

Ambivalence over Emotional Expressiveness: psychometric evaluation of the AEQ-G18 in a representative German survey

Ambivalenz gegenüber emotionaler Expressivität: Überprüfung der Gütekriterien des AEQ-G18 in einer repräsentativen Stichprobe der deutschen Allgemeinbevölkerung

Abstract

Objective: The present study evaluates a questionnaire on ambivalence over emotional expressiveness, the *AEQ-G18* [1], [2], with regard to its statistical parameters, the influence of socio-demographic variables, and its interrelationship with depression and quality of life.

Methods: A representative German sample (1009 participants from East Germany and 1034 participants from West Germany) completed the *AEQ-G18* [1], [2], the *depression screener DEP-2* [3], the *Profile of Mood States POMS* [4], the revised *Beck Depression Inventory BDI* [5], the *short form of the Patient Health Questionnaire PHQ-9* [6] and the *SF-36 health survey questionnaire* [7].

Results: Our study was only partially able to confirm the two factors *effect ambivalence* and *competence ambivalence* postulated by Traue et al. [1], [2]. Women scored somewhat higher on the scale *effect ambivalence*. Participants with a higher educational background exhibited less emotional ambivalence. Emotional ambivalence correlated positively with depression and reduced psychological state of health (*depression, fatigue, and anger*), whereas it correlated negatively with health-related quality of life and positive attitude (*vigor*). In addition to the scales of the *AEQ-G18*, we developed a short form, the *AEQ-G10*, and provide normative data for the *AEQ-G18* and the *AEQ-G10*.

Conclusion: This study presents normative data for two variations of a clinically relevant, valid, and time-efficient diagnostic instrument used for the evaluation of ambivalence over emotional expressiveness, the *AEQ-G18* and its short form, the *AEQ-G10*.

Keywords: emotional ambivalence, mental state, representative survey, standardization

Zusammenfassung

Fragestellung: In der vorliegenden Untersuchung wurde ein Fragebogen zur Ambivalenz gegenüber emotionaler Expressivität, *AEQ-G18* [1], [2] bezüglich testtheoretischer Kennwerte, des Einflusses soziodemografischer Variablen und der Zusammenhänge mit Depressivität und Lebensqualität untersucht.

Methoden: Der *AEQ-G18* [1], [2], ein *Depressions-Screener, DEP-2* [3], das *Profile of Mood States, POMS* [4], das revidierte *Beck-Depressions-Inventar, BDI* [5], die *Kurzform des Gesundheitsfragebogens für Patienten, PHQ-9* [6] und der *Fragebogen zum Gesundheitszustand, SF-36* [7] wurden einer repräsentativen deutschen Bevölkerungstichprobe (1009 Befragte in Ostdeutschland und 1034 in Westdeutschland) vorgelegt.

Ergebnisse: Die von Traue [1], [2] postulierten zwei Faktoren *Effekt- und Kompetenzambivalenz* konnten in der vorliegenden Untersuchung

Cornelia Albani¹

Gerd Blaser¹

Joachim Völker¹

Michael Geyer¹

Gabriele Schmutzer²

Harald Bailer³

Norbert Grulke³

Elmar Brähler²

Harald C. Traue⁴

1 Universitätsklinikum Leipzig, Klinik für Psychotherapie und Psychosomatische Medizin, Leipzig, Deutschland

2 Selbständige Abteilung für Medizinische Psychologie und Medizinische Soziologie, Universitätsklinikum Leipzig, Leipzig, Deutschland

3 Konsiliar- und Liaisonspsychosomatik, Universitätsklinik für Psychosomatische Medizin und Psychotherapie, Ulm, Deutschland

4 Sektion Medizinische Psychologie, Universitätsklinik für Psychosomatische Medizin und Psychotherapie, Ulm, Deutschland

nur teilweise bestätigt werden. Frauen gaben etwas höhere Werte auf der Skala *Effektambivalenz* an. Befragte mit höherer Bildung äußerten weniger emotionale Ambivalenz. Emotionale Ambivalenz korrelierte mit Depressivität und eingeschränktem psychischem Befinden (*Niedergeschlagenheit*, *Müdigkeit* und *Missmut*) und stand in einem negativen Zusammenhang mit gesundheitsbezogener Lebensqualität und positiver Stimmung (*Tatendrang*). Die Skalen des *AEQ-G18* ergänzend wurde eine Kurzform, *AEQ-G10*, entwickelt und Normwerte für den *AEQ-G18* und *AEQ-G10* zur Verfügung gestellt.

Schlussfolgerungen: Mit der vorliegenden Untersuchung werden Normdaten für zwei Varianten (*AEQ-G18* und die Kurzform *AEQ-G10*) eines klinisch relevanten, validen und zeitökonomischen diagnostischen Instruments zur Erfassung der Ambivalenz gegenüber emotionaler Expressivität präsentiert.

Schlüsselwörter: emotionale Ambivalenz, psychisches Befinden, Repräsentativerhebung, Normierung

Introduction

Researchers believe that there is a close connection between health disturbances and emotional adjustment problems. Particularly the combination of suppressed anger and animosity could, within a given social context, contribute to an elevated cardiovascular risk [8], [9]. These studies clearly show that the inability to express emotions is per se not pathological, but only when the social situation is stressful and the need to express emotions is suppressed. Pennebaker [10] also refers to this as “active inhibition” and King and Emmons [11] as “ambivalence over emotional expressiveness”.

The construct of ambivalence compared to emotional expressivity

The theory developed by King and Emmons [12] stipulates that emotional ambivalence reflects the conflict between one’s need to express emotions or the requirements of the situation to do so, respectively, and the desire not to display subjective emotions. This inner ambivalence – as to displaying emotions in certain situations or not – is considered stressful and regarded as an origin of abnormal processes, especially if it is not only a short-term adjustment of the behavior, but a habitual cognitive mechanism. People using such mechanisms have difficulties communicating their emotional needs and also have more problems in relationships that could possibly entail social consequences. These, in turn, could increase the stress level and hence lead to diminished social support and lower self esteem [2]. Emotional ambivalence can manifest itself in various ways: Persons using such mechanisms (1) might want to express emotions, but do not feel capable of doing so, or (2) might express emotions they are not convinced of, or (3) might regret having expressed emotions at a later point in time.

King and Emmons developed an instrument to diagnose and operationalise emotional ambivalence: “*The Am-*

bivalence Over Emotional Expressiveness Questionnaire (AEQ)“ [12], [13]. It includes 28 items, allowing to label various aspects of cognitive ambivalence or conflicts pertaining to emotional expression. The items verbalize the desire to show a certain emotion. They also verbalize doubts regarding one’s own ability to express emotions and the fear of negative consequences resulting from the expression of the emotion. The authors’ first principal component analysis (PCA, criterion eigenvalue >1) yielded two factors: one factor included items expressing cognitive ambivalence about the expression of positive emotions, the second factor included items expressing ambivalence about the expression of negative emotions. Based on a confirmatory factor analysis showing a high correlation of items with both factors and high intercorrelations of both factors (0.71), King and Emmons [12] concluded that their instrument is one-dimensional and offers the general factor *Emotional Ambivalence*. The English version of the *AEQ* is said to have high internal consistency (Cronbach’s α 0.89 [12], [14]) and test-retest reliabilities (Pearson correlation coefficient 0.78 after 6 weeks [12]).

German version with 18 items *AEQ-G18*

After having translated the 28 items of the *AEQ* [12] into German, Traue [1] developed a German short form (*AEQ-G18*, formerly referred to as *FEMKO*). They conducted their first PCA with a sample consisting of 164 university employees. This analysis had an eigenvalue criterion of >2 and, contrary to the original version, a two-factorial outcome. Therefore, items that showed no clear or only a very low loading towards their respective factor were excluded, resulting in a version with 18 items and the two scales *effect ambivalence* and *competence ambivalence*. *Effect ambivalence* refers to fear of repercussions from the expression of negative emotions, whereas *competence ambivalence* refers to doubts and insecurities regarding the ability to show positive emotions. The two-factorial structure was confirmed by additional studies with 248 college students. A third study involved 115 general medicine patients (mean age 37.8).

In all samples, both scales and the overall scale had satisfactory to high reliability coefficients [2].

Main problem

The *AEQ-G18* has so far not been tested on a representative sample of the German population. Therefore, we attempted to replicate the two-factorial structure of this questionnaire with such a sample. In addition, such an approach will additionally verify the statistical parameters for the scales, the influence of socio-demographic factors as well as provide normative values for the *AEQ-G18*. Based on our findings [2], we had suspected a higher degree of emotional ambivalence in women. Since there is also a lack of information concerning the impact of education on emotional ambivalence as well as possible differences between people living either in East or West Germany, we also explored these aspects.

Furthermore, we tested some aspects of the validity of the *AEQ-G18* based on the *short form of the Patient Health Questionnaire PHQ-D* [15], the *Depression Screener DEP-2* [3], the *Profile of Mood States POMS* [4], the revised *Beck Depression Inventory BDI* [5], and the *Health Survey Questionnaire SF-36* [7]. Based on the existing findings for the *AEQ-G18*, we hypothesized that ambivalence is positively correlated with depressiveness and reduced psychological state of health (depression, fatigue, and anger) and negatively correlated with health-related quality of life.

Methods

Sample and procedures

Based on a request of the University Leipzig, the data used for this study was obtained in the fall 2002 by the polling institute USUMA Berlin as part of a representative multipurpose survey. The representativeness of the sample was verified by USUMA through comparisons with other samples and with information provided by the Federal Statistical Office. Trained interviewers visited the study participants in their homes. The study participants were given questionnaires that were to be completed without any assistance. Participation was voluntary and each of the participants was handed a data protection guarantee, signed by the interviewer. This survey is based on persons living in private households in Germany over the age of 14.

The survey's response rate was 66.5%. Of the 2066 persons surveyed, we only used information provided by German citizens. The socio-demographic characteristics of the remaining 2043 participants are listed in Table 1. Since the survey was structured for a comparison between East and West Germany, the amount of East German participants is disproportionate to the overall demographics (1009 participants in East Germany compared to 1034 in West Germany).

German version of the Ambivalence over Emotional Expressiveness Questionnaire *AEQ-G18*

The *AEQ-G18* [1] includes 18 out of the 28 items of the original English *AEQ* [12], [16], offering five response options (0 = "never" to 4 = "always"). In addition to the two scales *effect ambivalence* and *competence ambivalence*, we also calculated a *total score*. The ten items of the scale *effect ambivalence* pertain to consequences of expressed emotions and refer mostly to negative emotions, whereas the eight items concerning the scale *competence ambivalence* describe the ability to express feelings.

For a clinically normal sample of 164 participants that had been recruited from professional and private contacts of university employees, the internal consistencies (Cronbach's α) were 0.80 for the scale *competence ambivalence*, 0.77 for the *effect ambivalence* and 0.77 for the *total scale* [2]. Intercorrelations between the scales were at around 0.2.

A sample of 248 medical students showed somewhat higher internal consistencies: 0.85 for the scale *competence ambivalence*, 0.79 for *effect ambivalence*, and 0.88 for the *total scale* [2].

Even a sample of 115 patients in a general medicine practice confirmed the results for Cronbach's α : 0.84 for the scale *competence ambivalence*, 0.76 for the *effect ambivalence* and 0.87 for the *total scale* [2]. To our knowledge the test-retest-reliability has not been verified yet.

Short form of the Patient Health Questionnaire *PHQ-D*

The *PHQ* is used to diagnose depression and anxiety. In the German short version of the *PHQ* [15], the *depression module PHQ-9* [6], [17] has 9 items. These are the only items we used for this study. The items offer four different response options. The depression score is calculated by adding up the individual score for each item (internal consistency: Cronbach's $\alpha=0.89$).

Revised Beck Depression Inventory *BDI*

The revised Beck Depression Inventory by Schmitt & Maes [5], [18] is a shortened version of the original and includes 20 items [19]. A scale with six different response options tries to capture the respondent's current attitude towards life. The sum of all items forms the *total BDI score* (internal consistency: Cronbach's $\alpha=0.90$).

Depression Screener *DEP-2*

Participants also answered a depression screener [3] consisting of two questions based on a five-point scale geared towards depressive core symptoms that had been developed by the "U.S. Preventive Task Force" [20]. The

Table 1: Socio-demographic characteristics

		total (N=2043)	
sex	male	960	47.0%
	female	1083	53.0%
age (years)	mean	48.9	
	standard deviation	18.1	
	range	14-93	
marital status	married, living together	1012	49.5%
	married, living separated	24	1.2%
	single	500	24.5%
	divorced	220	10.8%
	widowed	287	14.0%
education	without any school degree	39	1.9%
	"Hauptschulabschluss" [§]	946	46.3%
	"mittlere Reife/Realschule" [§]	417	20.4%
	"POS 10. Klasse" [§]	304	14.8%
	"Fachschule" [§]	76	3.7%
	"Abitur" ^{&}	142	6.9%
	graduated from college/university	119	5.8%
employment	full-time (≥ 35 hours/week)	738	36.1%
	part-time (15-34 hours/week)	119	5.8%
	part-time (≤ 14 hours/week)	32	1.6%
	military service/parental leave	20	1.0%
	unemployed	182	8.9%
	pensioners	647	31.7%
	non-working	144	7.1%
	vocational training	32	1.6%
	pupil, student	129	6.3%
household income (net)	<750 €/month	213	10.9%
	750 to 1250 €/month	559	28.6%
	1250 to 2000 €/month	708	36.2%
	>2000 €/month	477	24.4%

[§] German school certificates, about 8 to 10 years of education, comparable to secondary school qualification/high school diploma

[&] German school certificate allowing entry to university, about 12 to 13 years of education

depression score *DEP-2* is calculated by adding the individual scores and should be considered reliable (correlation of both items $r=0.80$).

Profile of Mood States POMS

This questionnaire [4] is used to determine a person's mood and attitude. We used the German short form of the POMS with 35 items and 7 response options for each item. The 35 items constitute the following 4 scales (internal consistency Cronbach's α between 0.89 and 0.95):

depression/anxiety (14 items), *fatigue* (7 items), *vigor* (7 items), and *anger* (7 items) [21].

Health survey questionnaire SF-36

Internationally, the SF-36 [22] is the most frequently used method to determine health-related quality of life. Its 36 items with varying response options can be allocated to the following dimensions: *ability to function physically*, *physical role functions*, (absence of) *physical pain*, *overall perception of health*, *vitality*, *ability to function socially*, *emotional role behavior* and *mental well-being*. This study

used a revised form of the SF-36 [7], [23]. Internal consistencies (Cronbach's α) ranged between 0.81 and 0.94 for the subscales.

The data was analyzed by using the software package for statistics SPSS for Windows 10.0. The analysis included all questionnaires that had only one item missing. The missing item was replaced by a mean score. The effect size was calculated as the difference between the groups' means and the pooled standard deviation. According to Cohen [24], effect sizes of >0.20 represent a weak, >0.50 an average, and >0.80 a strong effect.

Results

Descriptive statistics

Descriptive statistics for each item of the AEQ-G18 are given in Table 2. The items were positively skewed with item means varying from 1.03 to 1.71. The participants used the entire response spectrum from 0 to 4 for all items.

Factor structure of the AEQ-G18

A principal component analysis (PCA) led to a solution with these eigenvalues (only the first six of the eighteen values are listed) in descending order: 6.93 - 1.38 - 1.13 - 0.91 - 0.84 - 0.76. The Kaiser-criterion (eigenvalues >1) suggested three factors (explained variance 52.4%), with the first factor accounting for 38.5% of the variance, the second factor for 7.6%, and the third factor for 6.3%. This result did not confirm the two-factorial structure that is postulated for the AEQ-G18 (cf. Deighton & Traue [2]). Comparably, the Scree-test did not support the postulated solution, but indicated a one-factorial result. However, a two-factorial structure seems plausible, when comparing the above mentioned eigenvalue progression within the context of a parallel analysis [25] with an eigenvalue progression that can be expected by factorizing correlation matrices that are generated with random numbers. We arrived at the factor loadings listed in Table 2 after orthogonal rotation (explained variance 46.1%), when entering two factors to be extracted in accordance with the original version.

First and foremost, it needs to be stated that, except for item no. 4, all other seven items of the scale *competence ambivalence* clearly loaded on the first factor (cf. highlighted values in Table 2). But two items (no. 1 and 11) also showed substantial loadings of >0.30 on the second factor.

The results are less clear for the ten items of the scale *effect ambivalence*. Of these, three items seemed to load more on the first factor, three other items primarily loaded on the second factor with the remaining four items noticeably loading on both extracted components.

The following sections describe the results for the *total scale (total score)* and the two scales *effect ambivalence* and *competence ambivalence*. Due to the apparent one-

factorial results, we additionally developed a short form AEQ-G10 (see below), and, for the sake of clarity, included the results in the following tables.

Table 3 includes the descriptive statistics for the scales of the AEQ-G18 along with information regarding internal consistency (Cronbach's α). The correlations for both scales of the AEQ-G18 with $r=0.75$ (Spearman) were high and significant ($p<0.001$). The respective correlations with the *total score* were $r=0.93$ for *competence ambivalence* and $r=0.94$ for *effect ambivalence*.

Impact of socio-demographic factors

The three-factorial covariance analysis with the factors "gender," "East-West affiliation" and "educational background", and the covariate "age" showed that the factor "education" had a significant main effect on the *total score* and on the scale *competence ambivalence*, whereas the factor "gender" had a significant main effect on the scale *effect ambivalence* (cf. Table 4). Women had higher scores on the scale *effect ambivalence*. Male and female participants without college education indicated more *competence ambivalence* and more emotional ambivalence overall (*total score*). The other factors were not statistically significant. Overall, however, the effect sizes indicated only weak effects.

Correlations between emotional ambivalence and mood, depression and quality of life

We were able to replicate the expected positive correlations (cf. Table 5) between emotional ambivalence and depressivity and a negative attitude/mood (*depression*, *fatigue* and *anger*) as well as the expected negative correlations between emotional ambivalence and quality of life and positive attitude/mood (*vigor*). The obtained positive correlations were higher compared the negative correlations.

Development of a short form of the AEQ-G18 with ten items (AEQ-G10)

We developed a short version by gradually reducing the amount of items, until the questionnaire had a clearly one-factorial structure. The item reduction was based on the item total correlation coefficients, beginning with the items with the lowest coefficient. After 6 items had been removed, the survey was clearly one-factorial. The amount of items was further reduced by eliminating items with similar content (items 10 and 14; items 13 and 17). The version without items 13 and 14 achieved the highest values for Cronbach's α (0.87). The PCA with these 10 items (cf. Table 2) resulted with one eigenvalue >1 accounting for 46.1% of the variance.

For the short form AEQ-G10, we conducted a three-factorial covariance analysis with the factors "gender," "East-West affiliation" and "educational background",

Table 2: Ambivalence over Emotional Expressiveness Questionnaire, AEQ-G18 and AEQ-G10: descriptive statistics for items, communalities h^2 and factor loadings F1 and F2 (PCA, varimax rotation, only absolute loadings >0.30 , $n=2019$), and factor loadings F for the short form AEQ-G10 (PCA, $n=2019$)

Item no.	n	AEQ-G18				AEQ-G10		
		M	S	%	h^2	F1 ^s	F2 ^s	F
competence ambivalence								
14.	2033	1.40	1.03	14.0	0.62	0.77		-
9.	2030	1.08	1.03	9.9	0.59	0.75		0.76
17.	2030	1.31	1.05	12.9	0.59	0.75		0.74
10.	2034	1.31	1.03	12.7	0.57	0.71		0.77
13.	2034	1.30	1.03	12.6	0.52	0.67		-
11.	2028	1.50	1.01	14.4	0.39	0.54	0.31	0.64
1.	2037	1.23	0.99	9.4	0.43	0.50	0.42	0.67
4.	2027	1.24	1.07	12.4	0.52		0.66	0.61
effect ambivalence								
3.	2033	1.51	1.07	17.5	0.55		0.73	-
2.	2008	1.22	1.19	14.8	0.51		0.71	-
5.	2036	1.71	1.18	25.8	0.36		0.56	-
7.	2030	1.30	1.09	14.3	0.43	0.35	0.56	0.59
8.	2028	1.03	.96	6.9	0.46	0.55	0.41	0.70
12.	2033	1.20	0.98	9.2	0.24	0.30	0.39	-
6.	2037	1.33	1.07	14.3	0.31	0.45	0.33	-
16.	2033	1.53	1.05	17.1	0.32	0.52		-
15.	2027	1.20	1.06	11.2	0.50	0.66		0.69
18.	2034	1.42	1.00	13.8	0.39	0.60		0.59

M mean (range 0-4, higher/lower scores = higher agreement/disagreement)
 S standard deviation
 % percentage of respondents rating the item 3 or 4
 n respondents with non-missing values
 s values highlighted in bold denote their highest loading on the respective factor

Table 3: Ambivalence over Emotional Expressiveness Questionnaire, AEQ-G18 and AEQ-G10 scales: descriptive statistics

	n	M	S	range	skewness	kurtosis	α	range for item-total correlations
AEQ-G18								
total score	2019	23.82	11.57	0-72	-0.04	-0.34	0.90	0.41-0.70
effect ambivalence	2019	13.44	6.48	0-40	-0.05	-0.36	0.81	0.37-0.56
competence ambivalence	2019	10.37	5.91	0-32	0.17	-0.35	0.87	0.49-0.71
AEQ-G10								
total score	2028	12.63	6.96	0-40	0.13	-0.39	0.87	0.50-0.68

M mean
 S standard deviation
 α Cronbach's α

Table 4: Ambivalence over Emotional Expressiveness Questionnaire, AEQ-G18 and AEQ-G10: influence of socio-demographic variables; values highlighted show statistically significant differences

	sex		place of residence (Germany)		education [§]		
	male n=952	female n=1067	East n=992	West n=1027	lower n=1762	higher n=257	
	M (S)	M (S)	M (S)	M (S)	M (S)	M (S)	
AEQ-G18							
effect ambivalence	13.00° (6.54)	13.83° (6.40)	13.46 (6.50)	13.42 (6.46)	13.55 (6.49)	12.69 (6.40)	F=7.82; df=1/326.8; p<0.01
competence ambivalence	10.40 (6.00)	10.37 (5.84)	10.08 (5.78)	10.68 (6.03)	10.56* (5.91)	9.14* (5.77)	F=12.45; df=1/423.92; p<0.001
total score	23.40 (11.73)	24.20 (11.44)	23.54 (11.40)	24.09 (11.75)	24.11** (11.62)	21.81** (11.61)	F=7.82; df=1/1045.66; p<0.005
AEQ-G10							
total score	12.51 (7.01)	12.74 (6.91)	12.39 (6.84)	12.87 (7.06)	12.83# (6.97)	11.25# (6.73)	F=10.42; df=1/502.24; p<0.001

[§] higher = (a) German school certificate allowing entry to university, about 12 to 13 years of education, or (b) university; lower = all other types of school degrees

° t-Test: t=2.88; df=2017, p<0.01, effect size = 0.13

* t-Test: t=3.61; df=2017, p<0.001, effect size = 0.24

** t-Test: t=2.94; df=2017, p<0.01, effect size = 0.20

t-Test: t=3.47; df=2026, p<0.001, effect size = 0.23

M mean

S standard deviation

Table 5: Descriptive statistics for mood (POMS), depressiveness (DEP-2, PHQ-D, BDI), and quality of life (SF-36) and correlations with emotional control (AEQ-G18, AEQ-G10)

	POMS				DEP-2	PHQ-D	BDI	SF-36#							
	depression	vigor	fatigue	anger				Depression	total score	PFI	ROLPH	PAIN	GHP	VITAL	SOCIAL
M (S)	9.52 (12.77)	22.84 (8.79)	8.34 (7.94)	6.35 (7.04)	1.09 (1.65)	3.56 (4.07)	17.85 (14.36)	87.23 (20.29)	81.81 (23.10)	79.70 (25.09)	67.97 (21.55)	65.37 (18.26)	87.49 (19.33)	84.74 (22.67)	72.39 (17.09)
AEQ-G18															
Eff. ambiv.	0.35	-0.06*	0.28	0.32	0.26	0.31	0.35	-0.12	-0.20	-0.17	-0.18	-0.20	-0.27	-0.22	-0.30
Comp. ambiv.	0.37	-0.16	0.31	0.32	0.26	0.32	0.35	-0.09	-0.18	-0.14	-0.19	-0.21	-0.27	-0.21	-0.33
total score	0.38	-0.12	0.31	0.34	0.28	0.33	0.37	-0.11	-0.21	-0.17	-0.20	-0.22	-0.28	-0.23	-0.34
AEQ-G10															
total score	0.39	-0.14	0.31	0.34	0.27	0.32	0.36	-0.11	-0.20	-0.16	-0.20	-0.21	-0.29	-0.23	-0.34

Spearman-correlation coefficients, two-sided, all coefficients p<0.001 except *p<0.01, 1983<n<2026

SF-36 scales: PFI = physical functioning, ROLPH = role-physical, PAIN = bodily pain, GHP = general health, VITAL = vitality, SOCIAL = social functioning, ROLEM = role-emotional, MHI = mental health

M mean

S standard deviation

Eff. ambiv. effect ambivalence

Comp. ambiv. competence ambivalence

and the covariate “age” and were only able to determine a significant main effect for the educational factor (cf. Table 4). Participants without any college education displayed more emotional ambivalence than those, who had at least some college education. However, these differences were within the range of weak effects (cf. Table 4). The total score of the AEQ-G10 correlated significantly (p<0.001) with the respective total score of the long form AEQ-G18 (r=0.96) as well as the scales *effect ambivalence* (r=0.86) and *competence ambivalence* (r=0.96).

Table 6, Table 7, Table 8 and Table 9 list the percentile norms for all scales of the AEQ-G18 and the AEQ-G10, both for the total samples and differentiated by age and gender.

Discussion

The present study used a representative sample of German citizens to examine the German version of the *Ambivalence Over Emotional Expressiveness Questionnaire AEQ-G18* [1] with regard to its factorial structure, the statistical value of the scales, and the impact of socio-demographic factors. It should be noted, however, that the East-German participants were disproportionately represented in the sample.

Notably, we were only partially – and mostly within the context of *competence ambivalence* – able to confirm the two factors postulated by Traue et al. [1], [2]. In our

Table 6: AEQ-G18 (total score) – percentile norm data for women: total and according to age (years)

Raw Score	AEQ-G18 – women								Raw Score
	total	14-24	25-34	35-44	45-54	55-64	65-74	75+	
0	2.0	1.9	3.6	1.1	1.2	2.7	1.3	2.3	0
1	2.2	2.8	3.6	1.1	1.2	3.3	2.0	2.3	1
2	3.1	2.8	4.3	1.1	3.0	3.8	2.6	4.7	2
3	3.7	3.8	5.1	1.6	3.0	4.3	3.3	5.4	3
4	5.1	5.7	7.2	3.7	3.0	7.1	3.3	6.2	4
5	6.6	6.6	8.0	5.3	4.1	10.9	4.0	7.0	5
6	7.5	6.6	8.7	7.4	5.3	12.0	4.0	7.8	6
7	8.8	8.5	10.1	8.4	6.5	12.5	4.6	10.9	7
8	10.6	9.4	12.3	8.9	9.5	14.7	6.6	12.4	8
9	11.8	10.4	12.3	8.9	11.2	17.9	6.6	14.7	9
10	13.8	12.3	15.2	11.1	12.4	20.1	7.9	17.1	10
11	16.0	14.2	20.3	11.6	16.0	21.7	10.6	17.8	11
12	17.5	17.0	22.5	13.7	17.8	22.8	11.3	17.8	12
13	19.0	17.0	22.5	16.3	20.1	23.4	13.2	20.2	13
14	21.0	19.8	23.9	18.4	21.9	25.5	15.2	21.7	14
15	23.2	20.8	26.8	20.5	26.0	26.6	17.2	24.0	15
16	25.5	21.7	29.7	21.6	30.2	27.7	21.2	25.6	16
17	27.9	23.6	34.1	23.7	32.0	29.9	23.2	28.7	17
18	30.6	25.5	37.7	28.4	33.1	30.4	25.8	32.6	18
19	33.3	29.2	39.1	28.9	37.3	33.7	29.8	34.9	19
20	36.1	32.1	42.0	31.6	39.6	37.0	32.5	38.0	20
21	39.7	38.7	47.8	33.7	43.2	38.6	38.4	39.5	21
22	42.6	40.6	54.3	38.9	45.6	39.7	40.4	40.3	22
23	45.9	45.3	55.1	44.7	47.9	41.3	44.4	44.2	23
24	49.4	47.2	58.0	47.9	50.9	45.1	51.0	46.5	24
25	52.9	56.6	58.7	50.5	52.7	48.9	53.0	52.7	25
26	56.0	60.4	63.0	52.6	57.4	51.1	54.3	57.4	26
27	59.2	62.3	65.9	55.3	60.4	54.9	57.6	62.0	27
28	62.9	63.2	68.8	58.4	64.5	60.3	63.6	63.6	28
29	66.0	67.0	72.5	62.6	66.9	62.0	67.5	65.9	29
30	69.8	71.7	76.8	66.3	69.8	66.3	68.9	72.1	30
31	72.5	71.7	79.7	69.5	72.2	69.6	70.9	76.7	31
32	75.5	74.5	81.9	75.3	74.0	72.8	74.2	77.5	32
33	78.3	78.3	84.1	78.4	75.1	77.2	76.8	79.1	33
34	81.1	79.2	87.0	80.5	78.1	82.1	79.5	81.4	34
35	83.3	80.2	89.9	83.7	79.9	84.8	82.1	82.2	35
36	86.7	84.0	93.5	87.9	82.8	87.5	86.1	84.5	36
37	88.4	85.8	94.2	89.5	84.6	88.0	88.7	87.6	37
38	90.7	87.7	94.9	91.6	88.8	91.3	92.1	87.6	38
39	91.7	89.6	96.4	91.6	89.9	91.8	93.4	88.4	39
40	93.1	93.4	96.4	92.6	91.1	92.9	95.4	89.9	40
41	94.2	95.3	96.4	93.2	92.3	95.1	96.7	90.7	41
42	94.7	95.3	96.4	93.7	93.5	96.2	96.7	90.7	42
43	95.8	97.2	97.1	94.7	95.3	96.7	96.7	93.0	43
44	96.6	98.1	98.6	96.8	95.3	97.3	97.4	93.0	44
45	97.4	98.1	98.6	97.4	95.3	97.8	99.3	95.3	45
46	98.1	99.1	100.0	97.4	96.4	98.4	100.0	96.1	46
47	98.7	100.0		98.4	97.0	99.5		96.1	47
48	99.0			98.9	98.2	99.5		96.1	48
49	99.1			98.9	98.8	99.5		96.1	49
50	99.2			99.5	98.8	99.5		96.1	50
51	99.3			99.5	98.8	100.0		96.1	51
52	99.4			99.5	100.0			96.1	52
53	99.4			99.5				96.1	53
54	99.7			99.5				98.4	54
55	99.7			99.5				98.4	55
56	99.7			99.5				98.4	56
57	99.8			99.5				99.2	57
58	99.9			100.0				99.2	58
59	99.9							99.2	59
60	99.9							99.2	60
61	99.9							99.2	61
62	99.9							99.2	62
63	99.9							99.2	63
64	99.9							99.2	64
65	99.9							99.2	65
66	100.0							100.0	66
67									67
68									68
69									69
70									70
71									71
72									72

Table 7: AEQ-G18 (total score) – percentile norm data for men: total and according to age (years)

Raw Score	AEQ-G18 – men								Raw Score
	total	14-24	25-34	35-44	45-54	55-64	65-74	75+	
0	2.5	1.5	4.0	3.0	2.4	1.7	2.6	2.9	0
1	3.7	3.0	4.8	3.6	3.0	2.2	5.3	5.9	1
2	4.5	5.3	5.6	4.2	3.7	3.3	5.3	5.9	2
3	5.8	6.1	6.3	4.8	5.5	4.4	7.3	8.8	3
4	7.0	7.6	6.3	7.3	6.1	6.1	7.9	11.8	4
5	8.1	9.1	7.1	7.9	8.5	6.7	7.9	14.7	5
6	10.1	11.4	7.1	10.3	11.0	8.9	10.6	14.7	6
7	12.2	13.6	9.5	12.1	14.6	9.4	12.6	17.6	7
8	13.3	15.9	11.9	12.1	14.6	10.6	13.9	20.6	8
9	14.9	16.7	14.3	13.9	15.9	12.8	14.6	23.5	9
10	16.4	18.2	15.1	15.8	17.7	13.9	15.9	26.5	10
11	18.5	19.7	17.5	17.0	20.7	15.6	18.5	29.4	11
12	20.1	20.5	19.8	17.6	23.2	17.2	20.5	29.4	12
13	21.2	25.0	19.8	18.2	24.4	17.8	21.2	29.4	13
14	23.1	26.5	20.6	19.4	26.8	20.0	22.5	38.2	14
15	25.2	30.3	23.8	21.8	28.0	21.7	23.8	38.2	15
16	28.4	31.8	27.0	25.5	32.3	25.0	26.5	41.2	16
17	30.8	32.6	31.0	28.5	34.1	27.2	29.8	41.2	17
18	33.7	37.1	34.9	30.9	36.0	30.0	32.5	44.1	18
19	35.9	40.9	35.7	32.7	37.2	32.8	35.8	44.1	19
20	37.6	42.4	36.5	34.5	38.4	36.1	37.1	44.1	20
21	41.4	49.2	38.9	40.0	41.5	39.4	39.7	44.1	21
22	44.5	50.0	42.9	43.6	44.5	43.3	43.0	47.1	22
23	47.8	52.3	43.7	46.7	48.8	47.2	47.7	50.0	23
24	51.4	54.5	50.0	50.9	50.6	49.4	53.6	50.0	24
25	54.5	58.3	52.4	56.4	54.3	51.1	55.6	52.9	25
26	58.4	62.1	57.1	59.4	57.9	56.7	58.3	55.9	26
27	61.1	64.4	57.9	60.0	61.6	59.4	61.6	70.6	27
28	64.8	65.9	62.7	64.8	66.5	63.9	62.9	73.5	28
29	68.6	68.9	66.7	71.5	70.7	67.2	64.9	73.5	29
30	71.0	71.2	69.8	72.1	73.8	68.3	69.5	76.5	30
31	72.6	72.0	71.4	72.7	76.2	70.6	71.5	76.5	31
32	75.7	75.0	73.0	75.8	79.9	74.4	75.5	76.5	32
33	79.0	78.0	76.2	79.4	83.5	76.7	79.5	79.4	33
34	81.4	79.5	78.6	81.8	84.8	78.3	84.1	85.3	34
35	83.5	81.1	80.2	84.8	86.6	81.7	84.8	88.2	35
36	88.1	87.9	84.9	89.7	90.2	85.6	88.7	94.1	36
37	89.8	88.6	88.9	90.3	91.5	86.1	91.4	100.0	37
38	91.4	88.6	89.7	90.9	93.9	88.9	94.0		38
39	92.8	88.6	93.7	93.9	95.1	89.4	94.0		39
40	94.2	91.7	96.0	94.5	97.0	90.6	94.7		40
41	95.2	91.7	96.8	95.8	97.6	92.8	95.4		41
42	96.3	93.9	98.4	96.4	97.6	94.4	96.7		42
43	97.1	93.9	98.4	97.6	97.6	96.1	98.0		43
44	97.7	95.5	98.4	98.2	97.6	97.2	98.7		44
45	98.1	95.5	99.2	98.8	97.6	97.8	99.3		45
46	98.4	96.2	99.2	99.4	97.6	98.3	99.3		46
47	98.5	96.2	99.2	99.4	98.2	98.3	99.3		47
48	98.9	97.7	99.2	99.4	98.2	99.4	99.3		48
49	99.2	98.5	99.2	99.4	98.8	99.4	99.3		49
50	99.5	100.0	99.2	99.4	99.4	99.4	99.3		50
51	99.6		99.2	99.4	99.4	100.0	99.3		51
52	99.7		99.2	99.4	100.0		99.3		52
53	99.7		99.2	99.4			99.3		53
54	99.8		100.0	99.4			99.3		54
55	99.8			99.4			99.3		55
56	99.8			99.4			99.3		56
57	99.8			99.4			99.3		57
58	99.8			99.4			99.3		58
59	99.8			99.4			99.3		59
60	99.9			100.0			99.3		60
61	99.9						99.3		61
62	99.9						99.3		62
63	99.9						99.3		63
64	99.9						99.3		64
65	99.9						99.3		65
66	99.9						99.3		66
67	99.9						99.3		67
68	99.9						99.3		68
69	99.9						99.3		69
70	99.9						99.3		70
71	99.9						99.3		71
72	100.0						100.0		72

Table 8: Short form AEQ-G10 (total score) – percentile norm data for women: total and according to age (years)

Raw Score	AEQ-G10 – women								Raw Score
	total	14-24	25-34	35-44	45-54	55-64	65-74	75+	
0	3.5	2.8	5.1	3.7	3.5	4.9	1.3	3.0	0
1	5.3	4.7	5.8	4.7	4.1	8.2	3.3	6.1	1
2	8.2	6.5	8.7	7.9	5.3	12.5	6.0	9.8	2
3	11.4	11.2	11.6	10.5	9.4	15.8	7.3	13.6	3
4	14.6	13.1	16.7	15.3	14.1	19.0	8.6	13.6	4
5	16.8	15.0	19.6	17.4	16.5	22.3	9.9	15.2	5
6	20.2	15.9	24.6	18.9	23.5	24.5	12.6	19.7	6
7	23.9	21.5	29.7	22.1	27.6	27.2	15.9	22.0	7
8	28.4	26.2	36.2	25.8	34.1	29.3	21.2	25.0	8
9	32.5	29.9	41.3	29.5	36.5	33.7	25.8	30.3	9
10	38.2	33.6	48.6	36.3	43.5	37.5	32.5	34.1	10
11	43.6	38.3	53.6	43.2	44.7	41.8	38.4	44.7	11
12	48.1	45.8	60.1	46.3	50.6	44.6	43.7	47.0	12
13	53.8	54.2	63.0	51.1	58.2	47.8	49.7	55.3	13
14	58.8	57.9	68.1	57.4	60.0	53.3	58.3	58.3	14
15	64.6	62.6	75.4	63.2	66.5	59.2	62.3	65.2	15
16	69.8	67.3	79.0	68.4	70.6	63.6	68.9	72.7	16
17	74.9	72.9	84.1	75.3	72.9	70.1	74.8	75.8	17
18	78.9	77.6	87.7	78.9	75.9	75.5	78.8	79.5	18
19	81.5	80.4	89.1	80.5	79.4	78.8	82.1	81.8	19
20	87.2	86.0	92.8	85.8	85.3	85.9	89.4	86.4	20
21	90.2	87.9	93.5	88.4	88.8	91.8	92.7	87.9	21
22	92.3	90.7	94.9	91.6	91.8	94.0	93.4	88.6	22
23	94.4	94.4	96.4	93.7	93.5	96.2	95.4	90.9	23
24	95.8	95.3	97.8	95.3	95.9	96.7	96.0	93.2	24
25	96.7	97.2	97.8	96.8	95.9	98.4	96.0	94.7	25
26	97.9	98.1	99.3	97.9	96.5	99.5	98.7	95.5	26
27	98.2	99.1	99.3	97.9	96.5	99.5	98.7	97.0	27
28	98.9	99.1	99.3	98.9	98.2	99.5	100.0	97.0	28
29	99.3	99.1	100.0	99.5	98.8	100.0		97.0	29
30	99.5	99.1		99.5	100.0			97.7	30
31	99.5	99.1		99.5				97.7	31
32	99.6	100.0		99.5				97.7	32
33	99.7			99.5				98.5	33
34	99.8			99.5				99.2	34
35	99.9			100.0				99.2	35
36	99.9							99.2	36
37	99.9							99.2	37
38	100.0							100.0	38
39									39
40									40

sample, the two factors had a correlation of $r=0.75$, which was significantly higher compared to correlations obtained in preliminary studies [2]. This result suggests that both scales capture similar aspects of emotional ambivalence (comparable to the American studies [12]) and hence alludes to an underlying general factor. At the same time, it furthermore indicates that the structure of emotional ambivalence does change with different samples. Therefore, it would be beneficial to conduct additional studies, especially with clinical samples.

The simultaneously presented short form AEQ-G10 was optimized to be one-dimensional. Therefore, it is easier to use for test batteries or screenings, because the common variance with the AEQ-G18 is about 92%. The collected representative data point more towards a one-factorial rather than a two-factorial solution. The patient data indicated such a tendency that might be clinically relevant. The limitation to one factor possibly neglects

the option for a clinically relevant internal differentiation. Preliminary research was able to show that somatization is more closely related to *effect ambivalence* whereas deficits in the social network of the examined patients more closely reflect *competence ambivalence*. These effects, however, are plausible from a theoretical perspective [2].

All tested scales of the AEQ-G18 as well as the short form AEQ-G10 had satisfactory reliabilities (internal consistency). The socio-demographic variables had little impact, if any, on the severity of the emotional ambivalence. There was a weak gender-related effect for the scale *effect ambivalence*, which seems to be more distinct in women. These findings correlated with the results of Deighton & Traue [2] (study involving university employees and patients of a general medicine practice). The study involving medical students did not show any gender-related differences [2].

Table 9: Short form AEQ-G10 (total score) – percentile norm data for men: total and according to age (years)

Raw Score	AEQ-G10 – men								Raw Score
	total	14-24	25-34	35-44	45-54	55-64	65-74	75+	
0	4.7	4.5	5.6	4.2	5.5	3.3	4.6	8.8	0
1	7.2	6.8	7.9	7.2	7.3	5.5	7.3	14.7	1
2	9.5	9.8	9.5	9.6	9.8	8.3	9.3	14.7	2
3	12.4	14.3	11.1	11.4	14.0	9.9	11.9	23.5	3
4	15.7	18.0	13.5	15.0	18.9	12.7	13.9	26.5	4
5	19.1	21.1	17.5	16.8	22.6	16.6	19.2	26.5	5
6	22.2	23.3	19.8	19.8	26.2	20.4	21.9	29.4	6
7	25.5	30.1	23.8	24.0	29.9	22.7	21.9	32.4	7
8	29.2	31.6	29.4	26.9	33.5	26.5	26.5	35.3	8
9	33.3	36.8	32.5	32.3	36.6	29.8	31.1	38.2	9
10	39.0	42.9	38.9	36.5	42.1	35.9	37.7	44.1	10
11	43.5	47.4	42.1	42.5	43.9	42.5	43.0	44.1	11
12	48.4	49.6	46.0	47.9	48.8	48.1	50.3	47.1	12
13	54.4	57.1	50.8	56.9	53.0	51.4	56.3	58.8	13
14	60.4	60.2	55.6	62.9	61.6	58.6	62.9	58.8	14
15	66.1	64.7	60.3	67.7	68.3	65.2	68.9	67.6	15
16	70.6	69.2	65.1	70.7	73.8	70.2	72.2	76.5	16
17	75.2	74.4	70.6	75.4	78.0	75.1	74.8	82.4	17
18	79.0	78.9	75.4	77.8	79.9	79.0	80.1	88.2	18
19	81.9	82.0	78.6	81.4	81.7	80.7	84.1	94.1	19
20	87.7	87.2	85.7	88.6	87.2	87.3	87.4	97.1	20
21	90.7	91.0	86.5	91.6	90.2	91.2	91.4	97.1	21
22	92.9	91.7	91.3	92.2	95.1	92.3	93.4	97.1	22
23	94.2	92.5	92.9	93.4	96.3	93.9	94.7	100.0	23
24	95.8	94.0	96.0	95.2	97.0	95.0	96.7		24
25	96.8	94.0	96.8	97.0	97.6	97.2	96.7		25
26	97.4	94.7	98.4	97.6	97.6	97.2	98.0		26
27	98.7	97.0	99.2	99.4	99.4	97.8	99.3		27
28	99.0	97.7	99.2	99.4	99.4	98.3	99.3		28
29	99.5	99.2	99.2	99.4	100.0	99.4	99.3		29
30	99.8	100.0	100.0	99.4		100.0	99.3		30
31	99.8			99.4			99.3		31
32	99.8			99.4			99.3		32
33	99.9			100.0			99.3		33
34	99.9						99.3		34
35	99.9						99.3		35
36	99.9						99.3		36
37	99.9						99.3		37
38	99.9						99.3		38
39	99.9						99.3		39
40	100.0						100.0		40

Medical-psychological research has shown that a higher educational background constitutes a psycho-social, health-protective factor. Findings regarding the correlation of the AEQ with various mental and physical factors tend towards a slightly better health status and less ambivalence [2]. The socio-economic factors had an overall weak impact on our sample, but it should be noted that the educational background appeared to have the strongest influence on emotional ambivalence. Participants with a higher educational background had less emotional ambivalence, which fits into the previously outlined context. The depression screeners DEP-2 [3] and the Profile of Mood States POMS [4], the revised Beck Depression Inventory BDI [5], the short form of the Patient Health Questionnaire PHQ-9 [6] and the SF-36 health survey questionnaire [7] showed indications for the validity of the AEQ-G18 and the short form AEQ-G10. The hypothesis was confirmed: emotional ambivalence positively correl-

ates with depression and a reduced psychological state of health (*depression, fatigue, and anger*) and negatively with health-related quality of life and a positive attitude (*vigor*). The correlation coefficients for emotional ambivalence, depression and anger, respectively, were higher than those for the quality of life. The level of the correlation coefficients between emotional ambivalence and depression determined in this study confirmed the results by Deighton and Traue [2].

Based on the correlations between emotional ambivalence and mental and physical complaints, therapeutic interventions that address the emotional state of the patient offer specific ways to influence dysfunctional processes of emotion regulation [26]. Greenberg & Safran [27] have subdivided such interventions into the following four groups: emotional discharge, emotional insight, emotionally adaptive behavior, and exposition.

Although additional studies to validate our results remain to be done, our study indicates that the *Ambivalence over Emotional Expressiveness Questionnaire AEQ-G18* [1], [2] and its short form *AEQ-G10* are instruments that allow measurements of emotional ambivalence in a clinically relevant, valid, and time-efficient manner.

Conclusions

Emotional ambivalence within the context of a conflict between the need to express emotions and their simultaneous suppression constitutes a relevant factor for the development and persistence of mental and psychical complaints. It is possible and meaningful to operationalise the construct of “emotional ambivalence“ with both German versions of the *Ambivalence over Emotional Expressiveness Questionnaire, AEQ-G18* [1] and its short form *AEQ-G10*.

Notes

Conflicts of interest

None declared.

References

- Traue HC. Emotion und Gesundheit. Heidelberg: Spektrum; 1998.
- Deighton RR, Traue HC. Emotionale Ambivalenz, Körperbeschwerden, Depressivität und soziale Interaktion: Untersuchungen zur deutschen Version des Ambivalence over Emotional Expressiveness Questionnaire (AEQ-G18). *Z Gesundheitspsychol.* 2006;14:4.
- Grukke N, Bailer H, Blaser G, Geyer M, Hinz A, Schmutzer G, et al. Depressivitäts-Screening - zwei Fragen für die Praxis. *Wiener Med Wochenschr.* 2005;155:297-302.
- McNair D, Lorr M, Droppleman L. POMS Profile of Mood States. Ein Verfahren zur Messung von Stimmungszuständen. In: Collegium Internationale Psychiatriae Scalarum CIPS, editor. Internationale Skalen für Psychiatrie. Weinheim: Beltz Test Gesellschaft; 1981.
- Schmitt M, Maes J. Vorschlag zur Vereinfachung des Beck-Depressions-Inventar (BDI). *Diagnostica.* 2000;46(1):38-46.
- Kroenke K, Spitzer R, Williams J. The PHQ-9. Validity of a brief depression severity measure. *J Gen Intern Med.* 2001;16:606-13.
- Morfeld M, Bullinger M, Nantke J, Brähler E. Die Version 2.0 des SF-36 Health Survey - Ergebnisse einer bevölkerungsrepräsentativen Studie. *Soz Präventivmed.* 2005;50(5):292-300.
- Dembroski TM, McDougall JM. Beyond global Typ A: relationships of paralinguistic attributes, hostility, and anger-in coronary heart disease. In: Field T, McCabe P, Schneiderman N, editors. *Stress and coping.* Hillsdale: Erlbaum; 1985. p. 223-42.
- Denollet J, Pedersen SS, Ong AT, Erdman RA, Serruys PW, van Domburg RT. Social inhibition modulates the effect of negative emotions on cardiac prognosis following percutaneous coronary intervention in the drug-eluting stent era. *Eur Heart J.* 2006;27(2):171-7.
- Pennebaker JW. Traumatic experience and psychosomatic disease: Exploring the roles of behavioural inhibition, obsession, and confiding. *Can Psychol.* 1985;26(2):82-95.
- King LA, Emmons RA. Psychological, physical, and interpersonal correlates of emotional expressiveness, conflict, and control. *Eur J Pers.* 1991;5(2):131-50.
- King LA, Emmons RA. Conflict over emotional expression: psychological and physical correlates. *J Pers Soc Psychol.* 1990;58(5):864-77.
- Emmons RA, King LA. Conflict among personal strivings: immediate and long-term implications for psychological and physical well-being. *J Pers Soc Psychol.* 1988;54(6):1040-8.
- Katz IM, Campbell JD. Ambivalence over emotional expression and well-being: Nomothetic and idiographic tests of the stress-buffering hypothesis. *J Pers Soc Psychol.* 1994;67(3):513-24.
- Löwe B, Spitzer R, Zipfel S, Herzog W. Gesundheitsfragebogen für Patienten (PHQ-D). Komplettversion und Kurzform. Karlsruhe: Pfizer GmbH; 2002.
- King LA, Emmons RA, Woodley S. The structure of inhibition. *J Res Pers.* 1992;26:85-102.
- Martin A, Rief W, Klaiberg A, Brähler E. Validity of the Brief Patient Health Questionnaire Mood Scale (PHQ-9). *Gen Hosp Psychiatry.* 2005;28:71-7.
- Schmitt M, Altstötter-Gleich C, Hinz A, Brähler E. Normwerte für das Vereinfachte Beck-Depressions-Inventar (BDI-V) in der Allgemeinbevölkerung. *Diagnostica.* 2006;52:51-9.
- Hautzinger M, Bailer M, Worall H, Keller F. Beck-Depressions-Inventar (BDI). Bern, Göttingen, Toronto, Seattle: Verlag Hans Huber; 1994.
- U.S. Preventive Services Task Force. Screening for depression: recommendations and rationale. *Ann Intern Med.* 2002;136:760-76.
- Albani C, Blaser G, Geyer M, Schmutzer G, Brähler E, Bailer H, et al. Überprüfung der Gütekriterien des Fragebogens "Profile of Mood States" (POMS) in einer repräsentativen Bevölkerungsstichprobe. *Psychother Psychosom Med Psychol.* 2005;55:324-30.
- Bullinger M, Kirchberger I. Der SF-36-Fragebogen zum Gesundheitszustand. Handanweisung. Göttingen: Hogrefe; 1998.
- Zwingmann C, Metzger D, Jäckel W. Short Form-36 Health Survey (SF-36). Psychometrische Analyse der deutschen Version bei Rehabilitanden mit chronischen Rückenschmerzen. *Diagnostica.* 1998;44:209-19.
- Cohen J. *Statistical power analysis for the behavioral sciences.* 2 ed. Hillsdale, New Jersey: Lawrence Erlbaum Associates; 1988.
- Lautenschlager GJ, Lance CE, Flaherty VL. Parallel analysis criteria: Revised equations for estimating the latent roots of random data correlation matrices. *Educ Psychol Meas.* 1989;49:339-45.
- Traue H, Horn A, Kessler H. Emotion, Emotionsregulation und Gesundheit. In: Schwarzer R, editor. *Gesundheitspsychologie.* Göttingen: Hogrefe; 2005. p. 149-71.
- Greenberg LS, Safran JD. *Emotion in psychotherapy.* New York: Guilford; 1987.

Corresponding author:

Prof. Dr. Cornelia Albani
Universitätsklinikum Leipzig, Klinik für Psychotherapie
und Psychosomatische Medizin, K.-Tauchnitz-Str. 25,
04107 Leipzig, Deutschland
Cornelia.Albani@medizin.uni-leipzig.de

Please cite as

Albani C, Blaser G, Völker J, Geyer M, Schmutzer G, Bailer H, Grulke N, Brähler E, Traue HC. Ambivalence over Emotional Expressiveness: psychometric evaluation of the AEQ-G18 in a representative German survey. *GMS Psychosoc Med.* 2007;4:Doc10.

This article is freely available from

<http://www.egms.de/en/journals/psm/2007-4/psm000042.shtml>

Published: 2007-09-10

Copyright

©2007 Albani et al. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by-nc-nd/3.0/deed.en>). You are free: to Share – to copy, distribute and transmit the work, provided the original author and source are credited.