

# Exceptional experiences and spiritual practice: a new measurement approach

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## Abstract

A new instrument for the measurement of exceptional experiences, the Exceptional Experiences Questionnaire (EEQ), is introduced, which considers both frequency and individual evaluation of exceptional experiences. A principal component factor analysis extracted four factors (positive spiritual experiences, experiences of deconstruction/ego loss, psychopathological experiences and dream-type experiences), which explain 49% of the variance. The 25-item short form of the instrument shows good psychometric properties (range for Cronbach's alpha:  $r = 0.67$ – $0.89$ , range for test-retest reliability after 6 months  $r = 0.66$ – $0.87$ ). The instrument shows adequate discriminant and convergent validity (Sense of Coherence, Social Support, Mental Distress and Transpersonal Trust) and can discriminate between spiritual practising and non practising individuals. A non-technical summary of the research is provided at the end of this paper. Copyright © 2006 John Wiley & Sons, Ltd.

**Key words:** exceptional experiences, transpersonal psychology, spirituality, dissociation, assessment, questionnaire

## Introduction

Spiritual practice and exceptional, spiritual or mystical experiences have been part of mankind from time immemorial. Survey studies have shown that these phenomena are rather common also in modern societies (Haraldsson, 1985; Haraldsson & Houtkooper, 1991; van Quekelberghe et al., 1991; Cardena et al., 2000; Schmied-Knittel & Schetsche, 2003). But as a result of historical processes, clinical psychology, psychiatry and the health sciences in general have disregarded spiritual and religious dimensions of human

experiences until recently (Kohls, 2004). Yet, various exceptional, particularly spiritual experiences can also have positive effects on mental and physical health (Cardena et al., 2000; Koenig et al., 2001). One recent signal of recognition of spiritual and religious domains was the inclusion of the new coding V.62.89 'Spiritual and Religious Problems' in the V-category 'other clinical relevant problems' of the Diagnostic and Statistical Manual IV of the American Psychiatric Association (APA, 1994; Turner et al., 1995) as clinically important but explicitly distinct from psychological (axis 1) or personality

(axis 2) disorders. Recently an NIH conference on spirituality concluded that a promising research field is emerging, although the heterogeneity of definitions, concepts and approaches precludes a clear understanding of the underlying psychological mechanisms between spirituality and health (Miller & Thoresen, 2003).

### Working definitions

For the sake of clarification, we propose the following working definitions: *Exceptional Human Experiences* ('EHEs') are experiences that touch on areas outside the common-sense reality of our everyday world, e.g. a sense of enlightenment or certainty, a feeling of unity, presentiment or telepathic experiences (White & Anderson, 1990; White, 1993). *Spiritual* or *mystical experiences* can be regarded as a particular subcategory of EHEs and can be considered experiences of a universal or comprehensive reality that need not necessarily be interpreted in a formal or traditional religious framework, but frequently such existing frameworks are used for interpreting these experiences. They are then termed *religious experiences*. *Spiritual practice* can be construed as any regular activity intended and designed to elicit spiritual experiences, e.g. prayer, meditation or forms of contemplation. To put it bluntly, spirituality focuses primarily on experiences and insights, while religion can be regarded as a complex cultural and social framework that tries to encapsulate, interpret and facilitate spiritual experiences.

### Need for the development of a new questionnaire instrument and aim of study

There are meanwhile many questionnaire instruments for the measurement of religion and spirituality available (MacDonald et al., 1995; Yeginer, 2000; Hull & Pargament, 2003), and this is the reason why some researchers have pleaded for using already existing instruments rather than developing

new questionnaires (Friedman & MacDonald, 2002). However, only a few instruments grasp spiritual, mystical or religious experiences. When looking at most tools assessing religion or spirituality (Hull & Pargament, 2003), it is obvious that they either measure only cognitive sets like belief systems, faith or attitudes, or ask about religious and spiritual practice. Rarely, if ever, are experiences themselves assessed, and if so, items addressing experiences are mixed with statements of faith and attitudes (Kass et al., 1991a, 1991b) thus producing data that are difficult to interpret. Recently George et al. (2000) explicitly called for new instruments assessing spiritual and religious experience, acknowledging that such instruments are still largely lacking.

If, in the past, experiences have been addressed at all, only frequency of experience and not their individual meaning has been the focus of research endeavours. Debatably, Hood's Mystical Experience Scale can be regarded as the most popular example for this kind of conceptual approach (Hood, 1975; Hood et al., 1993), together with some other instruments (Pekala, 1991; van Quekelberghe et al., 1991). This seems to be due to an implicit consensus that an adequate assessment of experiences can be achieved solely by taking their phenomenological aspects into account. While, generally speaking, this is a legitimate approach from a psychometrical perspective, it is a reductionist or even mistaken view, because re-evaluation of EHEs is an implicit but integral part of most spiritual traditions. For example, within the common medieval Christian theory of mysticism the way of the mystic to God is tripartite and can be divided into the stages of purgation, illumination and unity (Underhill, 1967; Walach, 1994; Martin, 1997). During the so-called 'mystical journey' there seems to be a distinct point between the state of purgation and illumination where a person's perception of both self and others is deeply

altered, and hence the meanings of experiences change. Most of the available questionnaire instruments focus exclusively on the frequency of certain EHEs but neglect the personal evaluation and particularly the re-evaluation of these experiences. In doing so, these approaches create profound problems, because it is implicitly assumed that the emotional appraisal of a particular experience can be unambiguously and even a priori derived from the content of the phenomenological quality of the experience itself. This assumption is problematic because it presupposes both inter-individual and cultural stability in the emotional appraisal of such experiences *over time*. We find this a priori assumption highly problematic, since it fails to understand the basic idea of the mystical journey as an ongoing process of re-evaluation. Hence we set out to develop a new questionnaire instrument. As there is currently no gauged and validated instrument for this aim available in German and to our knowledge in English either, we decided to devise a questionnaire containing items that describe spiritual and other exceptional human experiences, as described in the literature.

We started from the assumption that eventually all experiences have to be interpreted by some propositional structure, at the latest if they are to be reported or communicated, but probably much earlier. Thus, strictly speaking, it is not possible to study experiences *directly* by a self-report instrument like a questionnaire, but only indirectly as crystallized within a propositional structure. Other methods of studying exceptional and spiritual experiences, such as direct pragmatic experiential behavioural indicators, have been adopted by some spiritual disciplines, like Koan training in Zen, but are not feasible for a first-time scientific approach. Additionally, experiences as expressed by propositional statements of language normally occur within

a cultural matrix and reinforce it. While we were aware of the fact that it is practically impossible to use a self-report questionnaire to capture experiences as such, we nevertheless attempted to differentiate statements describing experiences from attitudes, cognitive sets and beliefs. Therefore, we intended to develop an instrument that explicitly assesses experiences as distinct from attitudes by separating the occurrence of an experience from the cognitive evaluative component that normally follows it. We have thereby forced our participants to separate the phenomenology of an experience from its interpretation.

In sum, the aim of our study was to:

- (1) Construct and validate an instrument mapping spiritual and exceptional human experiences and differentiating the occurrence of an experience from the cognitive evaluative component normally following an experience.
- (2) Study the relationship between spiritual experiences and a widely accepted indicator for psychological distress and disturbance.

In this paper, we focus on the first aim of the study. We present a new questionnaire tool for assessing exceptional human experiences as well as its psychometric properties. After reporting on the extensive testing and revising of a preliminary version, we introduce the final 25-item short version of the *Exceptional Experiences Questionnaire (EEQ)*. The relationship between spiritual and exceptional human experiences, spiritual practice and mental health will be discussed in a separate paper (Kohls, Walach & Wirtz, submitted).

## Method

### Participants

Participants from Germany and Switzerland volunteering for the study were approached in various lectures, conferences, meetings,

courses and training programmes over a period of two years. We aimed at recruiting a sample of spiritually practising participants, non-practising individuals and individuals undergoing psychological or psychiatric treatment. Spiritual practice was operationalized as regular practice of any one spiritual exercise such as meditation, prayer, contemplation, Tai Chi or Chi Gong, or several kinds of yoga techniques. The participants were recruited from spiritually interested groups, such as religious communities of mainly Christian background, courses of Zen or Vipassana meditation, the German Spiritual Emergence Network (<http://www.senev.de>) and from various meetings. Non-practising individuals were recruited in publicity campaigns, university lecture courses and by word of mouth. Both the spiritual practising and the non-practising samples are convenience samples. Technically speaking subjects were assigned to the spiritually practising sample if they had answered the questions 'Do you practice meditative or spiritual techniques on a regular basis?' in the affirmative. The clinical sample was recruited through cooperating psychiatrists and psychotherapists in an outpatient and inpatient setting. The majority of the clinical sample was collected in an inpatient psychotherapy clinic (a clinical inpatient unit located in northern Bavaria), which operates on the basis of a holistic therapeutic concept including spirituality. From a diagnostic perspective, the clinical sample mainly consisted of individuals with personality disorders and depression, but it must be noted that about half of the sample ( $n = 27$ ) is not only spiritually interested but also actively practising. For these reasons, results from this clinical sample are preliminary.

Demographic details for the subsamples are presented in Table 1.

Participants were presented with a set of paper-and-pencil questionnaires twice within

a six-month interval. Return envelopes were prepaid and addressed to assure confidentiality. For the first survey a total of 2000 questionnaires were disseminated. After six months the same questionnaires were distributed to those 642 participants who had given written consent for the follow-up study. The anonymous questionnaires were labelled in such a way that the first and second survey could be compared on a person-by-person basis. The overall sample size for the first assessment was  $n = 705$  and for the second  $n = 451$ . These figures are equivalent to a response rate of 35% for the first, and 70% for the second survey. At the first measurement time, the questionnaires were answered by  $n = 350$  participants with a spiritual background, by  $n = 299$  participants without such a background, and by a small clinical sample of  $n = 56$ . After six months,  $n = 259$  participants with a spiritual background and  $n = 192$  without such a background were tested for a second time. There was no possibility to retest the clinical sample due to protection of privacy. Subjects were offered no compensation for their participation, but we offered the opportunity to all interested subjects to learn about their individual results in comparison with the rest of the group. They were also asked to signal their extended interest for an interview by resending a prepaid postcard. A sample of  $n = 35$  was interviewed either in person ( $n = 10$ ) or via phone ( $n = 25$ ) if the travelling distance was too long. Interview data were gathered to cross-validate the questionnaire data and will be reported in another article (Kohls, Hack & Walach, submitted).

## Procedure

We asked volunteers to answer the revised EEQ questionnaire, which will be described in the following section, together with already existing questionnaires measuring Social

**Table 1:** Sociodemographic data for subsamples

	Spiritual practice	No spiritual practice	Clinical
<b>n</b>	350	299	56
<b>Sex</b>			
Women	247 (71%)	206 (69%)	41 (73%)
Men	103 (29%)	92 (31%)	15 (27%)
<b>Mean age</b>	44.9 (SD = 12.3)	34.1 (SD = 13.1)	43.1 (SD = 10.3)
<b>Family status</b>			
Single	141 (40%)	178 (60%)	26 (47%)
Married	149 (43%)	87 (29%)	16 (29%)
Divorced	52 (15%)	29 (10%)	12 (22%)
Widowed	7 (2%)	4 (1%)	1 (2%)
<b>Own children</b>	170 (49%)	106 (36%)	28 (50%)
<b>Life situation</b>			
Living alone	134 (38%)	81 (27%)	28 (50%)
Living in parental home	5 (1%)	28 (10%)	1 (2%)
Living with a partner	179 (51%)	124 (42%)	24 (43%)
Flat share	32 (9%)	63 (21%)	3 (5%)
<b>Denomination</b>			
Catholic	103 (30%)	96 (32%)	10 (18%)
Protestant	110 (31%)	124 (42%)	19 (34%)
Free Churches	8 (2%)	5 (1%)	1 (2%)
Moslem	0 (0%)	1 (0%)	0 (0%)
Jewish	0 (0%)	1 (0%)	0 (0%)
Hindu	1 (0%)	0 (0%)	1 (0%)
Buddhist	4 (1%)	1 (0%)	3 (5%)
No denomination	116 (33%)	66 (22%)	20 (36%)
Other	3 (1%)	6 (2%)	2 (4%)

**Table 1:** *Continued*

	Spiritual practice	No spiritual practice	Clinical
<b>Education</b>			
None	1 (0%)	0 (0%)	0 (0%)
Still in school	1 (0%)	7 (2%)	1 (2%)
Secondary school	16 (5%)	13 (4%)	7 (13%)
Secondary modern school	52 (15%)	37 (13%)	18 (32%)
University entrance diploma	278 (78%)	240 (81%)	30 (54%)
<b>Qualification</b>			
No formal qualification	5 (1%)	5 (2%)	5 (9%)
Still qualifying	36 (10%)	130 (46%)	0 (0%)
Apprenticeship	34 (10%)	30 (11%)	15 (27%)
Vocational college	47 (14%)	20 (7%)	12 (22%)
University diploma	224 (65%)	98 (35%)	23 (42%)

*Note:* Figures in this table are rounded up to nearest whole if they are >0.5 and rounded down if <0.5; therefore cumulated percentage may slightly differ from 100%. Missing data are not included.

Support, Sense of Coherence, Transpersonal Trust and Mental Distress. The reason for choosing these four constructs as criteria for determination of discriminant and convergent validity and not including already existing questionnaire instruments assessing spirituality is due to the fact that English-language scales assessing spirituality were not available in validated German-language versions at the time the study was planned, let alone in a version gauged at the general German population. This was the case, however, for the additional scales we used for validation purposes, and notably for the Transpersonal Trust Scale (Belschner, 1998; Albani et al., 2003).

We also included extended qualitative questions regarding spiritual and religious practice, which will be reported elsewhere.

## Measures

### Exceptional Experiences Questionnaire (EEQ)

Detailed descriptions of the development process of the EEQ and of testing and evaluating predecessor versions have been published (Kohls, 1998; Friedl, 1999; Kohls et al., 2001; Kress, 2001) and a complete psychometric evaluation of both a 57-item version and a final 25-item short version has recently been published as a part of a monograph (Kohls, 2004). In brief, after an extensive perusal of the relevant literature and existing questionnaire instruments, over 130 items referring to exceptional and spiritual experiences were formulated, covering both positive and negative components.

Following this, every item was rated with regard to its phenomenological

appropriateness by 15 spiritually experienced individuals. Approximately one-third of the items that were not clear in their wording and semantic content were eliminated as equivocal, leaving a pool of 80 items. Seventeen items describing psychopathological experiences (e.g. 'I clearly hear voices, which scold and make fun of me, without any physical causation') were added and, finally, the items were randomly assorted, leading to a 97-item predecessor version of the EEQ.

This preliminary 97-item instrument was psychometrically tested in a sample of  $n = 204$  spiritual participants (Kohls, 1998) as well as in a sample of  $n = 203$  participants with clinically relevant problems and psychiatric disorders (Friedl, 1999). We performed revisions based on both descriptive and psychometric analyses that led to the additional elimination of 30 items and the textual revision of 5 items. The result of this pre-testing was a 57-item long version and a 25-item short version of the EEQ, which was used for the final testing in this study. It is presented at the end of the paper (Table 8).

### **Questionnaires used for determining convergent and divergent validity**

**Transpersonal Trust Scale (TPV):** An 11-item scale measuring one dimension of trust in the processes of life, in some larger purpose of life or some higher being like God (Cronbach's  $\alpha = 0.94$ ) (Belschner, 2000, 2003). The scale has been gauged in a representative sample of the German population (Albani et al., 2003), and has been used successfully to predict improvement of therapy in a psychotherapeutic inpatient setting (Belschner, 2001). We used this scale to capture the propositional-cognitive background of spiritual experiences. Two examples for representative items are 'I feel connected with a higher reality/with a higher being/with God. Even in hard times I can trust this reality.' and

'Sometimes in my life I have the impression that I am led by a higher insight.'

**Sense of Coherence (SOC 13):** Sense of Coherence, introduced by Antonovsky, describes whether a person finds his or her environment understandable, manageable and predictable (Antonovsky, 1987, 1991, 1993). It is an important source of resistance against and resilience towards various stressors and frustrations in life. Antonovsky's Sense of Coherence (SOC) questionnaire is designed to measure 'a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence' (Antonovsky, 1987). Hence SOC can be regarded as an existential but also secularized concept embracing someone's attitude towards his/her life with regard to comprehensibility, meaningfulness and manageability. For that reason we were keen on scrutinizing the relationship between TPV, EEQ and SOC. For the sake of parsimony, we used the newly constructed, validated and gauged German short-form version with 13 items (Schumacher, Gunzelmann & Brähler, 2000; Schumacher et al., 2000). The questionnaire is based on a seven-point semantic differential scale that measures a one-dimensional concept, and is reliable (Cronbach's  $\alpha = 0.85$ ). It is frequently used as a predictor or moderating variable in health research (Jorgensen et al., 1999; Kivimäki et al., 2002). Two examples for representative items are 'Do you have the feeling that you're being treated unfairly?' and 'Until now your life has had: Scale: 1 = no clear goals or purpose and 7 = very clear goals and purpose'.

**Social Support (F-SoZu):** Social Support is one of the most important constructs predicting health outcomes and quality of life in a variety of diseases (Barker & Pistrang, 2002; Hogan et al., 2002; Uchino et al., 1996). Since it is frequently hypothesized that it is mainly the social component of religion and spirituality mediating its effect (Sloan & Bagiella, 2002; Powell et al., 2003; Seeman et al., 2003) we measured it using the short

form of one of the most widely used German scales. The scale is reliable (Cronbach's  $\alpha = 0.80$ ) and has good psychometric properties. Two sample items are 'There are people that stand by me both in good times and bad times' and 'There are people who accept me without limitation'.

**Brief Symptom Index (BSI)** (Franke, 1995; Schmitz et al., 2000): The 53-item short version of the *Symptom Checklist (SCL 90)* (Derogatis, 1977) is one of the most widely used screening instruments to briefly assess psychological disturbances on nine subscales. It uses a frequency rating of common symptoms of disturbances to assess whether psychiatrically relevant symptoms of distress are present. We used the newly developed abbreviated German version (BSI) which gives one Global Severity Index (GSI) of distress (Cronbach's  $\alpha$  for healthy adults = 0.92, student population = 0.95, retest reliability after one week for a psychiatric inpatient population  $r = 0.93$ ). The BSI was mainly included for examining the relationship between EHEs and mental health.

## Statistical procedure

In addition to the psychometric standard analyses (principal component factor analysis with varimax rotation, item-scale-correlation, Cronbach's  $\alpha$ , test-retest reliability) that were used to determine validity and reliability of the EEQ, we used one-way Anova and *t*-tests for independent samples for cross-sectional analysis ( $p < 0.01$ ). To describe differences between the spiritually practising and non-practising sample we used Cohen's *d* for the calculation of effects sizes. Pearson's *r* (two-tailed,  $p < 0.01$ ) was used for the investigation of correlative relationships between the four factors of the EEQ and the four external tests.

## Results

### Description and psychometric properties of 25-item short form of the EEQ

The items of the 25-item short revision of the EEQ are worded in single-sentence descriptions of experiences. Both the frequency and emotional assessment of EHEs are assessed by a five-point Likert scale. A translated English version of the questionnaire, which employed a forward and backward translation procedure by two native speakers, both fluent in the respective language, is presented at the end of this paper (Table 8). The respondent is asked to quantify each item in terms of frequency of the experience (item format: never (=0), seldom, sometimes, often, very often (=4)) and additionally to evaluate the experience in terms of valence (item format: very positive (=1), positive, neutral, negative, very negative (=5)). Initial eigenvalues, amounts of variance explained, and a corresponding distribution of eigenvalues that was estimated by a random Monte Carlo PCA procedure are depicted in Table 2.

The number of factors to retain was determined by multiple criteria:

- *Theoretical*: First of all, the theoretical concept underlying the development of the scale suggested that there would be three latent components (both stabilizing and destabilizing exceptional experiences and psychopathological experiences).
- *Empirical*: After principal component analysis the number of factors to be extracted was determined using an iterative process of formal criteria (eigenvalue  $> 1$ ; inspection of scree-plot) and semantic stability. Using only the formal criterion of eigenvalue  $> 1$  tends to over-extract factors (Zwick & Velicer, 1986; Floyd & Widaman, 1995; Gorsuch, 1997). Instead, some authors have argued for more appropriate procedures such as parallel analysis

**Table 2:** Initial and estimated eigenvalues of the 57-item version of the EEQ

Component	Total	Initial eigenvalues (empirically observed) % of Variance	Initial eigenvalues		
			Cumulative % of Variance	Total	SD
1	17.78	31.19	31.19	1.60	0.031
2	3.40	5.97	37.16	1.55	0.023
3	2.10	3.68	40.84	1.51	0.020
4	1.85	3.25	44.09	1.47	0.016
5	1.42	2.49	46.58	1.44	0.017
6	1.26	2.20	48.78	1.42	0.014
7	1.23	2.16	50.94	1.39	0.014
8	1.14	2.00	52.94	1.36	0.013
9	1.07	1.88	54.83	1.34	0.013
10	1.05	1.84	56.66	1.32	0.012
11	1.00	1.77	58.42	1.30	0.011

*Note:* Initial eigenvalues of the 57-item version of the EEQ ( $n = 700$ ) and estimated eigenvalues (100 replications) with standard deviation (Monte Carlo PCA for parallel analysis, 57 variables, 700 subjects [Watkins, 2000]).

(PA) (Zwick & Velicer, 1986; Glorfeld, 1995). PA is a procedure that, after specifying variables and cases, estimates an average distribution of eigenvalues based on a random process that can be compared with the calculated distribution. The intersection of calculated and estimated distribution marks the cut-off point for the components to be retained. The right column of Table 2 shows such a randomly generated corresponding distribution of eigenvalues that is estimated by a Monte Carlo PCA procedure (Watkins, 2000) for parallel analysis (57 variables, 700 subjects and 100 replications). As can be derived from this column, the two distributions intersect between the fourth and the fifth component as does the scree plot. Given these findings we reviewed both the four- and five-factor solution. We examined oblique (direct oblimin;  $\delta = 0$ ) and orthogonal (varimax)

rotations and found quite similar factor patterns. Hence we decided to revert to the orthogonal rotation for the sake of simplicity. Although the four- and five-factor solutions are quite similar with regard to factor patterns, the interpretation of the four-factor solution is more appropriate and suitable, as it provides a better approximation of simple structure. By examining the loading pattern, we found that our initial three-dimensional component structure (stabilizing, destabilizing and psychopathological experiences) could in principle be identified, albeit, interestingly, that a fourth distinct component indicating dream type and visionary experiences emerged. In a next step, the items were selected by examining their psychometric properties. With respect to PCA the lower bound for an acceptable factor loading was set at  $r = 0.35$ . Additionally hyperplaning

items ( $r_{it} > 0.35$ ) were also eliminated. We reduced the scale to 25 items by an iterative procedure, thereby eliminating items with unclear loading patterns and low factor loadings to keep reliability sufficiently high. The 25-item short form of the scale shows good reliability and consists of four distinct dimensions. Factor analysis with varimax rotation and Kaiser normalization accounted for a total of 49% variance explained. Table 3 gives both the assignment of the items to the four underlying factors and the item-to-scale correlations.

The first factor contains positive exceptional and spiritual experiences of transcending the self as well as sensations of connectedness and unity (17.09% of variance explained by factor; Cronbach's alpha = 0.88; test-retest reliability after six months = 0.87). From a subjective phenomenological point of view, these experiences appear to have sometimes been mediated by discarnate or metaphysical entities, which seem to have 'taught', 'guided', 'inspired' or even 'informed' the participants. As a result, these experiences often lead to both crucial augmentation of knowledge and an ultimate sense of purpose and cohesions behind individual and larger history. Thus, a deep sense of security and confidence may be derived from such experiences and, on a personal level, a boost of creativity, inspiration and compassion is reported quite often. Two examples for representative items are 'I am illumined by divine light and divine strength' and 'Benign light surrounds me'.

The second factor encompasses experiences of deconstruction and ego loss (13.13% of variance explained by factor; Cronbach's alpha = 0.81; test-retest reliability after six months = 0.75). Both fearful sensations of isolation and loneliness are descriptive features for these experiences, which, from a phenomenological point of view, are presumably related to dissociation-

type phenomena (e.g. depersonalization, derealization). Two examples for representative items are 'My world-view is falling apart' and 'My environment seems somewhat blurred or illusory to me'.

The third factor describes a psychopathological dimension. Marker items describe experiences of interference that fit into the psychotic and paranoid sphere (9.97% of variance explained by factor; Cronbach's alpha = 0.67; test-retest reliability after six months = 0.66). Although the item-to-scale correlation for three items (9, 38 and 39) is below the acceptable lower bound of  $r < 0.30$  they were not removed, because we suppose that the insufficient psychometric property is mainly due to the insufficient sample size of the clinical sample. Hence we felt it inappropriate to remove the items at this point and decided to tentatively keep them until a larger clinical sample is tested. 'I clearly hear voices, which scold me and make fun of me, without any physical causation' and 'I am cursed' are two item examples.

The fourth factor relates to intensive dream type experiences (9.22% of variance explained by factor; Cronbach's alpha = 0.89; test-retest reliability after six months = 0.85). Two examples for representative items are 'I dream so vividly that my dreams reverberate while I am awake' and 'I have meaningful dreams'.

Cronbach's alpha for the 25-item short form scale is  $r = 0.89$  ( $n = 621$ ) and the retest reliability for the scale after a period of roughly sixth months is  $r = 0.85$  ( $n = 459$ ).

### **Prevalence of spiritual and exceptional experiences:**

Table 4 gives the mean scores and the standard deviation of the four factors (frequency of experiences) of our questionnaire for the three subsamples as well as the corresponding test statistics (one-way Anova;  $p < 0.01$ ).

In the spiritually practising sample positive spiritual experiences (factor 1) and

**Table 3:** Item-correlation matrix for the 25-item version of the EEQ

Item		Component				Item scale correlation
		1	2	3	4	
55	I am illumined by divine light and divine strength	0.80	0.18	0.15	0.07	0.65
56	Benign light surrounds me	0.74	0.18	0.11	0.06	0.58
6	A higher being protects or helps me	0.73	-0.01	0.09	0.07	0.49
4	Spiritual powers inspire me at work	0.71	0.25	0.07	0.14	0.63
45	I feel the presence of spiritual/ extraterrestrial beings	0.71	0.12	0.27	0.11	0.62
31	I am in touch with everything	0.71	0.25	0.10	0.14	0.63
35	I know my calling	0.68	0.17	-0.13	0.12	0.47
43	My world-view is falling apart	0.06	0.78	0.10	0.09	0.47
42	My environment seems somewhat blurred or illusory to me	0.10	0.67	0.25	0.08	0.51
3	A feeling of ignorance or not knowing overwhelms me	0.15	0.62	-0.02	0.12	0.42
20	My thinking slows down	0.20	0.61	0.17	0.08	0.50
19	A part of me dies	0.30	0.59	0.22	0.05	0.56
2	The world around me seems absurd or exaggeratedly distorted to me	0.10	0.59	0.16	0.19	0.47
12	My consciousness separates from my body	0.30	0.48	0.30	0.05	0.53
9	I clearly hear voices, which scold me and make fun of me, without any physical causation	0.07	0.02	0.65	0.03	0.28
38	I am cursed	-0.08	0.17	0.61	0.04	0.27
10	I am controlled by strange and alien forces	0.28	0.08	0.57	0.06	0.43
54	A strong, sinister power takes possession of my body	0.18	0.24	0.53	0.11	0.43
23	Other people read my mind	0.26	0.12	0.49	0.16	0.43
52	Some of my thoughts seem strange to me, as if they were not mine	0.13	0.31	0.49	0.17	0.45

**Table 3:** *Continued*

Item		Component				Item scale correlation
		1	2	3	4	
39	I mentally send harm to my enemies	-0.17	0.14	0.36	0.18	0.16
25	I dream so vividly that my dreams reverberate while I am awake	0.09	0.14	0.06	0.78	0.41
22	I have meaningful dreams	0.21	0.17	0.09	0.77	0.48
1	I have strange and peculiar dreams	0.05	0.20	0.12	0.74	0.40
5	I dream of future events which later happen	0.17	0.00	0.24	0.54	0.34

*Note:* Principal Component Factor Analysis (orthogonal rotation, converged in six rotations; items are sorted with regard to their corresponding factor loading;  $n = 700$ ) and Cronbach's alpha ( $n = 621$ ) of the 25-item short form of the *EEQ*.

experiences of deconstruction (factor 2) as well as intense dream experiences (factor 4) are significantly more frequent. Notably, for psychopathological experiences (factor 3), there was no difference in mean frequency between individuals practising spirituality on a regular basis and those who did not practise. Thus, a distinct factor collecting symptoms of psychopathology (factor 3) can be statistically separated from both positive spiritual experiences and spiritual experiences of ego loss and deconstruction.

The largest effect size ( $d = 1.08$ ) for difference between the samples with and without spiritual practice was found in the first factor (positive spiritual experiences), followed by the second (ego loss, deconstruction;  $d = 0.62$ ), while factor three (psychopathology;  $d = 0.17$ ) and four (visionary dream experiences;  $d = 0.24$ ) showed only small effect sizes. Thus, in the sample with spiritual practice, the occurrence of EHEs, as they are described by the factors positive spiritual experience (factor 1) and experiences of deconstruction/ego loss (factor 2) of our questionnaire, are increased, while psychopathological (factor 3) and intense dream experiences (factor 4) are apparently less

affected. This finding suggests that spiritual practice is associated with a higher prevalence of positive spiritual experiences (factor 1) whilst experiences of ego loss and deconstruction (factor 2) are affected to a lower extent. With regard to prevalence, inter-correlations between the four factors (Pearson's  $r$ ) were within the range of  $r = 0.33$  (factor 1 and 4) and  $r = 0.52$  (factors 2 and 3).

#### **Assessment of spiritual and exceptional experiences**

Table 5 depicts mean scores and standard deviations of the evaluation of the questionnaire's four factors (experiences) for the three subsamples as well as the corresponding test statistics (one-way Anova;  $p < 0.01$ ).

Emotional evaluation was assessed on a five-point scale, with 1 being 'very positive' and 5 being 'very negative'. Our results revealed that participants with spiritual practice evaluate positive spiritual experiences (factor 1), experiences of ego loss/deconstruction (factor 2) and intense dream experiences (factor 4) more positively than those without practice. On the other hand, no big difference can be found for the evaluation of psychopathological experiences

**Table 4:** Prevalence means and standard deviation (25-item) of the four factors of the EEQ for sub-samples

Prevalence	Spiritual practising		Spiritual non-practising		Clinical		One-way Anova				
	M	SD	n	M	SD	n	F	p			
Positive spiritual experiences	1.75	0.85	350	0.83	0.72	299	1.62	0.94	56	109.50	<0.01
Loss of ego/deconstruction	1.22	0.66	349	0.81	0.61	298	1.32	0.72	56	37.59	<0.01
Psycho pathology	0.30	0.35	349	0.24	0.30	299	0.54	0.60	56	16.57	<0.01
Dreams	1.44	0.66	350	1.26	0.74	299	1.66	0.83	56	9.7	<0.01

Note: Mean scores and standard deviation (25-item) of the four factors for sub-samples based on prevalence data (scale anchoring 0 = 'never' -4 = 'very often').

**Table 5:** Assessment means and standard deviation (25-item) of the four factors of the EEQ for sub-samples

Prevalence	Spiritual practising		Spiritual non-practising		Clinical		One-way Anova				
	M	SD	n	M	SD	n	F	p			
Positive spiritual experiences	1.64	0.46	336	1.92	0.54	250	1.87	0.48	54	23.7	<0.01
Loss of ego/deconstruction	2.88	0.68	337	3.39	0.63	266	3.26	0.68	53	44.8	<0.01
Psycho pathology	3.18	0.91	228	3.29	0.85	173	3.35	0.86	40	1.14	0.31
Dreams	2.31	0.57	338	2.70	0.67	275	2.65	0.63	55	33.12	<0.01

Note: Mean scores and standard deviation (25-item) of emotional appraisal of EHES of the four factors for sub-samples based on assessment data (scale anchoring 1 = 'very positive' -5 = 'very negative').

(factor 3) between these two groups. We take this as a confirmation of the finding that there is a clear distinction between psychopathological experiences and EHEs as they are mediated by spiritual practice.

Contrary to the effect sizes of frequency of experiences, for evaluation of experiences the largest effect was found for the second factor *ego loss/deconstruction*, ( $d = -0.75$ ) suggesting a more positive evaluation of these experiences by participants with spiritual practice. The negative value of the effect size is due to the item format of the scale (1 corresponds to 'very positive' and 5 to 'very negative'). Additionally, both *intense dream type experiences* (factor 4;  $d = -0.58$ ) and *positive spiritual experiences* (factor 1;  $d = -0.52$ ) are also more positively evaluated by the spiritually practising sample. As in the prevalence data, no substantial difference was found for *psychopathological experiences* (factor 3;  $d = -0.12$ ).

According to this pattern of results, both prevalence and emotional assessment of positive and deconstructive spiritual experiences are different in participants with spiritual practice: They appear to focus on positive components and to reframe destabilizing experiences in a more positive way.

### **Difference between spiritually practising and non practising individuals on Transpersonal Trust, Social Support, Sense of Coherence and Mental Distress**

Table 6 depicts the mean differences between spiritually practising and non-practising individuals for the Transpersonal Trust scale (TPV), the questionnaire of Social Support (F-SoZu), and the 13-item short form of the Sense of Coherence Questionnaire (SOC-K).

Except for the Transpersonal Trust scale, there was no significant difference between the spiritually practising and non-practising

samples (independent t-test (two-tailed) for Transpersonal Trust:  $T = 17.79$ ;  $p < 0.01$ ; Social Support:  $T = -0.97$ ;  $p = 0.33$ ; Sense of Coherence:  $T = 1.71$ ;  $p = 0.09$ ; Global Severity Index of Brief Symptom Inventory:  $T = -0.39$ ;  $p = 0.70$ ). The effects sizes (Cohen's  $d$ ) for the differences between the practising and the non-practising sample mirror this finding. They are  $d = 1.19$  for the Transpersonal Trust scale,  $d = 0.13$  for the Social Support scale and for the SOC-13, while ES was only  $d = -0.02$  for the BSI. It is noteworthy that even the SOC scale cannot entirely grasp the difference between spiritually practising and non-practising individuals. Hence we presume that Sense of Coherence does not include the domain of spirituality.

### **Correlations between Exceptional Experiences, Transpersonal Trust, Social Support, Sense of Coherence and Mental Distress**

Table 7 depicts the inter-correlations of the four factors of EEQ (both prevalence and assessment data) and correlations with external constructs (Pearson's  $r$ , two tailed,  $p < 0.01$ ) for the overall sample.

The upper half of the matrix shows the first order inter-correlations for the four factors of the EEQ (frequency and assessment) and their correlations with Transpersonal Trust, Social Support, Sense of Coherence and Mental Distress; the bottom half depicts the corresponding sample size.

The fact that all four factors of the EEQ are moderately inter-correlated suggests that positive spiritual experiences (factor 1), experiences of deconstruction/*ego loss* (factor 2) as well as psychopathology (factor 3) and intense dream-type experiences (factor 4) can be separated on a phenomenological level only, but otherwise are interrelated phenomena. Interestingly, the highest correlation ( $r = 0.52$ ) can be found between psychopathological experiences (factor 3) and deconstructive experiences (factor 2), indicating that both categories of experiences have

**Table 6:** Differences in Mean for Transpersonal, Trust, Social Support, Sense of Coherence and Mental Distress

Instrument	Range	Spiritual practising (n = 350)		Spiritual non-practising (n = 299)		Clinical (n = 55)		One-way Anova	
		M	SD	M	SD	M	SD	F	p
Transpersonal Trust	1 (low) -5 (high)	4.23	0.70	3.03	1.01	3.77	0.88	157.82	<0.01
Social Support	1 (low) -5 (high)	4.38	0.60	4.43	0.60	3.87	0.85	18.67	<0.01
Sense of Coherence	1 (low) -7 (high)	4.90	0.78	4.79	0.85	3.84	0.68	42.20	<0.01
Mental Distress	0 (low) -4 (high)	0.52	0.38	0.53	0.44	1.17	0.73	55.77	<0.01

Note: Mean scores and standard deviation of Transpersonal, Trust, Social Support, Sense of Coherence and Mental Distress for sub-samples.

**Table 7:** Correlation matrix for the four factors of the EEQ and Transpersonal Trust, Social Support, Sense of Coherence and Mental Distress

	Frequency of experiences (0–4/never–often)				Assessment Mystic positive
	Prevalence Mystic positive	Prevalence Deconstruction	Prevalence Psychopath	Prevalence Dreams	
Prevalence Mystic positive		0.47	0.38	0.33	–0.35
Prevalence Deconstruction	709		0.52	0.38	
Prevalence Psychopath	710	708		0.39	
Prevalence Dreams	711	709	710		
Assessment Mystic positive	644	642	643	644	
Assessment Deconstruction	661	661	660	661	619
Assessment Psychopath	445	443	445	445	430
Assessment Dreams	674	672	673	674	628
Transpersonal Trust	709	707	708	709	642
Social Support	709	707	708	709	642
Sense of Coherence	711	709	710	711	644
Mental Distress (BSI)	711	709	710	711	644

*Note:* only correlations with  $p < 0.01$  are shown. The upper right half of the table shows the correlation coefficients (Pearson's  $r$ ); the lower left half depicts the corresponding  $n$ . The range for  $n$  is between 705 (prevalence data) and 435 (evaluation data). The lower  $n$  of the evaluation data is due to the fact that experiences can only be assessed if there prevalence is  $>0$ . Therefore  $n$  for evaluation data varies for each item depending on item difficulty based on prevalence.

<b>Evaluation of experiences (1–5/very positive–very negative)</b>						
<b>Assessment Deconstruction</b>	<b>Assessment Psychopath</b>	<b>Assessment Dreams</b>	<b>Transpersonal Trust</b>	<b>Social Support</b>	<b>Sense of Coherence</b>	<b>Mental Distress (BSI)</b>
-0.40	-0.20	-0.33	0.73			
		-0.13	0.31	-0.25	-0.36	0.40
			0.21	-0.14	-0.29	0.40
		-0.23	0.21		-0.22	0.28
0.25		0.30	-0.44	-0.19	-0.21	0.18
	0.24	0.35	-0.38	-0.12	-0.26	0.23
440		0.20	-0.16	-0.17	-0.27	0.27
643	435		-0.38		-0.15	0.14
659	443	672			0.12	
659	443	672	709		0.42	-0.44
661	445	674	709	709		-0.65
661	445	674	709	709	711	

**Table 8:** Exceptional Experiences Questionnaire (EEQ)*1a. Extraordinary experiences*

In the following form, a number of statements are listed which describe exceptional experiences. The wording of some statements might seem inappropriate for you. In these cases, please respond according to what best describes your point of view. Please decide for each statement:

1. Have you personally experienced this phenomenon or not?
2. If you are familiar with this experience what is your current evaluation?

*Note:* If you had the same experience several times or even very often, but always experienced it in different ways, please respond according to your present point of view. If you are not familiar with a particular experience, you need not evaluate it.

I have had this experience and evaluate it as follows:	Frequency	Evaluation
	never seldom sometimes often very often	very positive positive neutral negative very negative
1. I dream of future events which later happen	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2. A part of me dies	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
3. Benign light surrounds me	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
4. Some of my thoughts seem strange to me, as if they were not mine	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
5. I am controlled by strange and alien forces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
6. Spiritual powers inspire me at work	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
7. A strong, sinister power takes possession of my body	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
8. I am in touch with everything	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
9. Other people read my mind	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
10. My consciousness separates from my body	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
11. My environment seems somewhat blurred or illusory to me	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
12. I know my calling	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
13. I dream so vividly that my dreams reverberate while I am awake	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
14. My world-view is falling apart	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
15. I have meaningful dreams	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

Table 8: Continued

I have had this experience and evaluate it as follows:	Frequency	Evaluation
	never seldom sometimes often very often	very positive positive neutral negative very negative
16. I am illuminated by divine light and divine strength	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
17. I have strange and peculiar dreams	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
18. I mentally send harm to my enemies	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
19. I feel the presence of spiritual/extraterrestrial beings	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
20. I clearly hear voices, which scold me and make fun of me, without any physical causation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
21. The world around me seems absurd or exaggeratedly distorted to me	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
22. A higher being protects or helps me	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
23. My thinking slows down	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
24. A feeling of ignorance or not knowing overwhelms me	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
25. I am cursed	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

technically a 27% overlap of variance. Regarding the assessment of experiences, frequency of experiences measured by the positive spiritual experiences factor seems to play an important role: With increasing prevalence of experiences in the positive spiritual experiences factor (factor 1), experiences of the remaining factors receive a more positive appraisal.

With regard to external constructs, there is a high positive correlation between the prevalence of experiences collected by the positive spiritual experiences factor and Transpersonal Trust ( $r = 0.73$ ) and a moderate one with the experiences of deconstruction/ego loss

factor ( $r = 0.31$ ). Additionally, the appraisal of experiences for the positive spiritual experiences, experiences of deconstruction/ego loss and intense dream-type experience factor is moderately negatively correlated with Transpersonal Trust ( $r_1 = -0.44$ ;  $r_2 = -0.38$ ;  $r_4 = -0.38$ ), while there is only a small correlation with the third psychopathological experiences factor ( $r_3 = -0.16$ ). Due to the coding this means that Transpersonal Trust is highest in individuals showing a more positive evaluation of their experiences, and vice versa. Interestingly, Transpersonal Trust shows no decisive correlation with the three other external

constructs Social Support, Sense of Coherence and Mental Distress, corroborating the findings of Belschner (2001, 2003).

There are small negative correlations between Social Support and both the *experiences of deconstruction/ego loss* ( $r = -0.25$ ) and *psychopathology* ( $r = -0.14$ ) factor with regard to prevalence, and between Social Support and the appraisal of the first three factors (*positive spiritual experiences, experiences of deconstruction/ego loss and psychopathology*) experience of the EEQ. Social Support shows a moderate positive correlation with Sense of Coherence ( $r = 0.42$ ) and a moderate negative correlation with Mental Distress ( $r = -0.44$ ).

Concerning Sense of Coherence, it is interesting to see no correlation with the *positive spiritual experiences* factor for prevalence data and only a slight negative correlation for evaluation data ( $r = -0.21$ ). In contrast, the *experiences of deconstruction/ego loss* factor ( $r = -0.36$ ) and also the *psychopathology* factor ( $r = -0.29$ ) show a moderately negative correlation for the prevalence data. Moreover, the *experiences of deconstruction/ego loss* factor ( $r = -0.26$ ) as well as the *psychopathology* factor ( $r = -0.27$ ) also show a moderately negative correlation for the assessment data. Remarkably, there is only a slight positive correlation between Sense of Coherence and Transpersonal Trust ( $r = 0.12$ ), while there is a moderate correlation with Social Support ( $r = 0.42$ ) and an important negative with Mental Distress ( $r = -0.65$ ).

With exception of the *positive spiritual experiences* factor, all three remaining factors of the EEQ show moderate correlations with Mental Distress for the prevalence data (factor 2 and 3  $r = 0.40$  and factor 4  $r = 0.28$ ).

Thus, neither Transpersonal Trust nor Sense of Coherence is sufficient to grasp the whole spectrum of EHEs as Transpersonal Trust is only positively correlated with *positive spiritual experiences*, while Sense of Coherence shows only a negative correlation with *experiences of deconstruction/ego loss*.

## Discussion

The overall results of the psychometrical analysis of the EEQ provide empirical support for its usefulness with regard to both validity and reliability. Regarding the frequency of EHEs, our findings correspond to previous research results (Hood, 1975; Hood et al., 1993). The double nature of exceptional spiritual experiences – mystical union and loss of ego – is well known in all spiritual disciplines. Recently, it was also shown that altered states of consciousness induced by hallucinogenic drugs can be described with the particular dimensions ‘oceanic boundlessness’, ‘dread of ego dissolution’ and ‘visionary restructuring’ (Dittrich, 1996). Hence, one could – in light of the data reported herein – argue that spiritual practice increases the frequency of both spiritual experiences and experiences of ego loss, and depending on one’s personal and spiritual outlook they are regarded as potentially stabilizing or destabilizing. The crucial point seems to be that persons with regular spiritual practice assess experiences of ego loss much more positively.

Therefore, the semantic differentiation between frequency and assessment of such experiences seems to be a useful heuristic tool for questionnaire research. So far, it is difficult to understand the impact and effect of spiritual practice without drawing the particular distinction between frequency and evaluation of experiences. Implicitly mixing the two domains, like most questionnaires do, seems to confuse their interpretation. Thus, from a psychological perspective, the most crucial point seems to be that destabilizing experiences of ego loss/deconstruction type are both increased and positively reappraised due to spiritual practice. This could be a hint that some experiences – such as ‘losing oneself’, ‘losing one’s coherent picture of the world’, etc. – that are indicative of cognitive deconstruction, when hitting the

individual unprepared can be detrimental, while they can be viewed and reframed in a more positive manner when experienced within a spiritual context. This is due to the fact that regular spiritual practice like prayer, contemplation, yoga or meditation increases the prevalence of EHEs, while at the same time changing their perception as positive and suspending a negative impact. Conversely, lack of spiritual practice not only suppresses potentially positive outcome effects of EHEs, but rather highlights destabilizing effects of such experiences. Therefore, spiritual practice seems to be an important buffer that determines whether EHEs are perceived as positive or negative events. For that reason, a legitimate a priori assignment of items to stabilizing and destabilizing categories is scientifically unsound. Moreover, it is factually misleading to take only their phenomenological aspects into account. Based on our findings we strongly suggest for future questionnaires, whenever questionnaires seek to map experiences, differentiating between frequency and assessment of experiences. Mere consideration of frequency of experiences that have been assigned a priori to a given category is not sufficient, because it neglects the underlying psychological mechanisms.

Furthermore, our findings suggest that, from a phenomenological perspective, spiritual experiences, experiences of ego loss and deconstruction, and dream-type experiences should be regarded as distinct from psychopathological experiences. Particularly positive spiritual experiences and experiences of ego loss, but also intense dream-type experiences, seem to build up an implicit framework of experiences, whereas their evaluation is mediated by spiritual practice. Therefore, the impact of spiritual practice seems to be a rather complex process that comprises both easier access to exceptional experiences and a specific reappraisal. It is not only a way of

incorporating experiences into an existing self-model, but can also lead to a remodelling of the self. This interpretation is supported by the fact that within the spiritually practising sample even experiences of deconstruction are valued more positively. Hence, some further research into the mitigating and stabilizing effects of spiritual practice seems to be warranted.

Neither Social Support nor Sense of Coherence captured spiritual experiences, nor were they able to differentiate between spiritually practising and non-practising individuals on the basis of mean differences between the two samples, whereas the two samples could be easily discerned via Transpersonal Trust and our own questionnaire. These findings support the idea that spiritual and exceptional experiences and the cognitive framework, derived therefrom, cannot be sufficiently explained by traditional constructs like Sense of Coherence or Social Support.

It is also apparent from the first-order correlations table that concerning frequency and assessment, the *positive spiritual experiences* factor (factor 1) shows discriminant validity against Social Support, Sense of Coherence and Mental Distress, while it shows convergent validity with Transpersonal Trust. Interestingly, Sense of Coherence showed, for both prevalence and assessment data, only a moderately negative correlation with experiences of ego loss (factor 2) and can therefore not be used as a surrogate for spiritual domains.

Contrary to Sense of Coherence, Transpersonal Trust showed a high correlation only with positive spiritual experiences (factor 1), while the correlation coefficient with experiences of ego loss was low to moderate. We therefore conclude that Transpersonal Trust focuses only on positive spiritual experiences, their derivatives and consequences, and thus this construct is not sufficient to grasp the ambiguous character

which seems to be inherent in exceptional experiences that are induced through spiritual practice.

Based on these findings, we conclude that the construct of EHEs can be measured reliably by our questionnaire. It shows construct validity and fills an explanatory gap in existing constructs, because it is able to grasp positive and negative aspects of spiritual practice. We have implicitly associated the differential effect associated with spiritual practice as causal. We are aware that this is problematic, since the study used natural cohorts and controlled for only a few potential moderators. However structural equation modelling substantiates this interpretation (Kohls, 2004). To corroborate our findings, a longitudinal approach is necessary, which starts with first-time spiritual practice and follows up the change in frequency of EHEs.

We suggest that further examination of the validity of our questionnaire and comparison with similar constructs such as, for example, mindfulness (Walach et al., 2006), absorption (Tellegen & Atkinson, 1974), schizotypy (Chapman et al., 1995; Mason et al., 2005) or dissociation (Bernstein & Putnam, 1986; Sanders, 1986) is needed and we would therefore encourage further research endeavours. We especially encourage further cross-validation studies and the investigation of clinical samples, since we suppose that the instrument might be valuable in differentiating diagnostic groups of clinical cases.

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Conflicts of interest: none.

## Authors' contributions

NK collected the data, conducted the statistical and psychometric analysis and participated in the interpretation of the results, as well as in writing and revising the manuscript.

HW developed the outline of the design and the general idea of the study, and supervised it. He suggested details for the final analysis, participated in interpreting the results and wrote parts of the manuscript.

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## Non-technical summary

We report on the development and validation of a new measurement instrument to assess exceptional human experiences (EHE), the Exceptional Experiences Questionnaire (EEQ). This instrument captures diverse exceptional experiences by asking about the frequency of the

experiences and the current evaluation of them in a separate format. We developed this questionnaire because existing instruments do not assess experiences, rather mostly a mix of cognitive appraisals, beliefs, practices and statements of faith – but rarely experiences. If they do, they mix experiences with other constructs. A recent analysis has stated explicitly that, despite the plethora of instruments available for the scientific study of the psychology of religion and spirituality, there has been a neglect of spiritual and religious experiences proper. Our instrument addresses this gap. It was developed over a prolonged period of iteratively improving and testing. After potential experientially worded items had been collected and rated for suitability by experts, the items were revised and eliminated following standard psychometric procedures to produce this final short version with 25 items. While the original study was carried out in Germany, we have produced an English-language version here for usage in the English-speaking world. The final version was filled in by 705 persons, and by 451 a second time after six months, together with several other instruments measuring social support, transpersonal trust, sense of coherence and psychological distress. Our sample comprised individuals with a spiritual background and regular spiritual practice, participants from the general population without such an explicit background, and a small clinical sample.

The main findings of the study show that the construct of exceptional experiences is multifaceted. Specifically:

- (a) Spiritual experiences can be differentiated into positive spiritual experiences and experiences of ego loss/deconstruction, thus supporting the well-known double nature of spirituality on empirical grounds.
- (b) Spiritual experiences and experiences of ego loss/deconstruction can be differentiated from psychopathological experiences.
- (c) A smaller factor collecting visionary and dream experiences unrelated to the other experiences also emerged.
- (d) The frequency of experiences and their evaluation and assessment by the participants are quite distinct.
- (e) Persons with spiritual practice report both more spiritual experiences and more experiences of ego loss/deconstruction; they do not report more psychopathological experiences than other persons or clinically ill persons.
- (f) Participants with spiritual practice also evaluate these experiences more positively than those without such a practice or clinically ill persons.

The correlation with the other constructs assessed shows that EHEs are different from the higher-level construct of transpersonal trust. They are not captured by social support or by sense of coherence, although correlations of moderate magnitude emerged with single scales.

Taken together, our study shows that the EEQ can capture exceptional human experience validly and reliably and is an instrument filling an important conceptual gap. We invite further testing and give some indications as to how this could proceed.