

PSYCHOLOGICAL DISTRESS, EXPERIENCES OF EGO LOSS AND SPIRITUALITY: EXPLORING THE EFFECTS OF SPIRITUAL PRACTICE

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The literature supports a positive relationship between spirituality and health. The relationship between spirituality and distress is an underresearched topic. We investigated the relationship between spiritual experiences (SE) and mental distress within two sociodemographically balanced samples ($n = 100$) of a spiritually practicing (SP) and a nonpracticing sample (NSP) for two points of measurement ($t1$; $t2$). Applying linear regression analysis we compared the influence from SEs, as measured with the Exceptional Experiences Questionnaire (EEQ; Kohls & Walach, 2006), towards mental distress measured by the Brief Symptom Inventory (BSI; Klaiberg, 2002). A strong association between the EEQ ($t1$) and the BSI ($t1$, $t2$) for the NSP (NSP: $R^2_{t1} = .36$; $R^2_{t2} = .27$) was found, but only a weak, relatively moderate one for the SP sample (SP: $R^2_{t1} = .07$; $R^2_{t2} = .16$). Path analysis revealed that SP seems to buffer deconstructive spiritual experiences (SP: $\beta_{t1} = .06$ (ns); $\beta_{t2} = .18$ (ns); NSP: $\beta_{t1} = .52$ ($p < .01$); $\beta_{t2} = .39$ ($p < .01$)) but not psychopathological experiences (SP: $\beta_{t1} = .20$ ($p = ns$); $\beta_{t2} = .33$ ($p < .01$); NSP: $\beta_{t1} = .18$ ($p = ns$); $\beta_{t2} = .31$ ($p < .01$), although no significant relationship was

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found for positive spiritual experiences and visionary dream experiences for either sample. Our findings suggest that spiritual practice seems to be a potential buffer for distress derived from experiences of ego loss. Correspondingly, the differentiation between experiences of ego loss and psychopathological experiences seems to be pivotal for understanding the intrapersonal effects of SP.

Keywords: distress, exceptional experiences, spirituality, spiritual practice, mental health, salutogenesis, meditation.

Both religiosity and spirituality have been regarded as potential health resources (Koenig, McCullough, & Larson, 2001; Larson, Swyers, & McCullough, 1998; McCullough, Hoyt, Larson, Koenig, & Thurensen, 2000), although the specific pathways between spirituality and health have not been identified as yet (George, Larson, Koenig, & McCullough, 2000; Seeman, Dubin, & Seeman, 2003). However, an older review summarizing the findings of 91 studies that investigated the relationship between religion and health found that 47 studies showed a negative, 37 a positive and 31 no clear relationship (Batson, Schoenrade, & Ventis, 1993).

These inhomogeneous findings suggest that there is also a dark side of spirituality, challenging the prevailing assumption that the relationship between spirituality and health is mainly positive. First, spiritual experiences are often associated with crises (Wardell & Engebretson, 2006). Second, psychotic as well as other psychopathological states frequently seem similar to states of spiritual and transcendent ecstasies. This is the reason why frequently no distinction has been made between psychopathological and spiritual experiences (Lukoff, 1988; Lukoff, Lu, & Turner, 1992; Thalbourne, 1991). Correspondingly, not only positive but also negative distressing spiritual experiences have been identified (Hufford, 2005; Smucker, 1996). Some studies have researched the link between religious and spiritual involvement, anomalous or paranormal experiences and psychological distress, and found some support for the thesis that they are significantly correlated with psychological disturbances (Day & Peters, 1999; Jackson, 1997).

Thus, it is a challenge to differentiate between spiritual, anomalous and psychopathological experiences. With the introduction of the DSM-IV psychospiritual problems are now recognized as being distinct from psychopathological disorders (Lukoff, Lu, & Turner, 1998). Here, the new diagnostic code (V 62.89) has been established for "Spiritual and Religious Problems", which emphasises two important points. Firstly, the potential for distress caused by spiritual experiences is highlighted. Secondly, spiritual experiences are distinct from psychopathological phenomena although they can be a potential focus of clinical attention.

Taken together, the heterogeneous empirical findings suggest that spirituality has the inherent potential for both fostering health and inducing distress. However, there is no theory available that is able to embrace these double-barreled effects in a satisfying manner. We believe that this is mainly because appropriate phenomenological criteria for differentiating between potentially distress-inducing spiritual experiences such as spiritual crises, out-of-body experiences, frightening visions and psychopathological experiences have not been identified as yet.

Most measurement instruments assess a mix of cognitive appraisals, beliefs, practices and statements of faith that are associated with spirituality and religion, but rarely assess transcendental experiences as such (George et al., 2000). Those few questionnaires that explore transcendental experiences – such as Hood’s Mysticism Scale (Hood, 1975) or The Daily Spiritual Experience Scale (Underwood & Teresi, 2002) – do not differentiate between negative spiritual and psychopathological experiences. We have developed a 25-item instrument called the Exceptional Experiences Questionnaire (EEQ) by identifying both the frequency as well as the evaluation of exceptional, spiritual and psychopathological experiences of spiritually practicing and nonpracticing individuals (Kohls, 2004; Kohls, Hack, & Walach, 2008 (in press); Kohls & Walach, 2006).

WORKING DEFINITIONS OF EXCEPTIONAL, SPIRITUAL AND RELIGIOUS EXPERIENCES

For the sake of clarification, we have proposed the following working definitions (Kohls & Walach, 2006; p. 126): *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. Spiritual or mystical experiences can be regarded as a particular subcategory of EHEs and can be considered experiences of a universal, comprehensive or transcendental reality that need not necessarily be interpreted in a formal or traditional religious framework, but such existing frameworks are frequently used for interpreting these experiences. They are then termed religious experiences. Spiritual practice can, in this context, be construed as any regular activity intended and designed to elicit spiritual experiences, e.g., prayer, meditation or forms of contemplation (Meraviglia, 1999).

PREVIOUS FINDINGS

We were able to show that positive and negative spiritual experiences can be separated from psychopathological experiences by our EEQ scale (described in the Measures section). Our three main findings can be summarized as follows:

(a) Spiritually practicing individuals report more positive and negative spiritual experiences than spiritually nonpracticing individuals.

(b) They also evaluate both positive and negative spiritual experiences more positively.

(c) In contrast, we saw no difference in the frequency and emotional evaluation of psychopathological experiences between the two samples.

The first finding is in line with other studies (Hood, 1975; Hood, Morris, & Watson, 1993). However, the second finding is new. Hence the question concerning the intrapersonal effects of spiritual practice arises. On the one hand, spiritual practice could be viewed as a distinct technique that aims at eliciting positive spiritual experiences. Alternatively, by allowing the experiencing individual to interpret negative spiritual experiences in a more meaningful and thus potentially less distressful way, spiritual practice could possibly be a resilience factor against negative spiritual experiences.

RESEARCH AIM

We investigated the longitudinal effects of exceptional experiences (i.e., positive and negative spiritual experiences as well as psychopathological and visionary dream experiences) on mental distress. We administered the EEQ together with a measure of psychological distress to spiritually practicing and spiritually nonpracticing individuals. Employing separate regression analysis for both samples, we compared the effects of t_1 prevalence data of exceptional experiences on psychological distress for t_1 and t_2 between the two samples¹. Investigation of the relationship between spirituality and health has been repeatedly criticized for methodological flaws, mainly the failure to control for important confounders (Powell, Shahabi, & Thoresen, 2003; Sloan & Bagiella, 2002) and lack of longitudinal studies (Miller & Thoresen, 2003). Following recent recommendations (Devon, 2005), we addressed both concerns by devising a longitudinal study with two points of measurement as well as posthoc controlling for sociodemographic parameters by employing a matched-cases method based on propensity scores.

METHOD

PARTICIPANTS

Participants from Germany and Switzerland were recruited in public campaigns, university lectures, courses, meetings, congregations, conferences, from spiritually interested groups like religious communities of Christian background, courses of Zen or Vipassana meditation and the German Spiritual Emergence Network.

¹ We refrained from submitting the evaluation data of the EEQ to the statistical analysis, because N for evaluation data varies for each item depending on item difficulty based on prevalence (Kohls & Walach, 2006). This is due to the fact that we asked our participants to assess exclusively the evaluative component of an exceptional experience if they had personally encountered this experience.

Spiritual practice was broadly operationalized as regular practice of any one spiritual discipline of meditation, prayer, contemplation or spiritual or mindful body work like Tai Chi, or Chi Gong, as well as several kinds of Yoga.

As a first step, 2000 questionnaires were disseminated and 705 participants replied (35%). After six months the same questionnaire battery was again distributed to those 642 participants who had additionally agreed to participate in the follow-up study. Eventually 453 participants replied (70%) using pre-paid envelopes and test-retest data were available for a pool of 260 spiritually practicing individuals [SP] and 193 individuals who had never before taken part in any kind of spiritual practice [NSP].

The samples were convenience samples. Although the two groups were comparable with regard to some sociodemographic parameters, a major difference was found for age. Individuals in the SP sample (mean age: 45.4 years, $SD = 12.32$) were 11 years older than those in the NSP sample (mean age: 34.2 years, $SD = 13.4$). The difference in age is mainly due to the fact that the NSP sample included many students.

Because, as a measure for distress, the BSI is highly sensitive to differences in age, we drew subsamples that were comparable with regard to their sociodemographic status.

PROCEDURES

Statistical Analysis We used SPSS 11.5 for the statistical analysis of raw data and missing data were replaced by the respective sample mean.

Sample-Matching Procedure Sample matching based on propensity scores was introduced more than 20 years ago (Rosenbaum & Rubin, 1983), but has only recently been applied more frequently (Luellen, Shadish, & Clark, 2005). The basic idea is to identify the effect of a particular intervention variable in a quasi-experimental setting by mitigating the selection bias. Selection bias occurs, because quasi-experimental designs by definition use a nonrandom selection and allocation process. In propensity score analysis, known potential confounders are entered into a stepwise logistic regression predicting group membership for every case as a result of a weighted sum of those confounders. This score, ranging from 0 to 1 (like all probability scores), can be regarded as an indicator for the conditional probability that a case will theoretically be allocated to the treatment group rather than the control group. In a final step, cases with a comparable propensity score in both samples are matched on a "nearest-neighbor matching" pair-to-pair basis, which makes them comparable, since the distributions of their covariates are balanced as far as possible.

We computed a propensity score based on a logistic regression for age, sex, marital and family status, life situation, religious denomination and education. In a second step, we selected the 100 best matching cases in both samples, thereby

approximating a randomized trial in a nonexperimental setting (Painter, 2004). We chose 100 as cut-off criterion as there seemed to be a reasonable fit between the matched pairs. Here, the maximum difference between propensity scores as an indicator for the quality of the matching of any matched pair was 0.15, whereas it was 0.26 for 125th case and 0.55 for 150th case.

MEASURES

Predictive Variables Exceptional Experiences Questionnaire (EEQ): The development and validation of our scale is described in detail elsewhere (Kohls, 2004; Kohls, Hack, & Walach, 2008; Kohls & Walach, 2006). We developed the EEQ questionnaire because existing instruments do not differentiate between spiritual and psychopathological experiences. Our instrument captures diverse, exceptional and spiritual experiences by asking about the frequency of the experiences (0 = *never*; 4 = *very often*) as well as their current evaluation as additional information (1 = *very positive*; 5 = *very negative*). However the evaluative component is only assessed if the prevalence of the respective item is > 0). In brief, after an extensive perusal of the relevant literature and existing questionnaires, 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. Items that were not clear in their wording and semantic content were revised, reformulated or eliminated. We added 17 items describing psychopathological experiences. Finally, the items were randomly assorted, leading to a 97-item predecessor version of the EEQ. After three preliminary studies, we devised a 57-item version of the EEQ that showed acceptable psychometric properties. Applying psychometric analysis, we devised a 25-item short form of the scale, which was used in this study. It shows good psychometric properties (Cronbach's alpha: $r = .89$, test-retest reliability after 6 months $r = .85$), as well as adequate discriminant validity with sense of coherence, social support and mental distress and some convergent validity with transpersonal trust (Kohls, 2004). The analysis of first order correlations between our questionnaire and other scales confirms the hypothesis that spiritual and psychopathological experiences represent different classes of experiences, and that they are separated by our questionnaire.

Specifically, we could show that exceptional experiences are phenomenologically separable in four distinctive groups. A principal component factor analysis extracted the following four factors that explain 49% of the variance:

1. Positive spiritual experiences ("I am illumined by divine light and divine strength" and "A higher being protects or helps me").
2. Experiences of ego loss and deconstruction ("My world-view is falling apart" and "A feeling of ignorance or not knowing overwhelms me").

3. Psychopathological experiences of mainly delusional character (“I clearly hear voices, which scold me and make fun of me, without any physical causation” and “I am controlled by strange and alien forces”).

4. Visionary dream experiences (“I dream so vividly that my dreams reverberate while I am awake” and “I have strange and peculiar dreams”).

Dependent Variable The Brief Symptom Inventory (BSI) – The Symptom Checklist (SCL 90-R) is one of the most widely used self-report screening instruments to briefly assess prevalent psychological disturbances on nine subscales (Derogatis & Melisaratos, 1983). We used the abbreviated 53-item German short form (Klaiberg, 2002) that uses a frequency rating of common symptoms of disturbances to assess whether psychiatrically relevant symptoms of distress are present. Since many studies found quite different factor solutions for different samples (Holi, Sammallahti, & Aalberg, 1998; Schmitz et al., 2000), there is, meanwhile, consensus that for nonclinical populations the BSI is best viewed as a measure of nonspecific distress or negative affectivity. Thus instead of employing the nine factors proposed by Derogatis we followed convention by employing an indicator for general distress, the Global Severity Index (GSI). The GSI can be regarded as a summary of the BSI as it is computed as the mean score of all 53 items of the BSI.

RESULTS

SAMPLE SOCIODEMOGRAPHICS

The statistical analyses presented in this paper (see Table 1 for sociodemographics) are based on two samples of 100, comparable in all of the sociodemographical parameters (i.e., all differences $p > .05$). The only difference between the two samples is that the SP sample can be characterized as “experienced meditators” because they have been engaged in spiritual practice for 7.05 years ($SD = 5.74$) on average. Seventeen individuals thereby described their spiritual exercise as “very frequent”, 43 as “frequent”, 25 as “sometimes” and 11 as “seldom” (4 missing data). Although the majority of the spiritually practicing individuals have a Christian background (see Table 1 for denomination, catholic 37%; protestant 34%), 48 individuals practice a form of Zen meditation, 16 a form of Yoga and 7 individuals Qi-Gong, to name the most commonly specified forms of non-Christian based meditation. In contrast, only 17 practice a form of Christian contemplation, although, frequently, individuals reported practicing a combination of several techniques.

TABLE 1
SOCIODEMOGRAPHICAL DATA FOR SUBSAMPLES

	Spiritually Practicing	Nonpracticing
<i>N</i>	100	100
Sex		
Women	68	69
Men	32	31
Mean age	34.5 (<i>SD</i> = 8.4)	36.9 (<i>SD</i> = 11.7)
Family status		
Single	48	54
Married	44	34
Divorced	8	12
Own children	34	42
Life situation		
Living alone	24	27
Living in parental home	1	6
Living with a partner	60	53
Shared accommodation	15	14
Denomination		
Catholic	37	33
Protestant	34	37
Other	1	4
No denomination	28	26
Education		
Secondary modern school	13	11
University-entrance diploma	87	89
Qualification		
No formal qualification	3	0
Still qualifying	24	24
Apprenticeship	13	9
Vocational college	9	10
University diploma	51	57

INTERSAMPLE MEAN DIFFERENCES

Table 2 depicts for both points of measurement (t_1 , t_2) the sample means for the EEQ as well as the BSI-53. In the two right columns, results from an independent samples t test and effect sizes using Cohen's d are shown.

The SP sample reported more positive spiritual experiences (factor 1), more experiences of ego loss/deconstruction (factor 2) and more visionary dream experiences (factor 4) than the NSP group for both points of measurements. In contrast, there were no significant differences in means for psychopathological experiences (factor 3).

TABLE 2
MEAN CHARACTERISTICS FOR THE EXCEPTIONAL EXPERIENCES QUESTIONNAIRE (EEQ)
AND THE BRIEF SYMPTOM INVENTORY (BSI) FOR SAMPLES AT BOTH POINTS OF MEASUREMENT
(6-MONTH INTERVAL)

Characteristic	Range		Spiritual		Spiritual		<i>p</i> *	<i>d</i> **
			Practicing		Nonpracticing			
			(<i>N</i> = 100)	(<i>N</i> = 100)	(<i>N</i> = 100)	(<i>N</i> = 100)		
EEQ	0 (low)	T1	1.60	(.84)	.93	(.73)	< .01	.80
Positive Spiritual Experiences	4 (high)	T2	1.58	(.83)	.91	(.73)	< .01	.80
EEQ	0 (low)	T1	1.24	(.64)	.80	(.59)	< .01	.69
Loss of Ego / Deconstruction	4 (high)	T2	1.11	(.61)	.73	(.53)	< .01	.62
EEQ	0 (low)	T1	.28	(.31)	.24	(.33)	.50	.12
Psychopathology	4 (high)	T2	.24	(.33)	.19	(.25)	.17	.15
EEQ	0 (low)	T1	1.51	(.71)	1.22	(.74)	< .01	.40
Visionary Dreams	4 (high)	T2	<i>1.45</i>	<i>(.69)</i>	<i>1.23</i>	<i>(.75)</i>	.03	.32
BSI	0 (low)	T1	.56	(.33)	.50	(.43)	.29	.14
Psychological Distress	4 (high)	T2	.54	(.40)	.47	(.40)	.23	.18

Notes: Bold letters indicate significance at $p < .01$ and italic letters at $p < .05$.

* p for an independent intersample samples t test (NSP vs. SP)

** based on conservative computation (differences of means divided by larger SD).

LINEAR REGRESSION ANALYSIS

We used multivariate linear regression analysis (enter method) to model pathways from the prevalence data of exceptional experiences on mental distress in two separate but identical models. Thus, the beta path coefficients, pointing from the four predictive constructs to the Global Severity Index (GSI) of the BSI, were computed both for the SP and the NSP sample in separate models. To guarantee comparable models for both samples for the four factors of the EEQ, the predictors were fixed by the enter method. Additionally, each model was computed twice, as both time points of measurement for the BSI were analyzed as dependent variables. Results are depicted in Table 3.

The amount of variance explained by the two models as indicated by R^2 for both points of measurement is larger for the NSP sample (NSP: $t1$: 36%; $t2$: 27%; SP: $t1$: 7%; $t2$: 16%). The beta coefficients for positive spiritual experiences and visionary dream experiences were not significant for both samples. In contrast, experiences of ego loss and deconstruction showed significant beta coefficients only for the NSP sample ($\beta_{t1} = .52$; $\beta_{t2} = .39$). The respective coefficients in the SP sample were not significant. Additionally, we also found significant beta coefficients for psychopathological experiences for the second point of measurement both in the SP ($\beta_{t2} = .32$) and the NSP sample ($\beta_{t2} = .31$).

TABLE 3
MULTIVARIATE REGRESSION ANALYSIS (ENTER METHOD) PREDICTING MENTAL DISTRESS (GSI) FOR THE FOUR FACTORS OF THE EEQ,
IN SEPARATE MODELS FOR SP AND NSP SAMPLE (ENTER METHOD; N = 100 PER SAMPLE)

Predictor Variable	Measurement point for GSI	Spiritually Practicing Sample (SP)			Spiritually Nonpracticing Sample (NSP)		
		Adjusted R ² (F-statistic with corresponding p value)	β (standardized)	p	Adjusted R ² (F-statistic with corresponding p value)	β (standardized)	p
EEQ	T1	.065 ($F_{4,95} = 2.732; p = .03$)			0.359 ($F_{4,95} = 14.853; p < .01$)		
	T2	.156 ($F_{4,95} = 5.566; p < .01$)			0.267 ($F_{4,95} = 10.028; p < .01$)		
Positive Spiritual Experiences	T1		-.03	.83		-.14	.16
	T2		-.07	.57		-.11	.28
Deconstruction / Ego Loss	T1		.06	.63		.52	< .01
	T2		.18	.14		.39	< .01
Psychopathology	T1		.20	.13		.18	.06
	T2		.33	< .01		.31	.01
Visionary Dreams	T1		.15	.18		.11	.28
	T2		.05	.65		-.02	.84

Note: The respective regression constant is not reported.

DISCUSSION

In this paper, we have investigated the differences in means as well as the predictive impact of exceptional experiences at two points of measurement six months apart between two sociodemographically balanced samples of spiritually practicing and spiritually nonpracticing individuals. We could show that spiritually practicing subjects report more positive spiritual experiences, deconstructive experiences, and visionary dream experiences than do spiritually nonpracticing individuals. With regard to the predictive power of exceptional experiences on mental distress, applying regression analysis, we found no significant impact of positive spiritual experiences as well as visionary dream experiences for both samples. For psychopathological experiences a significant relationship was only found for the second point of measurement for both groups. This does not come as a surprise, because we did not collect data from a clinical sample. Nevertheless, a relationship between deconstructive spiritual experiences and psychological distress emerged for both points of measurement, but only in the spiritually nonpracticing sample. This could suggest that in nonclinical populations psychopathological experiences exert a time delayed impact on general distress, whereas experiences of ego loss, if the pathways are not suppressed by spiritual practice, are potentially able to exhibit an immediate effect on general distress.

These results suggest that the decisive effect of spiritual practice consists mainly in buffering the effect of threats to the integrity of the ego derived from experiences of ego loss, whereas the contribution of positive spiritual experiences per se seems less important. However, due to the fact that there was no significant difference in the mean score of a measure of distress (BSI) between the two samples, this finding does not allow for directly interpreting spiritual practice as a resilience factor against general distress, at least not in a sense of a causal factor. Nevertheless, our data reveal that the pathways to distress are different for spiritually practicing and nonpracticing individuals: The amount of variance explained by exceptional experiences in the spiritually practicing sample in distress is five times as much in the spiritually nonpracticing sample for t_1 and nearly twice as much for t_2 . It is thereby important to take into account that the beta weights of experiences of ego loss are essentially zero for the spiritually practicing group, thus indicating that there is no causality between experiences of ego loss and general distress in this group. However, if this finding is contrasted with the respective positive beta weights of the spiritually nonpracticing group, it becomes apparent that spiritually practicing individuals do not suffer distress from deconstructive experiences. Thus, instead of interpreting spiritual practice as a direct and causal resilience factor against negative spiritual experiences, our data rather suggest that lack of spiritual

practice could potentially be an important risk factor for suffering distress from experiences of ego loss.

This finding could be pivotal in understanding the psychological functioning of spiritual practice: First, due to regular spiritual practice, the frequency of both stabilizing but also potentially destabilizing exceptional experiences is increased. Although this seems to be paradoxical at first glance, most spiritual traditions do indeed acknowledge experiences of ego transformation and thus loss of former ego structures as necessary prerequisites for spiritual development. Within spiritual frameworks such experiences are interpreted as temporary states of unpleasant but purposeful affliction that actually lead to change and hence lasting relief. Moreover, numerous forms of spiritual techniques aim at voluntarily emptying the mind of thoughts, emotions, memories or images which normally constitute our ego personality. Hence one could assume that spiritually practicing individuals seem to be particularly able to make more sense out of their deconstructive experiences that are part and parcel of the changing pattern of life. To give one example, the spiritual experience of universal connectedness could potentially be experienced either as utter dread of ego dissolution or as gratifying experience of ego extension, depending on the individual reference system. We have shown elsewhere that subjects with lack of spiritual practice evaluate positive and negative spiritual experiences more negatively and thus we hypothesize that they thereby suffer more distress from them (Kohls & Walach, 2006). Thus, as experiences of ego loss and deconstruction become apparently less threatening and more easily integrated, spiritual practice should be construed as the art of detachment such that the pathways from experiences of ego loss on distress are suppressed.

This mechanism has not been recognized up to now, and this might be the reason why other studies and the general psychiatric lore normally lump together all sorts of deconstructive and psychopathological experiences into a realm of the psychologically suspect. Our data prompt us to suggest that this is both scientifically unsound and factually misleading. Clearly, the distress-annihilating effects of spiritual practice on experiences of ego loss ought to be studied more widely.

It should be borne in mind that spiritual practice, as we operationalized it, is independent of any particular religious denomination and religious belief. One could even imagine spiritual practice without religious belief although in reality this might be rare. Since the distress-invalidating effect of spiritual practice on deconstructive experiences probably arises as a consequence of regular spiritual exercise, this finding opens a new venue of research; the impact, effect and nature of spiritual experiences themselves and the moderating role of spiritual practice.

Our study has some limitations which should not be overlooked: First of all, we did not recruit a representative sample of the population. Since we hypothesized that we would need subjects explicitly interested in spirituality, in order to be able to contrast the impact of spiritual practice with the situation in subjects without such a practice, we opted for recruitment within compartments of the population and thus we had to rely on ad hoc volunteer samples. The next step would be to replicate the results in a large representative population sample. In the same vein it would be necessary to study populations with a lower educational level as well as clinical populations. Additionally it would also be of interest to study individuals with a nontheistic background, such as Buddhism, Hinduism or Taoism. However, the individuals in this study had a mainly Christian background, although the majority of the spiritually practicing groups were engaged in non-Christian forms of spiritual and meditative practice, such as Zen, Yoga or Qi-gong. Thus, subsample analyses between theistic and nontheistic forms of spiritual practice were not feasible. However, although we pragmatically decided to employ a broad definition of “spiritual practice”, we acknowledge that a more precise criterion of spiritual practice or even a graded variable allowing for the analysis of dose-effects would be desirable in future studies.

Additionally we had to rely on a nonexperimental design for intrinsic reasons, as spiritual practice cannot be easily manipulated as variable. Thus we were naturally not able to control for all confounding variables although we applied post hoc controlling for sociodemographic variables. The “nearest-neighbor sample matching” procedure using propensity scores can help mitigate this selection bias, but does not replace true experimental designs. However, when considering this one should keep in mind that the benefits of controlling for confounders by randomization are normally only reaped in samples well over several hundred and that for our purposes the propensity score method is probably the best compromise between rigor and external validity. The downside of post hoc controlling the two samples with regard to sociodemographic parameters was a substantial reduction of the sample size. However, including the 100 best matching cases per sample appeared to effect a compromise between suitably controlling for sociodemographic parameters and simultaneously retaining an acceptable sample size.

Moreover, the data we derived from a longitudinal design suggest a causal impact of spiritual practice on mental health moderated by exceptional experiences. One could also assume that psychologically more distressed subjects encounter more exceptional experiences as a consequence. However, we were able to refute this hypothesis by computing a time reversed regression model. Here exceptional experiences data for the second measurement point,

were entered to predict psychological distress at the first point of measurement. Although the final model was significant for both samples, it had less explanatory power than the default model for both samples. Thus, the causal pathway seems to be rather from experiences to distress than the other way round. Nevertheless, we acknowledge the fact that to investigate the effects of spiritual practice on the frequency and evaluation of exceptional experiences directly, controlled longitudinal trials with baseline matching that introduce spiritual practice as a treatment variable are necessary.

To sum up, we believe that the strengths of this study – the sociodemographically balanced samples and the longitudinal design, as well as the good psychometric properties of the instruments used – outweigh weaknesses and allow us to draw a valid, albeit tentative, conclusion: Regular spiritual practice seems to suppress the pathways of experiences of ego loss towards distress. Correspondingly, lack of spiritual practice could be conceived to be an important risk factor for psychological distress for those individuals with increased experiences of ego loss. It is thereby noteworthy to recall that our participants experienced distress at a subclinical threshold and thus were possibly not affected by experiences of ego loss, as indicated by the nonsignificant group difference in the level of distress. However, for individuals who are prone to encounter experiences of ego loss, such as individuals coping with hardships like chronic pain or recurrently depressed patients, spiritual or meditative practice could potentially be a preventative rather than a therapeutic intervention (Segal, Williams, & Teasdale, 2002).

As a consequence, we suggest that a priori pathologizing, or even ignoring exceptional or spiritual experiences, of clients should be avoided. Instead, our analysis clearly shows that for understanding the intrapersonal effects of spiritual practice, two things are crucial: First, one has to distinguish between experiences of ego loss and psychopathological experiences. Second, in addition to exploring direct resilience effects derived from spiritual practice, it is also illuminative to contrast the pathways to distress for sociodemographically balanced samples of spiritually practicing and nonpracticing individuals, in order to unveil the concealed effects of spiritual practice. Thus, if our findings are replicated, we actually could have made a beginning to establishing a hitherto overlooked risk factor for distress: lack of spiritual practice.

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