
Fantasising	19.79	7.13	8.00	40.00	.77
Analysing	18.75	6.21	8.00	40.00	.72
Identifying	20.00	5.73	8.00	36.00	.65
Verbalising	23.16	6.20	8.00	40.00	.66
Russia ($n = 139$)					
Emotionalising	16.00	5.58	8.00	35.00	.61
Fantasising	19.37	7.04	8.00	39.00	.75
Analysing	16.12	6.08	8.00	33.00	.61
Identifying	18.35	5.93	8.00	40.00	.71
Verbalising	21.01	6.70	8.00	37.00	.76

TABLE 3
Model fit confirmatory factor analyses

Model	*df*	*Chi-square*	*SRMR*	*NFI*	*CFI*	*CAIC*
I	21	75.51	.039	.95	.96	807
II	28	116.28	.066	.93	.94	784
III	28	186.20	.059	.88	.89	852
IV	35	249.97	.070	.89	.86	864

values for good fit. Models I and II—two-factor models for alexithymia, an affective dimension (Emotionalising and Fantasising) and a cognitive dimension (Identifying, Verbalising) with Analysing of emotions, loading on both dimensions, either with correlated factors (Model I) or independent factors (Model II)—both show a good fit to the data in terms of average SRMR, CFI, and NFI. The more parsimonious Model II is, in comparison to Model I, accompanied by slightly lower NFI and CFI values; however, in terms of CAIC values Model II is preferred.[1]

Principal component analyses

Results, concerning the principal component analyses are presented in Table 4. PCA without restriction concerning the number of factors, with orthogonal rotation, applied to the various data sets separately, provided in all populations two components with an eigenvalue above 1, jointly explaining between 55 and 67% of the variance (mean explained variance 62%). In three groups (The Netherlands, Belgium and Italy) the expected cognitive component appears first and then the expected affective component. In the other groups (United Kingdom, Australia, Poland and Russia) both components appear in reversed order. Analysing appeared to be loading on both components in all groups, although in some (Belgium, Australia, Italy, Poland, and Russia) more clearly than in others (The Netherlands, United Kingdom).

Oblique rotation provided the same results (the two factors mentioned with Analysing loading on both factors; explained variance between 55 and 67%, mean 62%, and all eigenvalues >1), which is understandable since the correlations between the two factors were all below the norm of .30: United

[1] Interestingly, modification indices show that most of the misfit in Model II is not related to the factor correlations, but to the covariance between residuals of Emotionalising and Verbalising in the English language groups. Freeing these parameters greatly improves model fit (lowering the Chi-square by 31, $df=2$). Further, Wald tests indicated that the correlations between the factors (Model I) are not significantly different from zero in the majority of samples.

TABLE 4
Results principal component analyses after Kaiser normalisation and varimax rotation

	The Netherlands (n = 375)		*Italy (n = 791)*		*Belgium (French) (n = 175)*		*Poland (n = 427)*		*Australia (n = 216)*		*Russia (n = 139)*		*United Kingdom (n = 175)*	
	Factor 1	*Factor 2*	*Factor 1*	*Factor 2*	*Factor 1*	*Factor 2*	*Factor 1*	*Factor 2*	*Factor 1*	*Factor 2*	*Factor 1*	*Factor 2*	*Factor 1*	*Factor 2*
Emotionalising	.22	.77	−.04	.79	−.11	.78	.86	−.05	.78	.07	.81	.09	.77	.13
Fantasising	−.09	.75	.15	.65	.15	.70	.76	.17	.75	−.04	.76	−.03	.53	.24
Analysing	.77	.22	.71	.37	.69	.31	.63	.56	.64	.54	.60	.56	.21	.79
Identifying	.77	−.23	.83	−.18	.72	−.18	.06	.82	−.16	.84	−.12	.82	−.59	.60
Verbalising	.77	.13	.69	.12	.70	.03	.08	.77	.26	.79	.19	.73	.19	.76

Kingdom ($r = .06$); Belgium ($r = .07$); The Netherlands ($r = .09$); Italy ($r = .15$); Russia ($r = .18$); Poland ($r = .25$); and Australia ($r = .27$).

DISCUSSION

Alexithymia scores were gathered in different subjects groups (students, university employees, mixed clinical groups and members of the general population), in seven different countries, by aid of the originally Dutch BVAQ and five translations (English, French, Italian, Polish, and Russian) of the BVAQ.

Cronbach's alphas of the BVAQ subscales were of acceptable level in all language groups, although of the 35 alphas calculated seven were below .7, but still above .6. In all these cases the low alphas involved the subscales Emotionalising and Analysing. Some populations provided different mean scores. This can be attributed to bias of the instruments, sample differences, or cultural differences. Overall the Italian, Polish and Russian respondents have higher mean scores (more alexithymic) than the Dutch, Belgian and English respondents, with the Australian respondents somewhere in between.

The reliability of the scales in the Dutch, Belgian, English and Australian groups is within usual standards (mean alpha .78). The reliability estimates of the Italian, Polish and Russian group turned out to be lower (mean alpha. 68).

Four different factor models were tested by aid of confirmatory factor analyses. As expected, two of these, models I and II (two factors; an affective alexithymia factor, encompassing Emotionalising and Fantasising and a cognitive alexithymia factor, encompassing Identifying, and Verbalising emotions with cross loadings for the subscale Analysing emotions) resulted in acceptable fit.

Principal component analyses, with orthogonal as well as oblique rotation, without restriction concerning the number of factors, provided the expected two-factor structure in all populations, as described above. Further, the analyses with oblique rotation provided only low correlations between the two factors.

Although Model II (independent factors) is, compared to Model I (correlated factors), accompanied by a slight deterioration in model fit, this model has, in our opinion, to be preferred over Model I. First, since it has more constraints. Second, the difference in NFI and CFI between models I and II is small. Third, the CAIC prefers the more parsimonious Model II. Fourth, the assumption of two independent factors fits with the fact that principal component analyses with oblique rotation, compared to such analyses with orthogonal rotation, did not result in increases in explained variance. Fifth, the assumption of two independent factors also fits with the

low correlations as found in the principal component analyses with oblique rotations, while these low correlations can further be explained by the fact that the subscale Analysing loads on both factors. Finally, it is clear that if there is a correlation between the two factors, this correlation has to be very small. Thus, the results clearly indicate two alexithymia dimensions and, further, strongly suggest that these dimensions are independent. It therefore follows that both alexithymia dimensions have to be measured in order to diagnose alexithymia correctly.

Since the five subscales of the BVAQ cover the most important elements of the emotional experience, the two-factor structure as found in this study, suggest that the human emotional experience should be described by two factors. Especially, the fact that these two factors are independent, or correlate only minimally, is noteworthy.

Finally, since there are clearly two factors involved in alexithymia it is evident that there are four potential extreme groups. Three of these show severe reductions in important aspects of the emotional experience. One of these three possible groups has been defined by Nemiah and Sifneos, those scoring *un*favourably (alexithymic) on both dimensions; see introduction, and has, therefore, been called alexithymia type 1 (Bermond, 1997). Another of these extreme groups, scoring *un*favourably on the cognitive alexithymia dimension, and favourably on the affective alexithymia dimension, has been expected before (Bermond, 1997), and was named alexithymia type II. Finally, there is the third group with a notable combination of features, scoring favourably on the cognitive alexithymia dimension, and *un*favourably on the affective alexithymia dimension. Sifneos (1991) has already pointed to the fact that deficits similar to those in alexithymics are observed in psychopaths, and indeed in its extreme form this last combination of features fits the manipulative psychopath (Hare, 1993). Further, research at the Department of Psychology at the University of Amsterdam with first year psychology students has shown that this group, in comparison to a group scoring more or less the average on both alexithymia dimensions, scores extremely highly on measurements for manipulating others, social desirability and self deception (ego inflation; Niesen, 2000). However, even in its extreme form this combination of features, does not have to result in psychopathic behaviour, and certainly not in persons showing these feature in a less extreme way. For these reasons it would be wise to look for a more neutral name for this subgroup, and the label alexithymia type III, could fulfil that function.

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